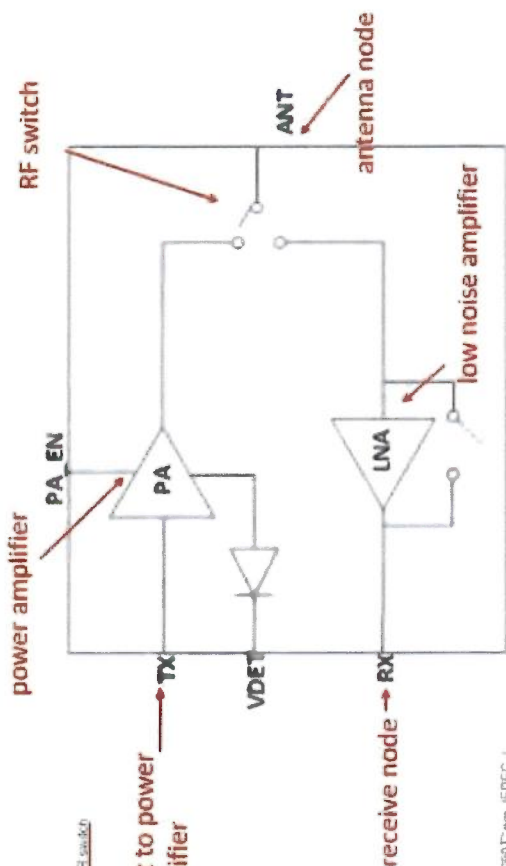
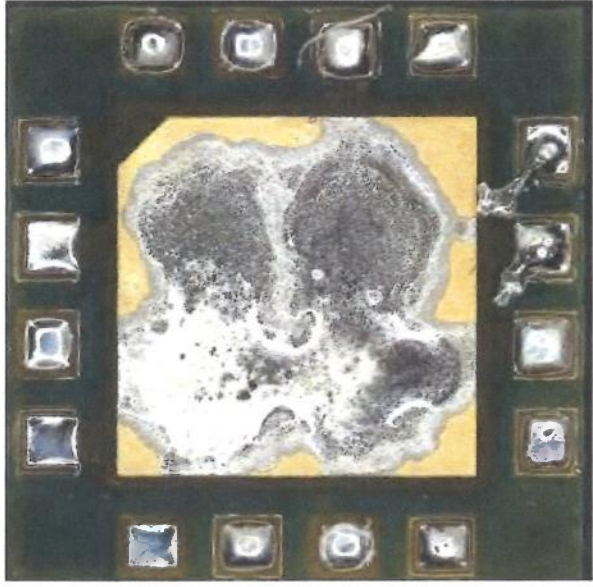


Claim	KCT8539S
	For example, the KCT8539S has an RF switch (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals.⁴ The KCT product description describes the switch as a “T/R switch” (indicated by the red underlining in the text below). The figure below also shows the power amplifier (indicated by the corresponding red arrow below), the antenna node (indicated by the corresponding red arrow below), the receive node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the corresponding red arrow below). Specifications <u>Integrated 302.11m 5GHz PA, LNA with broasis and 1-R switch</u> Fully-matched input and output Integrated power detector Transmit gain 30dB at 5V Receive gain 14dB at 5V Noise Figure 2.8dB at 5V Output power +17dBm @ 43dB DEVM HE160/MCS11 5V +20dBm @ 40dB DEVM HE160/MCS11 5V +21.5dBm @ 34dB DEVM VHT-BUMCS9 5V +22.5dBm @ 30dB DEVM HT20/MCS7 5V ESD protection circuitry on all I/Os Minimal external components required Small package: LGA-16L 3mmx3mmx0.85mm (MSL3 260 C on JEDEC J-STD-020) RoHS and REACH Compliant 

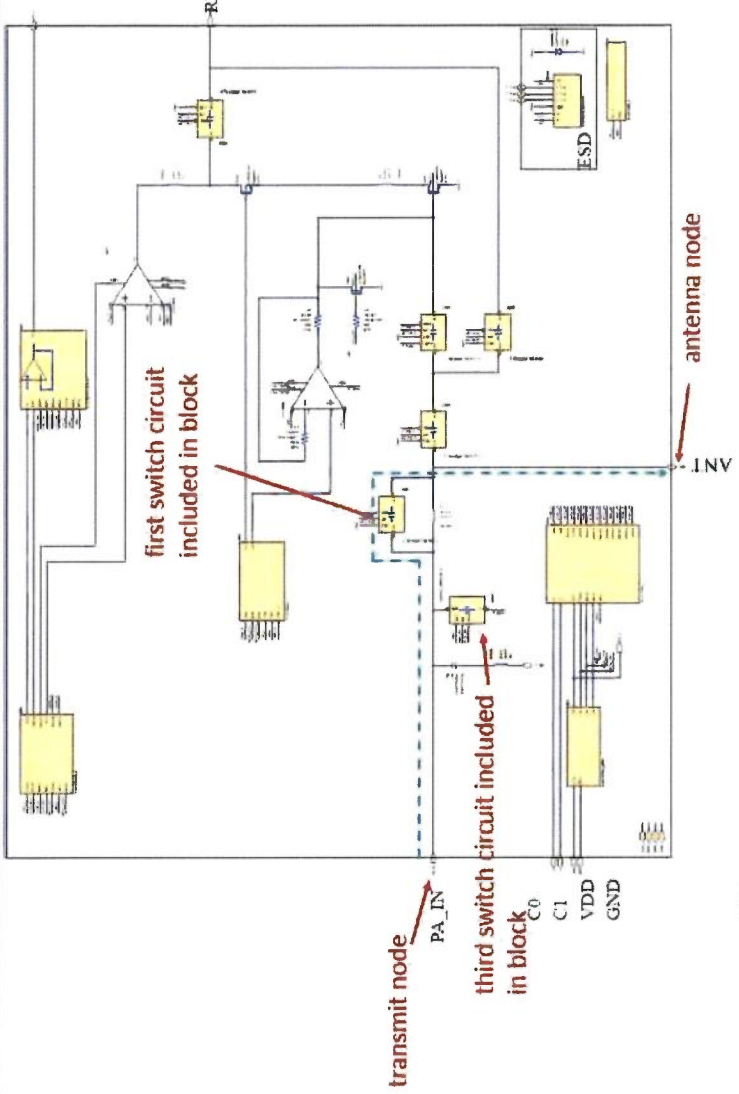
⁴ See <https://perma.cc/DA7F-4CED>.

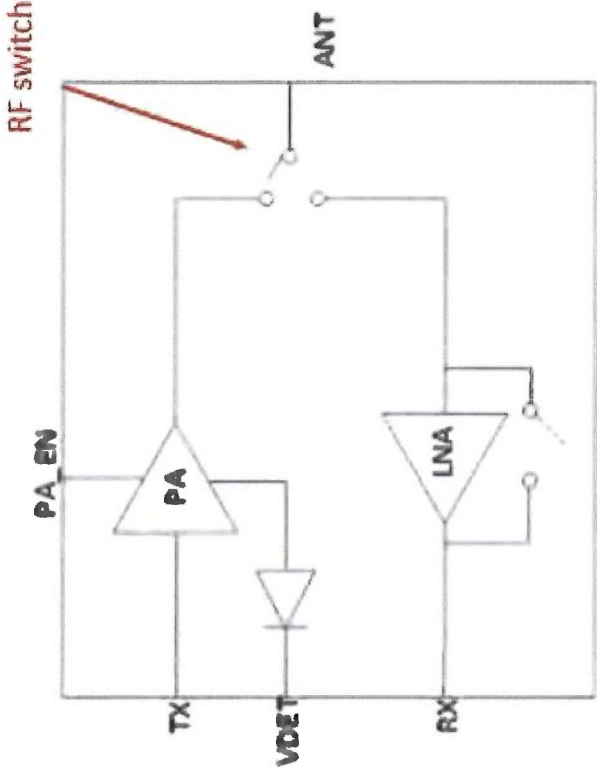
Claim	KCT8539S For example, the photos below show the exterior of the KCT8539S device die package, front (left) and back (right).   See, e.g. photo of the KCT8539S product, exterior of package, front (left) and back (right).
7[A] providing an RF device including a first switch circuit connected between an antenna node and a transmit node, a second switch circuit connected between the antenna node and a receiver node, a first capacitor connected in series with the first switch circuit and the antenna node, a second capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node, and a first shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground. See <i>also</i>, claims 1[pre]-1[F], 7[pre].	The KCT8539S provides an RF device including a first switch circuit connected between an antenna node and a transmit node, a second switch circuit connected between the antenna node and a receiver node, a first capacitor connected in series with the first switch circuit and the antenna node, a second capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node, and a first shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground. See <i>also</i>, claims 1[pre]-1[F], 7[pre].

Claim	KCT8539S
circuit connected between the antenna node and a receiver node, a first capacitor connected in series with the first switch circuitry between the first switch circuit and the antenna node, a second capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node, and a first shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground;	

Claim	KCT8539S
7[B] controlling an RF switch of the RF device by placing the first switch circuit in an ON state and placing the third switch circuit in an OFF state;	The KCT8539S controls an RF switch of the RF device by placing the first switch circuit in an ON state and placing the third switch circuit in an OFF state. For example, the KCT8539S has an RF switch (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals.⁵ The KCT product description describes the switch as a “T/R switch” (indicated by the red underlining in the text below). The figure below also shows the power amplifier (indicated by the corresponding red arrow below), the antenna node (indicated by the corresponding red arrow below), the receive node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the corresponding red arrow below).

⁵ See <https://perma.cc/DA7F-4CED>.

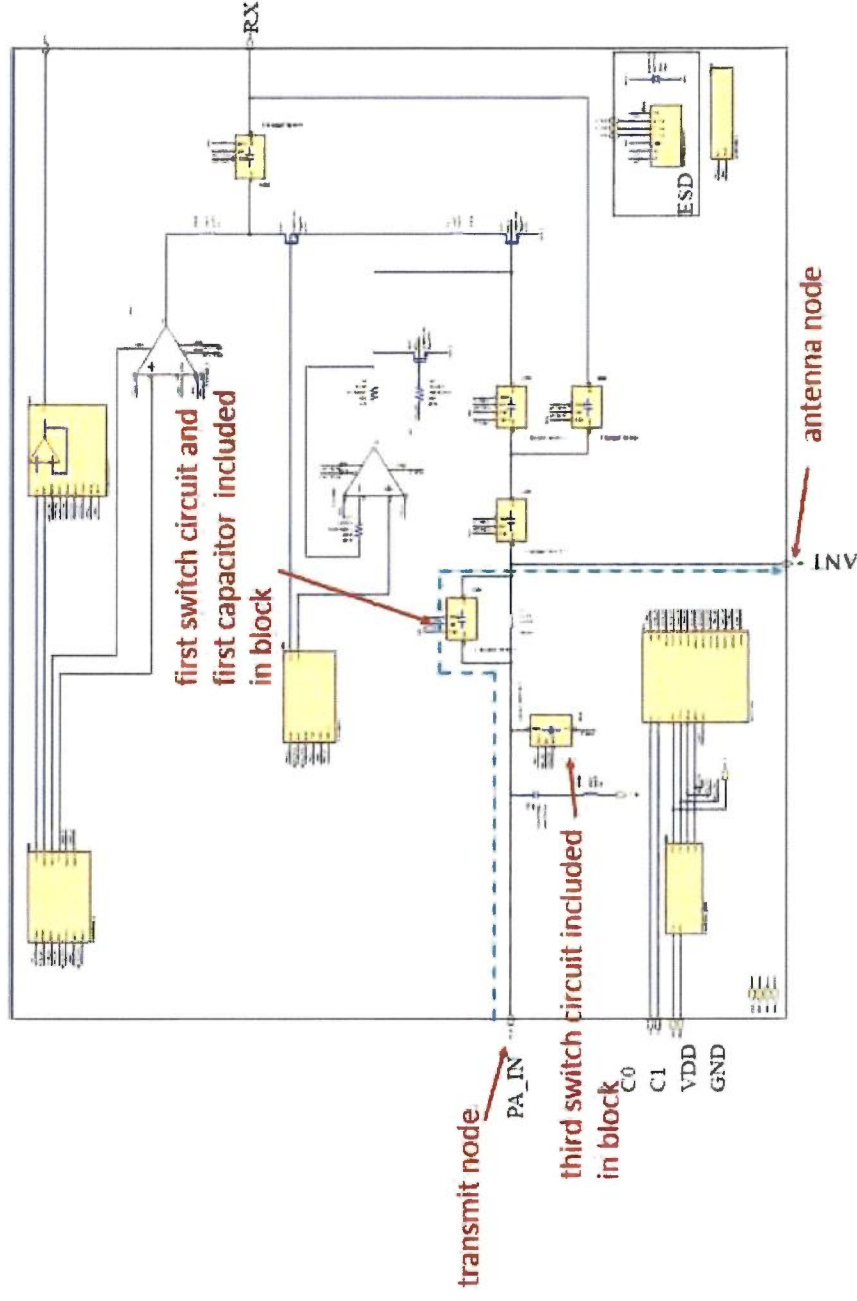
Claim	KCT8539S
7[C] inhibiting a low-frequency blocker signal from mixing with	 The schematic diagram illustrates the internal circuitry of the KCT8539S. Key components and nodes are labeled: transmit node: Indicated by a red arrow pointing to the PA_IN node. third switch circuit included in block: A dashed blue box encloses a switch circuit connected to the PA_IN node. first switch circuit included in block: A red arrow points to a switch circuit located between the antenna node and the RX input. antenna node: Indicated by a red arrow pointing to the ANT node. ESD: Electrostatic Discharge protection components are shown at the top right. Other components: Various capacitors (C0, C1), a VDD supply, and a GND connection are also depicted. See, e.g., reverse engineered circuit schematic of the KCT8539S product's low noise amplifier die, identifying the antenna node, first capacitor, first switch circuit, third switch circuit, and transmit node. See also, claim 7[pre].
7[C] inhibiting a low-frequency blocker signal from mixing with	The KCT8539S inhibits a low-frequency blocker signal from mixing with a fundamental-frequency signal in the RF switch using the first capacitor.

Claim a fundamental-frequency signal in the RF switch using the first capacitor.	KCT8539S For example, during use, the first capacitor inhibits a low frequency blocker signal from mixing with a fundamental frequency signal in the RF switch (indicated by the corresponding red arrow below).  The diagram is a simplified block diagram of the KCT8539S. It shows a TX (transmit) input connected to a PA (power amplifier) block. The PA block has a PA_EN (power amplifier enable) input and a VDET (voltage detector) output. The VDET output is connected to an LNA (low noise amplifier) block. The LNA block has an RX (receive) input and an ANT (antenna) output. A red arrow points to the first capacitor node between the antenna and the LNA. A red arrow points to the first capacitor node between the antenna and the LNA. A red arrow points to the first capacitor node between the antenna and the LNA. See, e.g., KCT8539S simplified block diagram, https://perma.cc/DA7F-4CED. For example, in the KCT8539S, the positioning of the first capacitor (indicated by the corresponding red arrow pointing to the corresponding block below) between the antenna node (indicated by the corresponding red arrow below) and the first switch circuit (indicated by the corresponding arrow pointing to the corresponding block below) performs this function. The first capacitor filters the low frequency signal because the low frequency signal, in contrast to a high frequency signal, allows the capacitor time to charge. This charging process stops the low
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Claim

KCT8539S

frequency signal from continuing along the signal path during transmission (indicated by the green dashed line below).



See, e.g., reverse engineered circuit schematic of the KCT8539S product's low noise amplifier die, identifying the antenna node, first capacitor, first switch circuit, third switch circuit, and transmit node.

Claim

For example, in this expanded view of the block containing the first capacitor and first switch circuit, the first capacitor (indicated by the corresponding red arrow below) is between the antenna node (indicated by the corresponding red arrow below) and the first switch circuit (indicated by the corresponding red bracket below).

The diagram shows a detailed circuit for a first switch circuit. It starts with an antenna node connected to a capacitor (labeled 'first capacitor' with a red arrow). This is followed by a series of components: a resistor (R1), a switch (S1), a capacitor (C1), a resistor (R2), a switch (S2), a capacitor (C2), and a resistor (R3). The circuit is powered by a 1.8V source and includes various passive components like resistors and capacitors with specific values and tolerances. Red annotations highlight the 'To antenna node', 'first capacitor', and 'first switch circuit'.

Claim	KCT8539S
	See, e.g., reverse engineered circuit schematic of the KCT8539S product showing the first switch circuit and first capacitor on the low noise amplifier die.

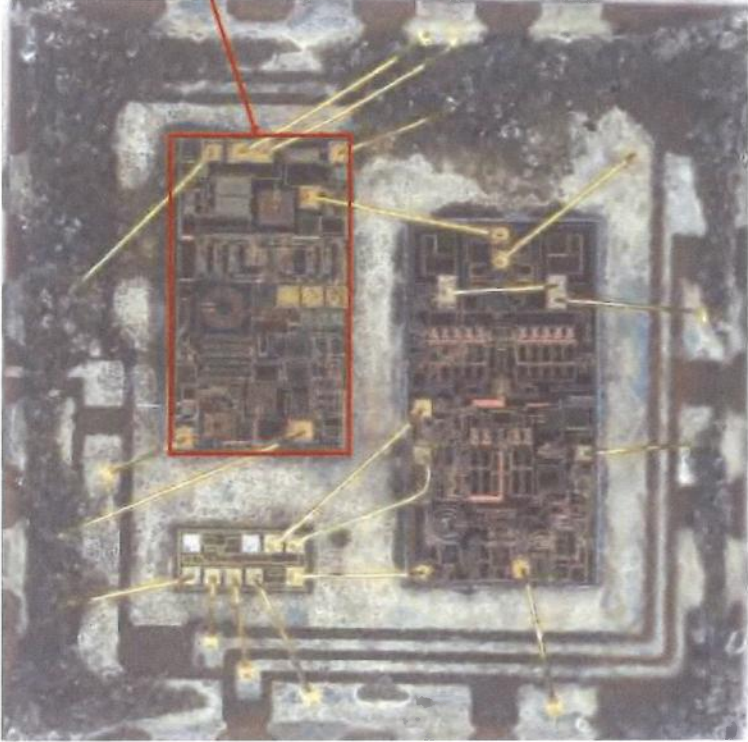
EXHIBIT 21

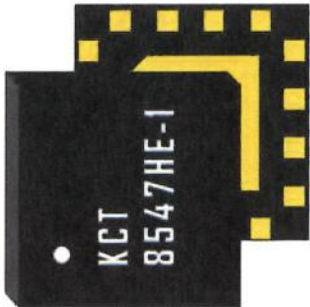
EXHIBIT 21
SKYWORKS SOLUTIONS, INC.'S INFRINGEMENT CHART
KCT8547HE
U.S. Patent No. 9,450,579
Independent Claims 1 and 7

Skyworks Solutions, Inc. ("Skyworks") provides this exemplary claim chart for independent claims 1 and 7 of U.S. Patent No. 9,450,579 (the "'579 patent") applied to Kangxi Communication Technologies (Shanghai) Co., Ltd.'s and Grand Chip Labs, Inc.'s (collectively, "KCT") KCT8547HE product. The disclosures in this claim chart directed to the KCT8547HE are also more broadly directed to any sale, offer for sale, use, or importation of the KCT8547HE in the U.S., including in an end product such as a wireless router or as a standalone product that is not incorporated in an end product.

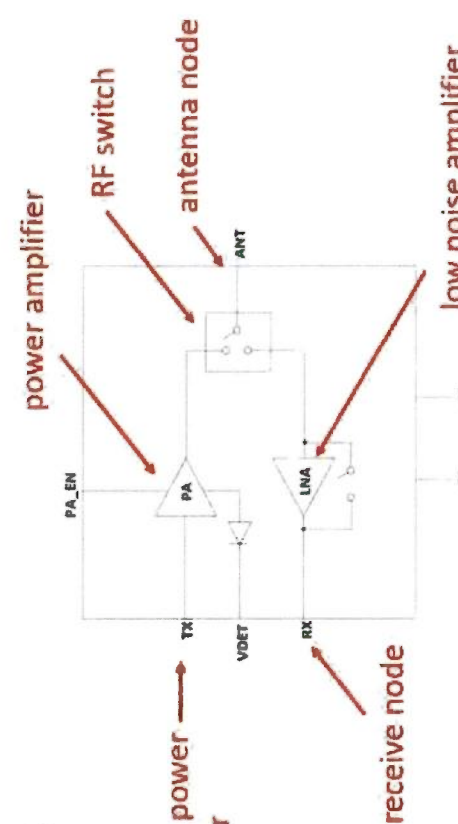
The claim chart below demonstrates infringement by comparing each element of the charted claims to corresponding components, aspects, and/or features of the KCT8547HE product. This claim chart is not intended to constitute an expert report on infringement. This claim chart includes information provided by way of example, and not by way of limitation.

The analysis set forth below is based only upon information from publicly available sources regarding the KCT8547HE product. Further analysis of non-public information during fact discovery will likely assist in identifying all infringing features and functionalities used by KCT in the KCT8547HE product. Accordingly, Skyworks reserves the right to supplement this infringement analysis once such information is made available to Skyworks. Further, Skyworks reserves the right to supplement this infringement analysis, as appropriate, upon issuance of an order construing any terms recited in the asserted claims or as other circumstances so merit.

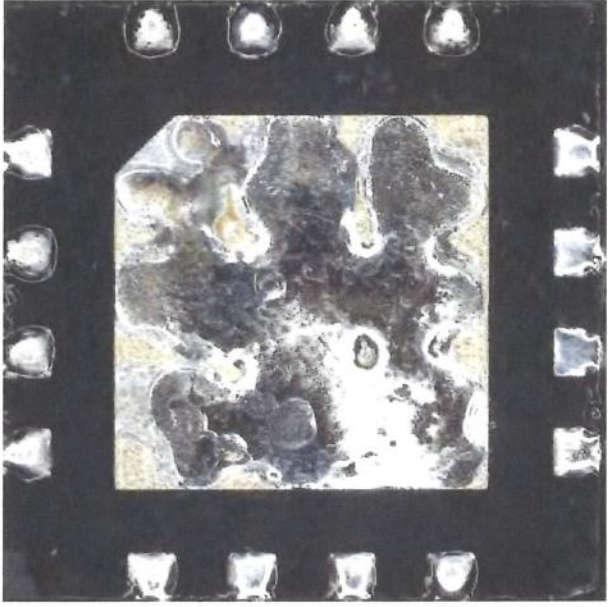
Claim	KCT8547HE
1[pre] A semiconductor die comprising:	To the extent that the preamble is limiting, the KCT8547HE comprises a semiconductor die. For example, the KCT8547HE has a semiconductor die, highlighted by the red box below.  A micrograph of a semiconductor die. A red rectangular box highlights a central region of the die. Several yellow lines with circular endpoints point to various features on the die, including the highlighted region and other peripheral structures. A red label 'semiconductor die' is positioned above the red box, with a red line pointing to it. See, e.g., photo of the KCT8547HE product identifying the semiconductor die.

Claim	KCT8547HE
	For example, the KCT8547HE product description below states that the KCT8547HE is an “RF Front-end Module” that is a “highly integrated RF Front-End Integrated Circuit incorporat[ing] key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range.”¹  KCT8547HE-1 5GHz Mid Power 802.11ax RF Front-end Module Introduction KCT8547HE-1 is a highly integrated RF Front-End Integrated Circuit incorporates <u>key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range</u>. KCT8547HE-1 integrates a high-efficiency high-linearity power amplifier (PA), a low noise amplifier (LNA) with bypass, the associated matching network and harmonic filters all in one device. KCT8547HE-1 has simple and low-voltage control logic, and requires minimal external components. A power detector is also integrated for accurately monitoring of output power from the PA. KCT8547HE-1 is assembled in a compact, low-profile 3x3x0.55mm 16-lead MIS package. KCT8547HE-1 is the ideal RF front-end solution for implementing 5GHz high-power WLAN systems supporting multiple standards including 802.11a/n/ac/ax. See, e.g., KCT8547HE product description, https://perma.cc/GV2Y-HD8A.

¹ See <https://perma.cc/GV2Y-HD8A>.

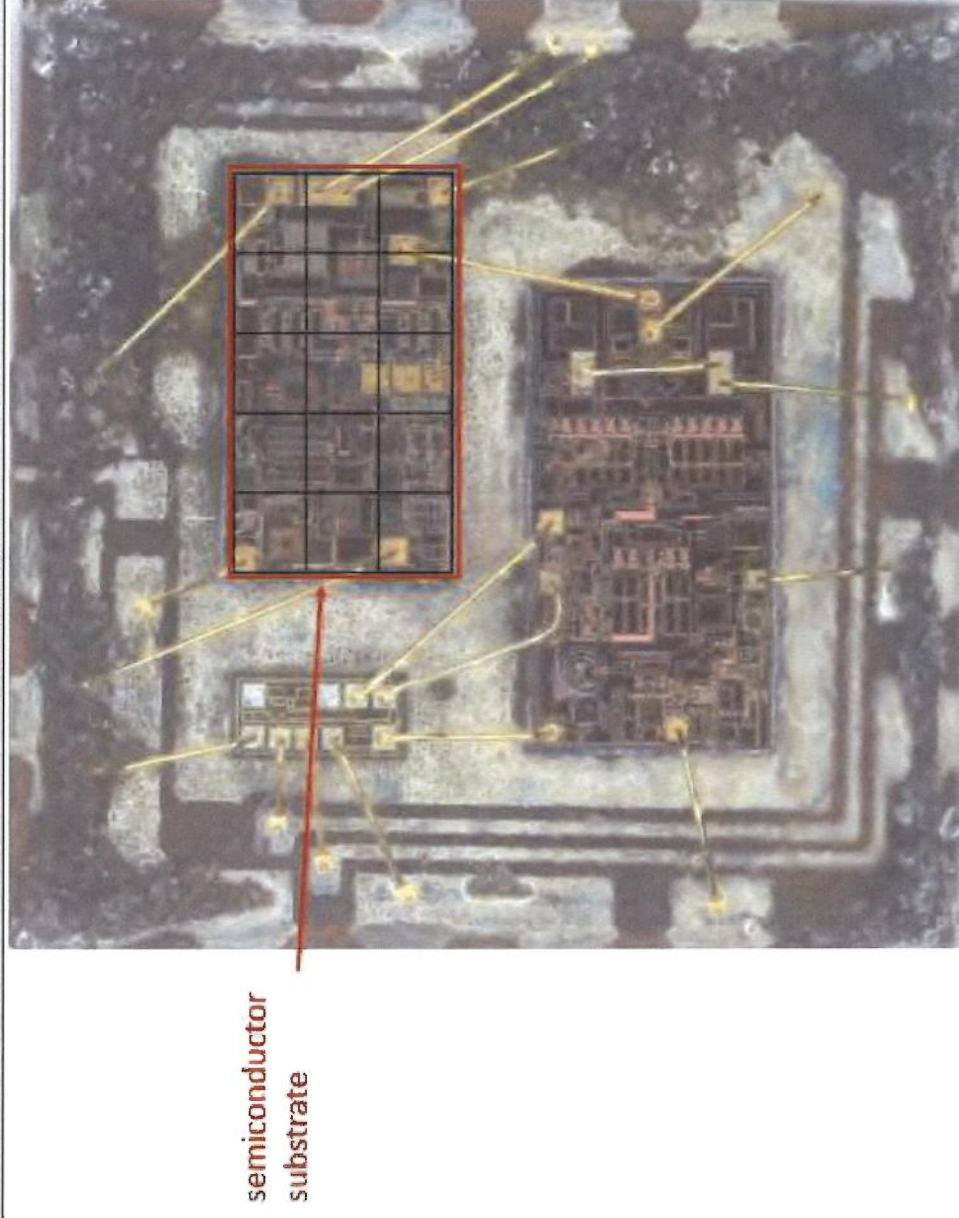
Claim	KCT8547HE
	For example, the KCT8547HE has an RF switch (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals.² The KCT product description describes the switch as a “T/R switch” (indicated by the red underlining in the text below). The figure below also shows the power amplifier (indicated by the corresponding red arrow below), the antenna node (indicated by the corresponding red arrow below), the receive node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the corresponding red arrow below). Specifications <u>Integrated 802.11ax 5GHz PA, LNA with bypass and T/R switch</u> Fully-matched input and output Integrated power detector Transmit gain: 29dB at 5V Receive gain: 16dB at 5V Noise Figure: 1.6dB at 5V Output power: +17dBm @ -43dB EVM, HET60/MCS11, 5V +19dBm @ -40dB EVM, HE160/MCS11, 5V +20.5dBm @ -35dB EVM, VHT80/MCS9, 5V +21.5dBm @ -30dB EVM, HT20/MCS7, 5V Integrated 2.4GHz Notch Filter ESD protection circuitry on all pins Simplified external components required Small package: M1S-16L 3mm x 3mm x0.55mm MSL1, 260°C per JEDEC J-STD-020 RoHS and REACH compliant 

² See <https://perma.cc/GV2Y-HD8A>.

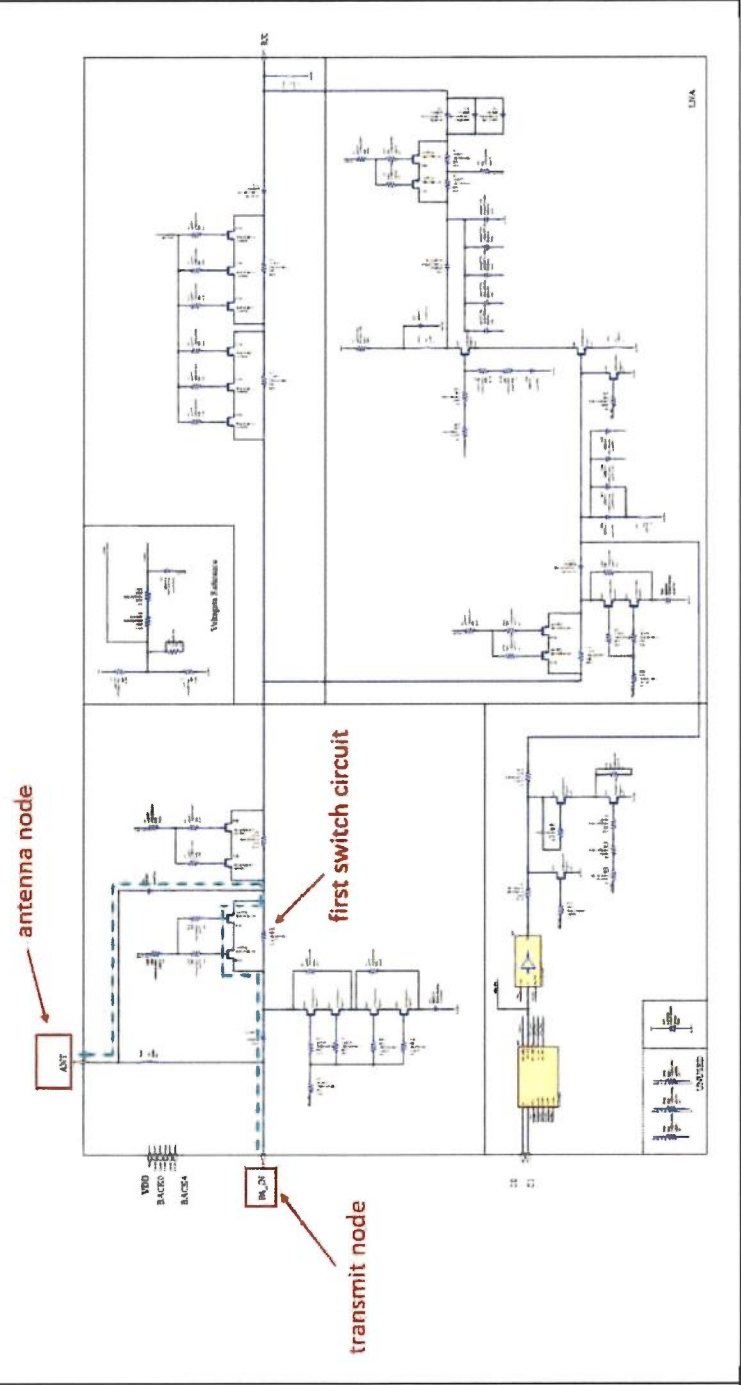
Claim	KCT8547HE
	See, e.g., KCT8547HE product description and simplified block diagram, https://perma.cc/CV2Y-HD8A. For example, the photos below show the exterior of the KCT8547HE device die package, front (left) and back (right).   See, e.g. photo of the KCT8547HE product, exterior of package, front (left) and back (right).
1[A] a semiconductor substrate;	The KCT8547HE comprises a semiconductor substrate. For example, a semiconductor substrate for the KCT8547HE (indicated by black grid lines below) is the material upon which the devices on the die are fabricated.

Claim

KCT8547HE

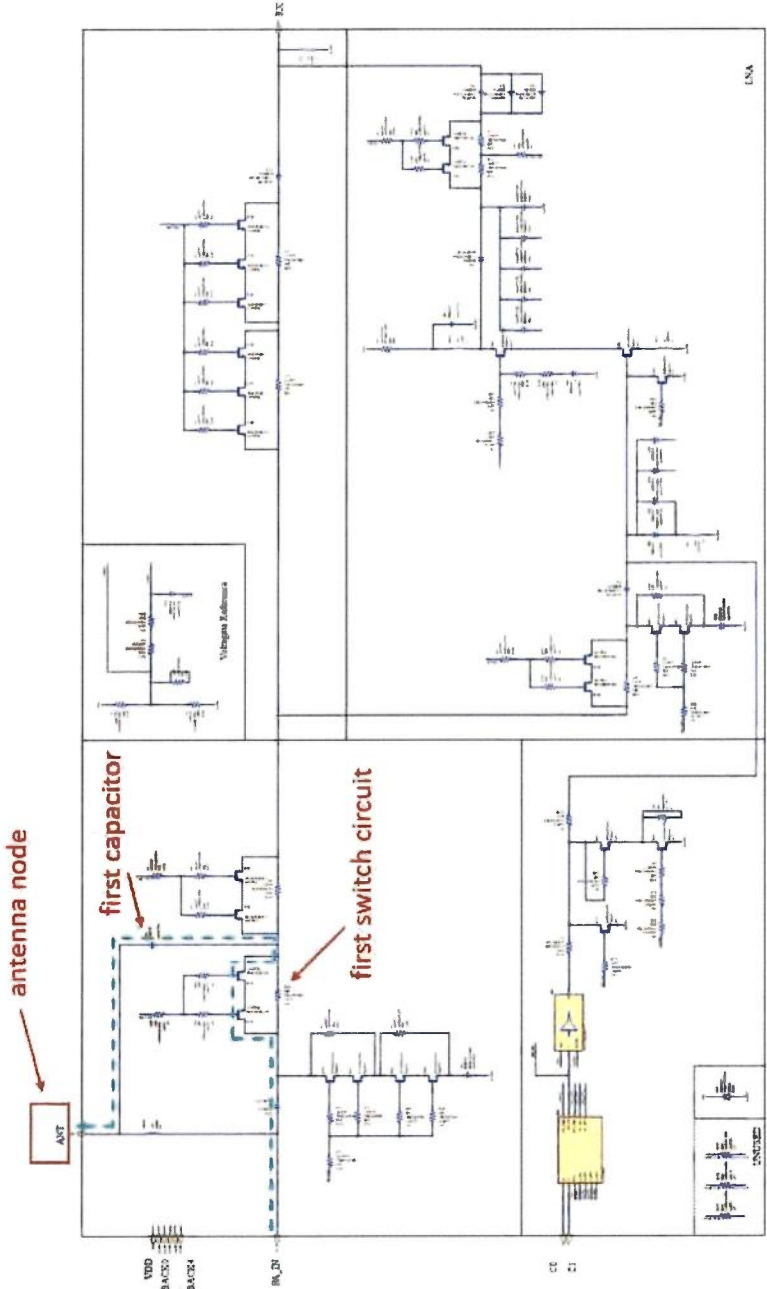


See, e.g., photo of the KCT8547HE product, annotated to show the location of the semiconductor substrate.

Claim	KCT8547HE
1[B] a first switch circuit formed on the semiconductor substrate connected between an antenna node and a transmit node;	The KCT8547HE comprises a first switch circuit formed on the semiconductor substrate connected between an antenna node and a transmit node. For example, in the KCT8547HE, the first switch circuit (identified by the corresponding red arrow below) is connected between the antenna node (“ANT,” highlighted by the red box) and the transmit node (“PA IN,” highlighted by the red box). In transmit mode, the signal path from the transmit node, through the first switch circuit, and to the antenna node is shown by the dashed green line below. The first switch circuit is formed on the semiconductor substrate. 

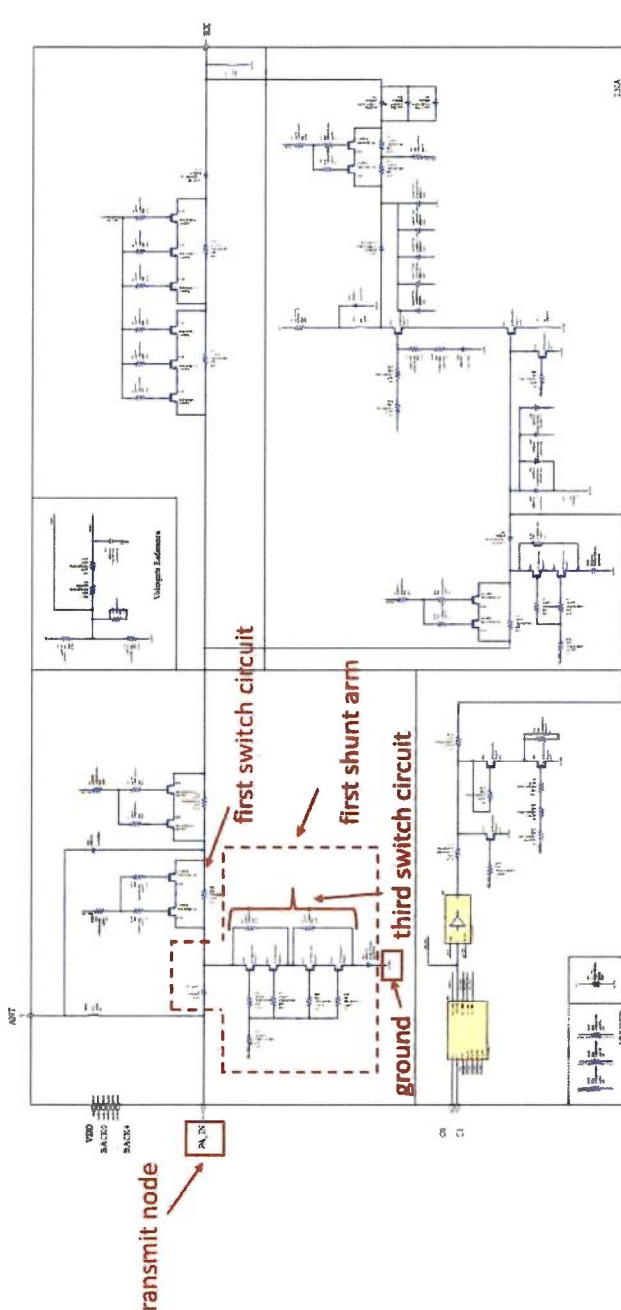
Claim	KCT8547HE
	See, e.g., reverse engineered circuit schematic of the KCT8547HE product's low noise amplifier die, annotated to show the location of a first switch circuit, transmit node, and antenna node. See also, 1[pre]-1[A].
1[C] a second switch circuit formed on the semiconductor substrate and connected between the antenna node and a receive node;	The KCT8547HE comprises a second switch circuit formed on the semiconductor substrate and connected between the antenna node and a receive node. For example, in the KCT8547HE, the second switch circuit (indicated by the corresponding red arrow below) is connected between the antenna node ("ANT," highlighted by the red box) and the receive node ("RX," highlighted by the corresponding red box below). In receive mode, the approximate signal path from the antenna node (ANT) to the receive node (RX) through the low noise amplifier (LNA) (indicated by the corresponding red arrow below) is shown by the purple dashed line in the figure below. The second switch circuit is formed on the semiconductor substrate.

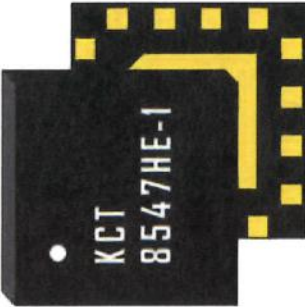
Claim	KCT8547HE
	The schematic diagram illustrates the internal circuitry of the KCT8547HE. It features a central horizontal line representing a common signal path. On the left, a block labeled 'antenna node' is connected to this path. On the right, a block labeled 'receive node' is connected. Below the central path, there are two main functional blocks: an 'LNA' (Low Noise Amplifier) and a 'second switch circuit'. The LNA block contains a complex network of transistors and capacitors, with a red arrow pointing to it from the label 'LNA'. The second switch circuit is located to the right of the LNA and includes a red arrow pointing to it from the label 'second switch circuit'. Various other components like capacitors, inductors, and resistors are distributed throughout the circuit. A legend at the bottom right indicates 'UNTESTED' and 'TESTED' components. The text 'See, e.g., reverse engineered circuit schematic of the KCT8547HE product's low noise amplifier die, annotated to show the location of a second switch circuit, receive node, low noise amplifier (LNA), and antenna node.' is present, along with the reference 'See also, 1 pre]-1[A].'
1[D] a first capacitor formed on the semiconductor substrate and	The KCT8547HE comprises a first capacitor formed on the semiconductor substrate and connected in series with the first switch circuit between the first switch circuit and the antenna node. For example, in the KCT8547HE, the first capacitor (indicated by the corresponding red arrow below) is formed on the semiconductor substrate and is connected in series with the first switch circuit (indicated by the corresponding

Claim	KCT8547HE
connected in series with the first switch circuit between the first switch circuit and the antenna node;	red arrow below). The approximate signal path during transmit mode is shown by the green dashed line in the figure below. In addition, the first capacitor is located between the first switch circuit and the antenna node (ANT) (indicated by the corresponding red arrow below).  The schematic diagram illustrates the internal circuitry of the KCT8547HE. Key components and their connections include: ANT (Antenna Node): Indicated by a red box and a red arrow pointing to the input of the first capacitor. first capacitor: A capacitor component located between the ANT and the first switch circuit, indicated by a red arrow. first switch circuit: A circuit block containing multiple transistors and capacitors, indicated by a red arrow. ENA (Error Noise Amplifier): A large block on the right side of the schematic, representing the low noise amplifier die. Other components: Various capacitors (e.g., C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100, C101, C102, C103, C104, C105, C106, C107, C108, C109, C110, C111, C112, C113, C114, C115, C116, C117, C118, C119, C120, C121, C122, C123, C124, C125, C126, C127, C128, C129, C130, C131, C132, C133, C134, C135, C136, C137, C138, C139, C140, C141, C142, C143, C144, C145, C146, C147, C148, C149, C150, C151, C152, C153, C154, C155, C156, C157, C158, C159, C160, C161, C162, C163, C164, C165, C166, C167, C168, C169, C170, C171, C172, C173, C174, C175, C176, C177, 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C1007, C1008, C1009, C1010, C1011, C1012, C1013, C1014, C1015, C1016, C1017, C1018, C1019, C1020, C1021, C1022, C1023, C1024, C1025, C1026, C1027, C1028, C1029, C1030, C1031, C1032, C1033, C1034, C1035, C1036, C1037, C1038, C1039, C1040, C1041, C1042, C1043, C1044, C1045, C1046, C1047, C1048, C1049, C1050, C1051, C1052, C1053, C1054, C1055, C1056, C1057, C1058, C1059, C1060, C1061, C1062, C1063, C1064, C1065, C1066, C1067, C1068, C1069, C1070, C1071, C1072, C1073, C1074, C1075, C1076, C1077, C1078, C1079, C1080, C1081, C1082, C1083, C1084, C1085, C1086, C1087, C1088, C1089, C1090, C1091, C1092, C1093, C1094, C1095, C1096, C1097, C1098, C1099, C1100, C1101, C1102, C1103, C1104, C1105, C1106, C1107, C1108, C1109, C1110, C1111, C1112, C1113, C1114, C1115, C1116, C1117, C1118, C1119, C1120, C1121, C1122, C1123, C1124, C1125, C1126, C1127, C1128, C1129, C1130, C1131, C1132, C1133, C1134, C1135, C1136, C1137, C1138, C1139, C1140, C1141, C1142, C1143, C1144, C1145, C1146, C1147, C1148, C1149, C1150, C1151, C1152, C1153, C1154, C1155, C1156, C1157, C1158, C1159, C1160, C1161, C1162, C1163, C1164, C1165, C1166, C1167, C1168, C1169, C1170, C1171, C1172, C1173, C1174, C1175, C1176, C1177, C1178, C1179, C1180, C1181, C1182, C1183, C1184, C1185, C1186, C1187, C1188, C1189, C1190, C1191, C1192, C1193, C1194, C1195, C1196, C1197, C1198, C1199, C1200, C1201, C1202, C1203, C1204, C1205, C1206, C1207, C1208, C1209, C1210, C1211, C1212, C1213, C1214, C1215, C1216, C1217, C1218, C1219, C1220, C1221, C1222, C1223, C1224, C1225, C1226, C1227, C1228, C1229, C1230, C1231, C1232, C1233, C1234, C1235, C1236, C1237, C1238, C1239, C1240, C1241, C1242, C1243, C1244, C1245, C1246, C1247, C1248, C1249, C1250, C1251, C1252, C1253, C1254, C1255, C1256, C1257, C1258, C1259, C1260, C1261, C1262, C1263, C1264, C1265, C1266, C1267, C1268, C1269, C1270, C1271, C1272, C1273, C1274, C1275, C1276, C1277, C1278, C1279, C1280, C1281, C1282, C1283, C1284, C1285, C1286, C1287, C1288, C1289, C1290, C1291, C1292, 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C1865, C1866, C1867, C1868, C1869, C1870, C1871, C1872, C1873, C1874, C1875, C1876, C1877, C1878, C1879, C1880, C1881, C1882, C1883, C1884, C1885, C1886, C1887, C1888, C1889, C1890, C1891, C1892, C1893, C1894, C1895, C1896, C1897, C1898, C1899, C1900, C1901, C1902, C1903, C1904, C1905, C1906, C1907, C1908, C1909, C1910, C1911, C1912, C1913, C1914, C1915, C1916, C1917, C1918, C1919, C1920, C1921, C1922, C1923, C1924, C1925, C1926, C1927, C1928, C1929, C1930, C1931, C1932, C1933, C1934, C1935, C1936, C1937, C1938, C1939, C1940, C1941, C1942, C1943, C1944, C1945, C1946, C1947, C1948, C1949, C1950, C1951, C1952, C1953, C1954, C1955, C1956, C1957, C1958, C1959, C1960, C1961, C1962, C1963, C1964, C1965, C1966, C1967, C1968, C1969, C1970, C1971, C1972, C1973, C1974, C1975, C1976, C1977, C1978, C1979, C1980, C1981, C1982, C1983, C1984, C1985, C1986, C1987, C1988, C1989, C1990, C1991, C1992, C1993, C1994, C1995, C1996, C1997, C1998, C1999, C2000, C2001, C2002, C2003, C2004, C2005, C2006, C2007, C2008, C2009, C2010, C2011, C2012, C2013, C2014, C2015, C2016, C2017, C2018, C2019, C2020, C2021, C2022, C2023, C2024, C2025, C2026, C2027, C2028, C2029, C2030, C2031, C2032, C2033, C2034, C2035, C2036, C2037, C2038, C2039, C2040, C2041, C2042, C2043, C2044, C2045, C2046, C2047, C2048, C2049, C2050, C2051, C2052, C2053, C2054, C2055, C2056, C2057, C2058, C2059, C2060, C2061, C2062, C2063, C2064, C2065, C2066, C2067, C2068, C2069, C2070, C2071, C2072, C2073, C2074, C2075, C2076, C2077, C2078, C2079, C2080, C2081, C2082, C2083, C2084, C2085, C2086, C2087, C2088, C2089, C2090, C2091, C2092, C2093, C2094, C2095, C2096, C2097, C2098, C2099, C2100, C2101, C2102, C2103, C2104, C2105, C2106, C2107, C2108, C2109, C2110, C2111, C2112, C2113, C2114, C2115, C2116, C2117, C2118, C2119, C2120, C2121, C2122, C2123, C2124, C2125, C2126, C2127, C2128, C2129, C2130, C2131, C2132, C2133, C2134, C2135, C2136, C2137, C2138, C2139, C2140, C2141, C2142, C2143, C2144, C2145, C2146, C2147, C2148, C2149, C2150, C2151, C2152, C2153, C2154, C2155, C2156, C2157, C2158, C2159, C216

Claim	KCT8547HE
	See also, 1[A].
1[E] a second capacitor formed on the semiconductor substrate and connected in series with the second switch circuit between the second switch circuit and the antenna node;	The KCT8547HE comprises a second capacitor formed on the semiconductor substrate and connected in series with the second switch circuit between the second switch circuit and the antenna node. For example, in the KCT8547HE, the second capacitor (indicated by the corresponding red arrow below) is formed on the semiconductor substrate and is connected in series with the second switch circuit (indicated by the corresponding red arrow below). In receive mode, the approximate signal path from the antenna node (ANT) (indicated by the corresponding red arrow below) to the receive node (RX) (indicated by the corresponding red arrow below) through the low noise amplifier (LNA) (indicated by the corresponding red arrow below) is shown by the purple dashed line in the figure below. In addition, the second capacitor is located between the second switch circuit and the antenna node (ANT).

Claim	KCT8547HE
	The schematic diagram illustrates the internal circuitry of the KCT8547HE. It features a central horizontal line representing a common signal path. On the left, an 'antenna node' is indicated by a red arrow pointing to a small rectangular box. To the right of this node, the circuit branches into several functional blocks. A 'receive node' is marked with a red arrow pointing to a specific junction. Further right, a 'second capacitor' is labeled with a red arrow pointing to a capacitor symbol. Below this, a 'second switch circuit' is shown, consisting of multiple transistors and capacitors. To the right of the switch circuit is a block labeled 'LNA' (Low Noise Amplifier), also indicated by a red arrow. The diagram includes various electronic symbols for capacitors, inductors, and transistors, along with labels for different semiconductor layers or regions like 'VD', 'BACD', 'BACD', 'm₂2s', 'G', and 'G'. A dashed line at the bottom indicates a connection to ground.
1[F] a first shunt arm formed on the semiconductor substrate and	See, e.g., reverse engineered circuit schematic of the KCT8547HE product's low noise amplifier die, annotated to show the second capacitor, low noise amplifier (LNA), second switch circuit, receive node, and antenna node. See also, 1[A]. The KCT8547HE comprises a first shunt arm formed on the semiconductor substrate and connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground. For example, in the KCT8547HE, the first shunt arm (indicated by the dashed line box below) is formed on the semiconductor substrate and is connected to the first switch circuit (indicated by the corresponding red arrow

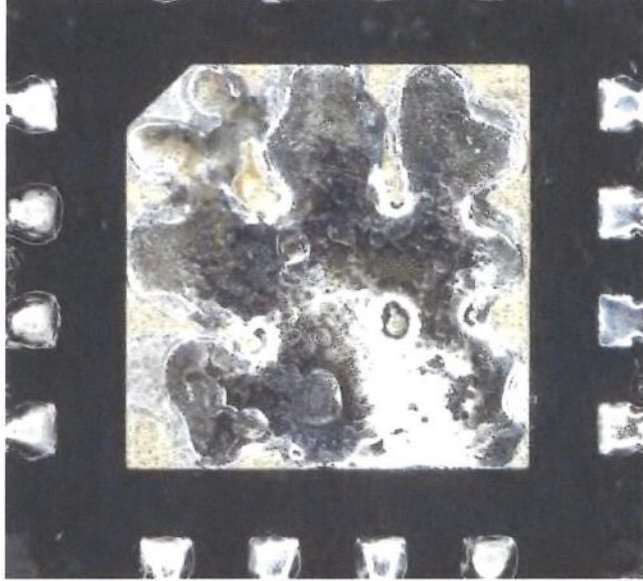
Claim connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground.	KCT8547HE below) and the transmit node (PA IN) (highlighted by a red box). The first shunt arm includes a third switch circuit (indicated by the corresponding red bracket below) connected to ground (BACK3) (indicated by the corresponding red arrow below).  See, e.g., reverse engineered circuit schematic of the KCT8547HE product's low noise amplifier die identifying the transmit node, the first switch circuit, first shunt arm, third switch circuit, and ground. See also, 1[A]. To the extent that the preamble of claim 7 is limiting, the KCT8547HE performs a method for operating a radio-frequency (RF) device, comprising the steps shown below and for claim elements 7[A]-7[C].
7[pre]. A method for operating a radio-frequency	

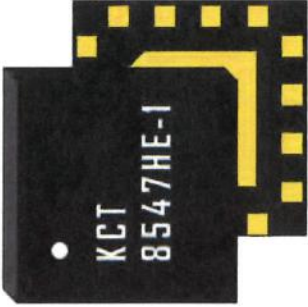
Claim	KCT8547HE
(RF) device, the method comprising:	For example, the KCT8547HE product description below states that the KCT8547HE is an “RF Front-end Module” that is a “highly integrated RF Front-End Integrated Circuit incorporat[ing] key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range.”³  KCT8547HE-1 5GHz Mid Power 802.11ax RF Front-end Module Introduction KCT8547HE-1 is a highly integrated RF Front-End Integrated Circuit incorporates key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range. KCT8547HE-1 integrates a high-efficiency high-linearity power amplifier (PA), a low noise amplifier (LNA) with bypass, the associated matching network and harmonic filters all in one device. KCT8547HE-1 has simple and low-voltage control logic, and requires minimal external components. A power detector is also integrated for accurately monitoring of output power from the PA. KCT8547HE-1 is assembled in a compact, low-profile 3x3x0.55mm 16-lead MIS package. KCT8547HE-1 is the ideal RF front-end solution for implementing 5GHz high-power WLAN systems supporting multiple standards including 802.11a/n/ac/ax. See, e.g., KCT8547HE product description, https://perma.cc/GV2Y-HD8A.

³ See <https://perma.cc/GV2Y-HD8A>.

Claim	KCT8547HE
	For example, the KCT8547HE has an RF switch (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals.⁴ The KCT product description describes the switch as a transmit/receive “T/R switch” (indicated by the red underlining in the text below). The figure below also shows the power amplifier (indicated by the corresponding red arrow below), the antenna node (indicated by the corresponding red arrow below), the receive node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the corresponding red arrow below). Specifications <u>Integrated 802.11ax 5GHz PA, LNA with bypass and T/R switch</u> Fully-matched input and output Integrated power detector Transmit gain: 29dB at 5V Receive gain: 16dB at 5V Noise Figure: 1.6dB at 5V Output power: +17dBm @ -43dB EVM, HE160/MCS11, 5V +19dBm @ -40dB EVM, HE160/MCS11, 5V +20.5dBm @ -35dB EVM, VHT80/MCS9, 5V +21.5dBm @ -30dB EVM, HT20/MCS7, 5V Integrated 2.4GHz Notch Filter ESD protection circuitry on all PINK Simplified external components required Small package: MIS-16L 3mm x 3mm x0.55mm MSLT 260°C per JEDEC J-STD-020 ROHS and REACH Compliant See, e.g., KCT8547HE product description and simplified block diagram, https://perma.cc/GV2Y-HD8A.

⁴ See <https://perma.cc/GV2Y-HD8A>.

Claim	KCT8547HE
	For example, the photos below show the exterior of the KCT8547HE device die package, front (left) and back (right).   See, e.g. photo of the KCT8547HE product, exterior of package, front (left) and back (right).
7[A] providing an RF device including a first switch circuit connected between an antenna node and	The KCT8547HE provides an RF device including a first switch circuit connected between an antenna node and a transmit node, a second switch circuit connected between the antenna node and a receiver node, a first capacitor connected in series with the first switch circuit between the first switch circuit and the antenna node, a second capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node, and a first shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground.

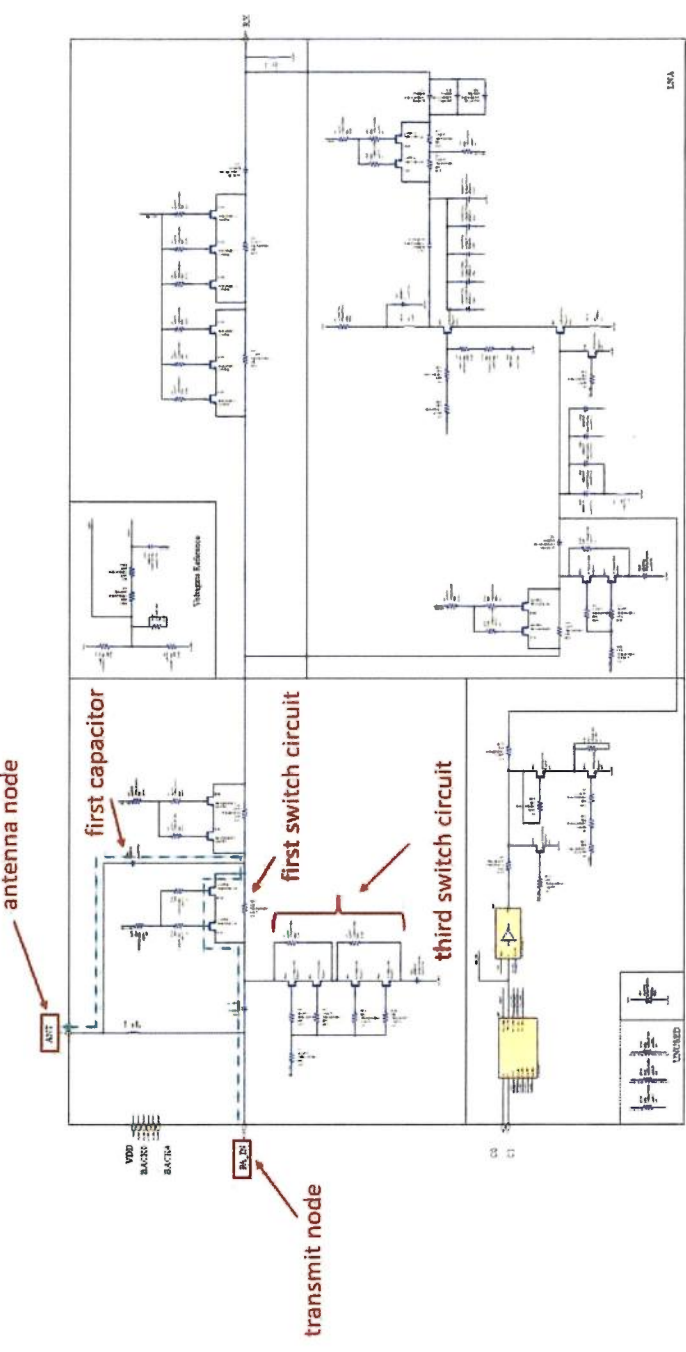
Claim	KCT8547HE
a transmit node, a second switch circuit connected between the antenna node and a receiver node, a first capacitor connected in series with the first switch circuit between the first switch circuit and the antenna node, a second capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node, and a first shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch	For example, the KCT8547HE is an RF device. The KCT8547HE product description below states that the KCT8547HE is an “RF Front-end Module” that is a “highly integrated RF Front-End Integrated Circuit incorporat[ing] key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range.”⁵  KCT8547HE-1 5GHz Mid Power 802.11ax RF Front-end Module Introduction KCT8547HE-1 is a highly integrated RF Front-End Integrated Circuit incorporates key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range. KCT8547HE-1 integrates a high-efficiency high-linearity power amplifier (PA), a low noise amplifier (LNA) with bypass, the associated matching network and harmonic filters all in one device. KCT8547HE-1 has simple and low-voltage control logic, and requires minimal external components. A power detector is also integrated for accurately monitoring of output power from the PA. KCT8547HE-1 is assembled in a compact, low-profile 3x3x0.55mm 16-lead MIS package. KCT8547HE-1 is the ideal RF front-end solution for implementing 5GHz high-power WLAN systems supporting multiple standards including 802.11a/n/ac/ax. See, e.g., KCT8547HE product description, https://perma.cc/GV2Y-HD8A.

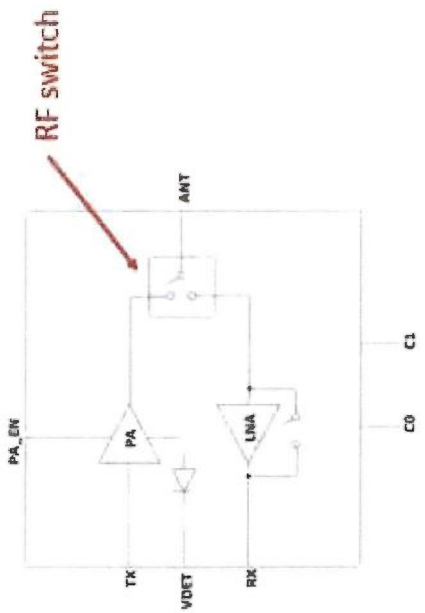
⁵ See <https://perma.cc/GV2Y-HD8A>.

Claim	KCT8547HE
circuit connected to ground;	See <i>also</i> , claims 1 [pre]-1 [F], 7 [pre].
7[B] controlling an RF switch of the RF device by placing the first switch circuit in an ON state and placing the third switch circuit in an OFF state; and	The KCT8547HE controls an RF switch of the RF device by placing the first switch circuit in an ON state and placing the third switch circuit in an OFF state. For example, the KCT8547HE has an RF switch (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals.⁶ The KCT product description describes the switch as a “T/R switch” (indicated by the red underlining in the text below). The figure below also shows the power amplifier (indicated by the corresponding red arrow below), the antenna node (indicated by the corresponding red arrow below), the receive node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the corresponding red arrow below).

⁶ See <https://perma.cc/GV2Y-HD8A>.

Claim	KCT8547HE Specifications Integrated 802.11ax 5GHz PA, LNA with bypass and T/R switch Fully-matched input and output Integrated power detector Transmit gain: 29dB at 5V Receive gain: 16dB at 5V Noise Figure: 1.6dB at 5V Output power: +17dBm @ -43dB EVM, HE160/MCS11, 5V +19dBm @ -40dB EVM, HE160/MCS11, 5V +20.5dBm @ -35dB EVM, VHT80/MCS9, 5V +21.5dBm @ -30dB EVM, HT20/MCS7, 5V Integrated 2.4GHz Notch Filter ESD protection circuitry on all pins Simplified external components required Small package: MIS-16L 3mm x 3mm x0.55mm MSL1 260°C per JEDEC J-STD-020 RoHS and REACH Compliant See, e.g., KCT8547HE product description and simplified block diagram, https://perma.cc/GV2Y-HD8A. For example, during use, the RF switch of the KCT8547HE works by turning ON the first switch circuit (indicated by the corresponding red arrow below) while turning OFF the third switch circuit (indicated by the corresponding red arrow below) to allow a signal to pass through the first switch circuit. This allows the signal to be transmitted from the transmit node (indicated by the corresponding red arrow below) to the antenna node (indicated by the corresponding red arrow below) as shown by the path of the green dashed lines below.
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Claim	KCT8547HE
	 The diagram is a detailed circuit schematic of a low noise amplifier (LNA) die. It features several key components and nodes labeled with red arrows and text: antenna node: Indicated by a red arrow pointing to a node labeled 'ANT' at the top left. first capacitor: Indicated by a red arrow pointing to a capacitor in the top left section. first switch circuit: Indicated by a red arrow pointing to a switch circuit in the top left section. third switch circuit: Indicated by a red arrow pointing to a switch circuit in the bottom right section. transmit node: Indicated by a red arrow pointing to a node labeled 'TX' at the bottom left. The schematic includes various transistors, capacitors, and inductors, with labels such as 'VDD', 'BACK', 'BAC/PA', 'LNA', and 'UNFINISHED'.
	See, e.g., reverse engineered circuit schematic of the KCT8547HE product's low noise amplifier die, identifying the antenna node, first capacitor, first switch circuit, third switch circuit, and transmit node. See also, claim 7[pre].
7[C] inhibiting a low-frequency blocker signal from mixing with a fundamental-frequency signal	The KCT8547HE inhibits a low-frequency blocker signal from mixing with a fundamental-frequency signal in the RF switch using the first capacitor. For example, during use, the first capacitor inhibits a low frequency blocker signal from mixing with a fundamental-frequency signal in the RF switch (indicated by the corresponding red arrow below).

Claim	KCT8547HE
in the RF switch using the first capacitor.	 <i>See, e.g., KCT8547HE simplified block diagram, https://perma.cc/GV2Y-HD8A.</i> For example, in the KCT8547HE, the positioning of the first capacitor (indicated by the corresponding red arrow below) between the antenna node (indicated by the corresponding red arrow below) and the first switch circuit performs this function. The first capacitor filters the low frequency signal because the low frequency signal, in contrast to a high frequency signal, allows the capacitor time to charge. This charging process stops the low frequency signal from continuing along the signal path during transmission (indicated by the green dashed line below).

Claim	KCT8547HE The diagram is a detailed circuit schematic of a low noise amplifier (LNA) die, specifically the KCT8547HE. It features several key components and nodes labeled with red text and arrows: antenna node: Indicated by a red arrow pointing to a node connected to an antenna symbol (ANT) and a 1 pF capacitor. first capacitor: Indicated by a red arrow pointing to a capacitor in the input matching network. first switch circuit: Indicated by a red arrow pointing to a switch structure in the input path. third switch circuit: Indicated by a red arrow pointing to a switch structure in the output path. transmit node: Indicated by a red arrow pointing to a node connected to a transmit symbol (TX) and a 1 pF capacitor. The schematic includes various transistors, capacitors, and inductors, with a voltage reference section (Voltage Reference) and a biasing section (BIAS) shown. The output of the LNA is connected to a transmit node (TX) and a 1 pF capacitor. The input of the LNA is connected to an antenna node (ANT) and a 1 pF capacitor. The schematic also shows a 100 pF capacitor and a 100 pF capacitor in the output path. The schematic is labeled with 'KCT8547HE' and 'LNA'.
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See, e.g., reverse engineered circuit schematic of the KCT8547HE product's low noise amplifier die, identifying the antenna node, first capacitor, first switch circuit, third switch circuit, and transmit node.

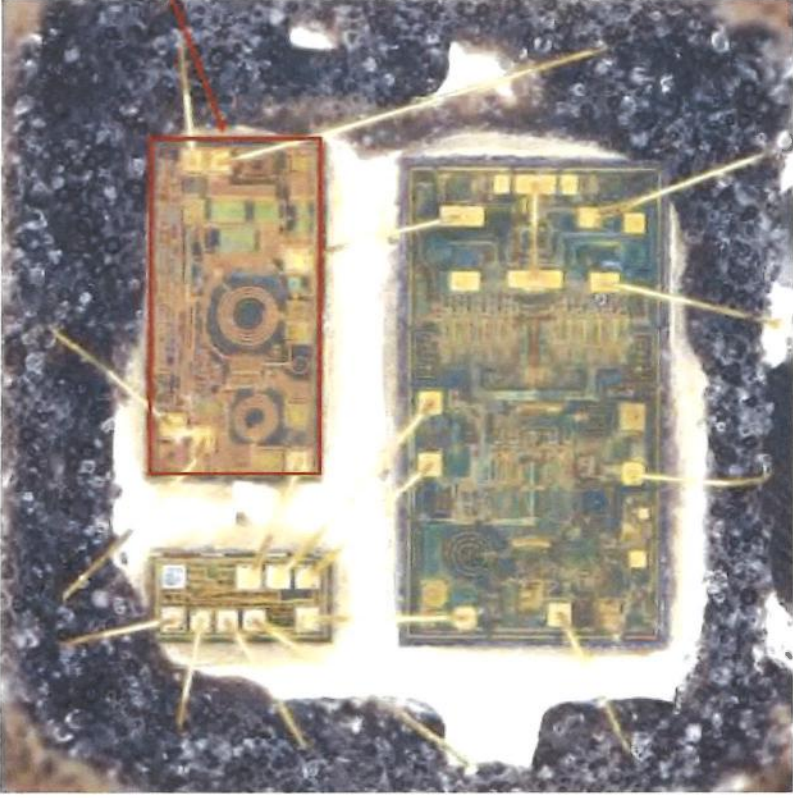
EXHIBIT 22

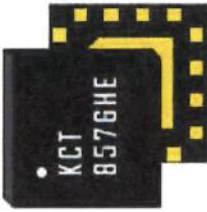
EXHIBIT 22
SKYWORCS SOLUTIONS, INC.'S INFRINGEMENT CHART
KCT8576HE
U.S. Patent No. 9,450,579
Independent Claims 1 and 7

Skyworks Solutions, Inc. ("Skyworks") provides this exemplary claim chart for independent claims 1 and 7 of U.S. Patent No. 9,450,579 (the "'579 patent") applied to Kangxi Communication Technologies (Shanghai) Co., Ltd's and Grand Chip Labs, Inc.'s (collectively, "KCT") KCT8576HE product. The disclosures in this claim chart directed to the KCT8576HE are also more broadly directed to any sale, offer for sale, use, or importation of the KCT8576HE in the U.S., including in an end product such as a wireless router or as a standalone product that is not incorporated in an end product.

The claim chart below demonstrates infringement by comparing each element of the charted claims to corresponding components, aspects, and/or features of the KCT8576HE product. This claim chart is not intended to constitute an expert report on infringement. This claim chart includes information provided by way of example, and not by way of limitation.

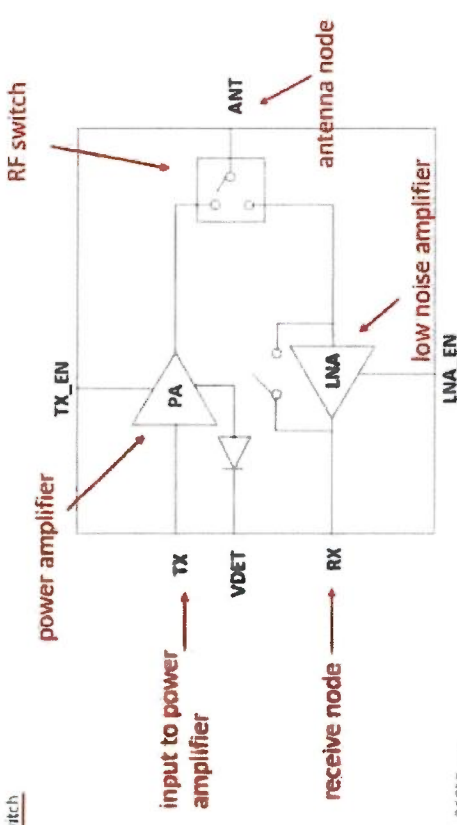
The analysis set forth below is based only upon information from publicly available sources regarding the KCT8576HE product. Further analysis of non-public information during fact discovery will likely assist in identifying all infringing features and functionalities used by KCT in the KCT8576HE product. Accordingly, Skyworks reserves the right to supplement this infringement analysis once such information is made available to Skyworks. Further, Skyworks reserves the right to supplement this infringement analysis, as appropriate, upon issuance of an order construing any terms recited in the asserted claims or as other circumstances so merit.

Claim	KCT8576HE
1 [pre] A semiconductor die comprising:	To the extent that the preamble of claim 1 is limiting, the KCT8576HE comprises a semiconductor die. For example, the KCT8576HE has a semiconductor die, highlighted by the red box below.  The image is a micrograph showing a semiconductor die. A red rectangular box highlights a specific region on the left side of the die. A red line points from the text 'semiconductor die' to this box. Several yellow lines point to various features across the die surface. See, e.g., photo of the KCT8576HE product showing three dies identifying the semiconductor die.

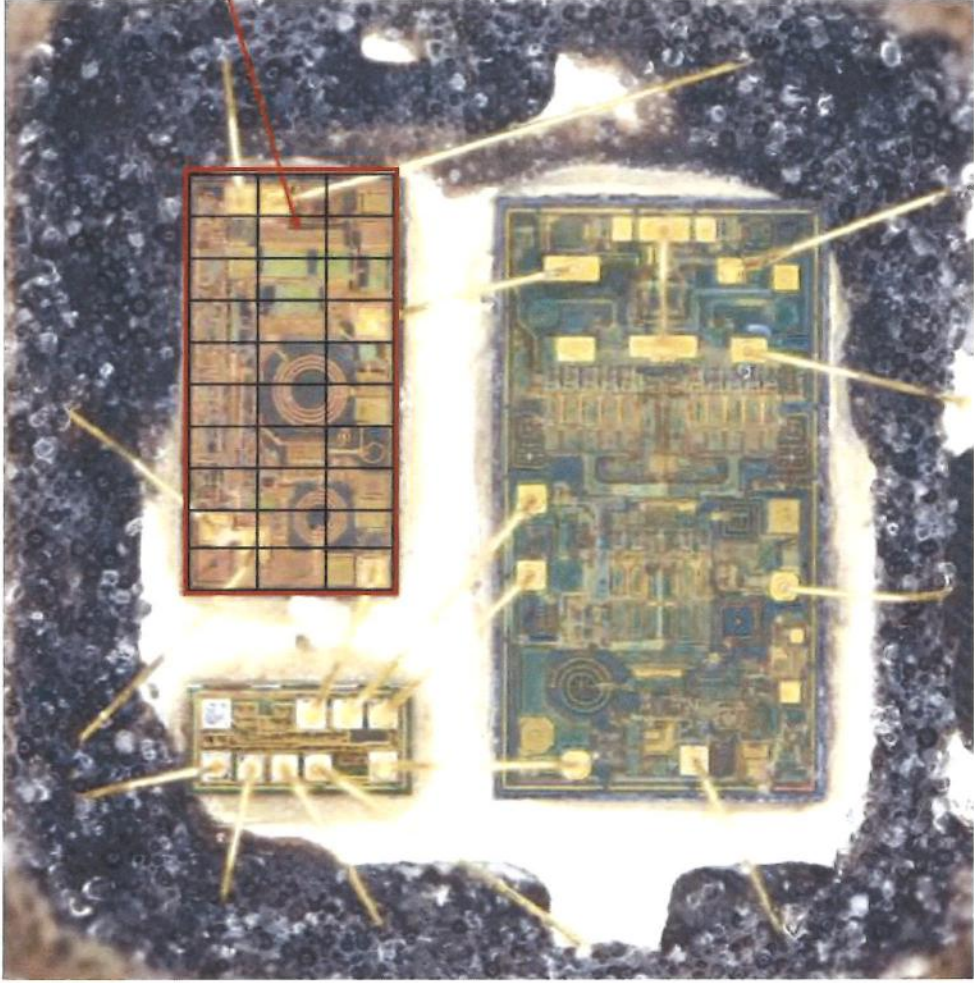
Claim	KCT8576HE
	For example, the KCT8576HE product description below states that the KCT8576HE is an “RF Front-end Module” that “incorporates key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range.”¹  KCT8576HE 5GHz Mid-High Power 802.11ax RF Front-end Module Introduction KCT8576HE is a highly integrated RF front-end integrated circuit incorporates key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range. KCT8576HE integrates a high-efficiency, high-linearity power amplifier (PA), a low noise amplifier (LNA) with bypass, the associated matching network, LO rejection, and harmonic filters all in one device. KCT8576HE has simple and low-voltage control logic, and requires minimal external components. A power detector is also integrated for accurately monitoring of output power from the PA. KCT8576HE is assembled in a compact, low-profile 2.5x2.5x0.55mm 16-lead QFN package. KCT8576HE is the ideal RF front-end solution for implementing 5GHz high-power WLAN systems supporting multiple standards including 802.11a/n/ac/ax. See, e.g., KCT8576HE product description, https://perma.cc/N2ZN-83UW. For example, the KCT8576HE has an RF switch (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals.² The KCT product description describes the switch as a “T/R switch” (indicated by the red underlining in the text below). The figure below also shows the power amplifier (indicated by the corresponding red arrow below), the antenna node (indicated by the corresponding red arrow below), the receive node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the

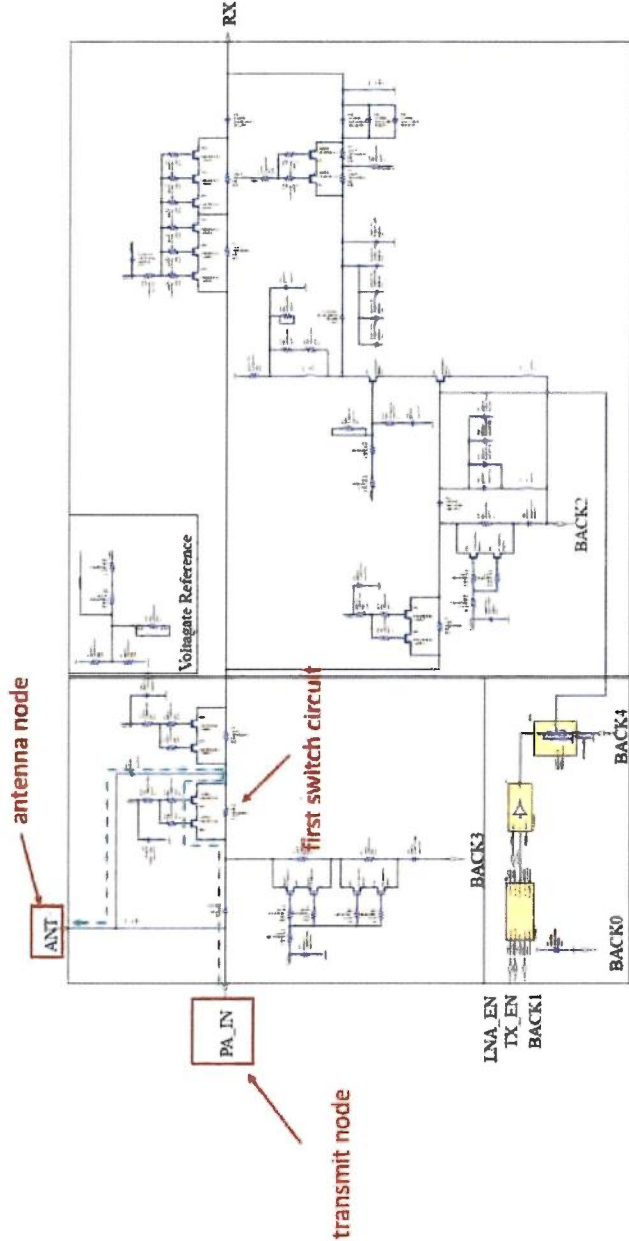
¹ See <https://perma.cc/N2ZN-83UW>.

² See <https://perma.cc/N2ZN-83UW>.

Claim	KCT8576HE
	corresponding red arrow below). Specifications <u>Integrated 802.11ax 5GHz PA, LNA with bypass and T/R switch</u> Integrated power detector Transmit gain: 30.5dB at 5V Receive gain: 15.5dB at 5V Noise Figure: 1.8dB at 5V Output power: +18dBm @ -43dB EVM, HE160/MCS11, 5V +21dBm @ -40dB EVM, HE160/MCS11, 5V +23dBm @ -35dB EVM, VHT80/MCS9, 5V +24dBm @ -30dB EVM, HT20/MCS7, 5V ESD protection circuitry on all pins Small package: QFN-16L, 2.5mm x 2.5mm x0.55mm (MSL3, 260°C per JEDEC J-STD-020) RoHS and REACH compliant 
	See, e.g., KCT8576HE product description and simplified block diagram, https://perma.cc/N2ZN-83UW. For example, the photos below show the exterior of the KCT8576HE device die package, front (left) and back (right).

Claim	KCT8576HE
	<i>See, e.g. photos of the KCT8576HE product.</i>
1[A] a semiconductor substrate;	The KCT8576HE comprises a semiconductor substrate. For example, a semiconductor substrate for the KCT8576HE (indicated by black grid lines below) is the material upon which the devices on the die are fabricated.

Claim	KCT8576HE
	A micrograph of a semiconductor substrate, likely a silicon wafer, showing a complex pattern of circuitry. A red rectangular grid is overlaid on the left side of the image, highlighting a specific region. A red line points from the text 'semiconductor substrate' to the grid. Several yellow lines point to various features on the substrate, including a small rectangular region on the left, a large rectangular region in the center, and several smaller rectangular regions on the right. The substrate is surrounded by a dark, textured material.
	See, e.g., photo of the KCT8576HE product, annotated to show the location of the semiconductor substrate.

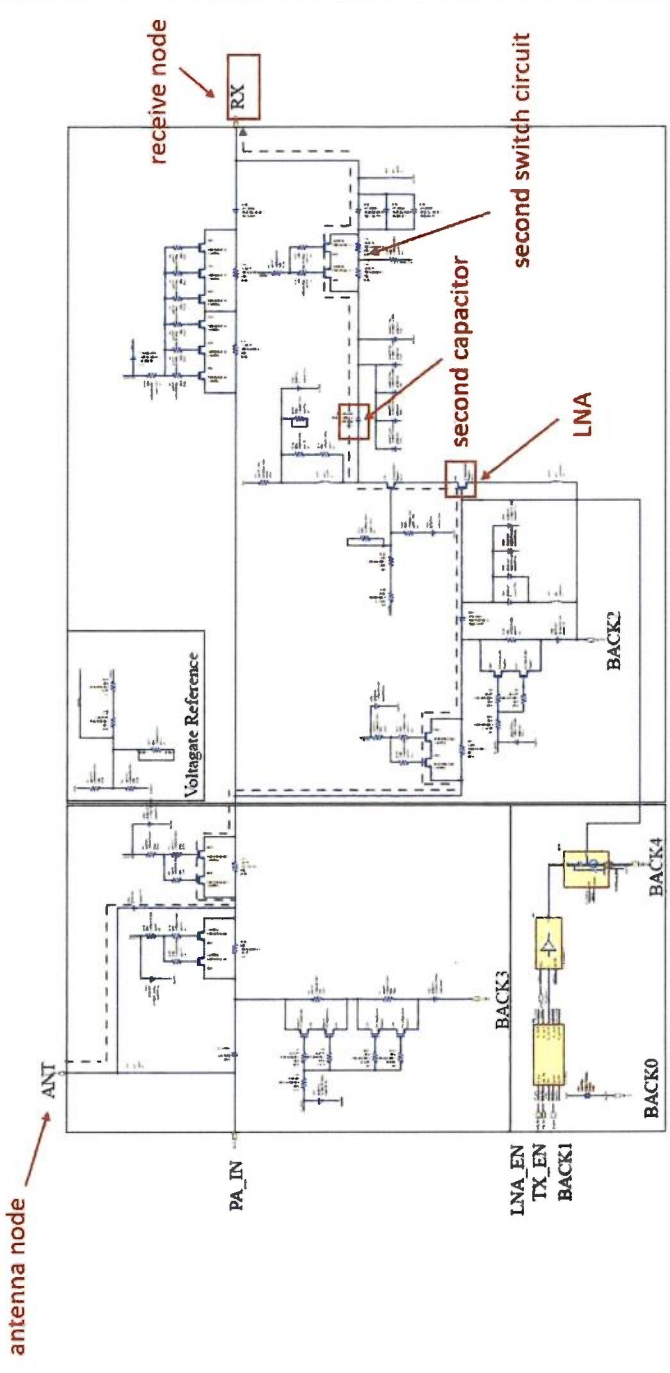
Claim	KCT8576HE
1[B] a first switch circuit formed on the semiconductor substrate connected between an antenna node and a transmit node;	The KCT8576HE comprises a first switch circuit formed on the semiconductor substrate connected between an antenna node and a transmit node. For example, in the KCT8576HE, the first switch circuit (identified by the corresponding red arrow below) is connected between the antenna node ("ANT," highlighted by the red box) and transmit node ("PA IN," highlighted by the red box). In transmit mode, the signal path from the transmit node, through the first switch circuit, and to the antenna node is shown by the green dashed line below. The first switch circuit is formed on the semiconductor substrate.  The diagram is a detailed circuit schematic of the KCT8576HE. It shows a central horizontal section with several blocks: LNA, EN, TX, EN, BACK1, and BACK0. To the right of these are BACK3, BACK2, and BACK4. At the far right is an RX block. A Voltage Reference block is located above the central section. The antenna node (ANT) is a red box on the left, and the transmit node (PA_IN) is a red box in the center. A red arrow points from the text 'first switch circuit' to a switch structure between ANT and PA_IN. A green dashed line indicates a signal path from PA_IN, through the switch, and to ANT. Various transistors, capacitors, and other components are shown throughout the circuit.

See, e.g., reverse engineered circuit schematic of the KCT8576HE product's low noise amplifier die, annotated to

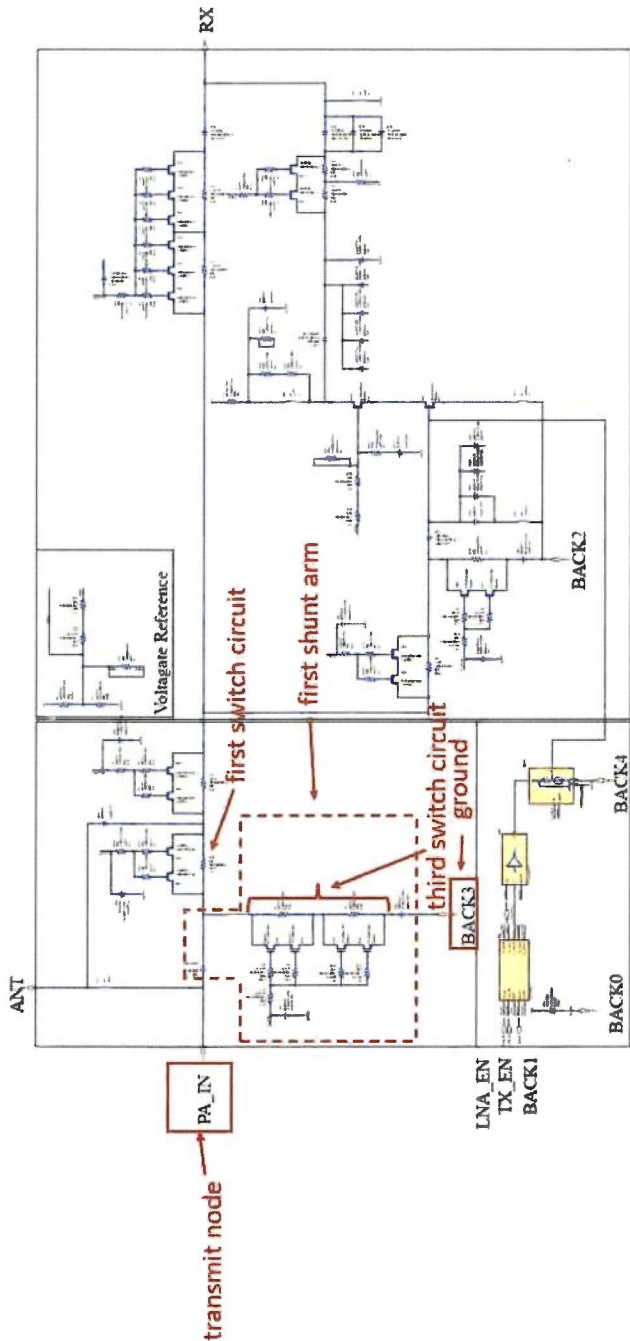
Claim	KCT8576HE
	show the location of a first switch circuit, antenna node, and transmit node. <i>See also</i>, 1[pre]-1[A].
1[C] a second switch circuit formed on the semiconductor substrate and connected between the antenna node and a receive node;	The KCT8576HE comprises a second switch circuit formed on the semiconductor substrate and connected between the antenna node and a receive node. For example, in the KCT8576HE, the second switch circuit (indicated by the corresponding red arrow below) is connected between the antenna node ("ANT," highlighted by the red box) and the receive node ("RX," highlighted by the corresponding red box below). In receive mode, the approximate signal path from the antenna node (ANT) to the receive node (RX) through the low noise amplifier (LNA) is shown by the purple dashed line in the figure below. The second switch circuit is formed on the semiconductor substrate.

Claim	KCT8576HE
	antenna node ANT PA_IN Voltagate Reference second switch circuit LNA BACK0 BACK1 BACK2 BACK3 BACK4 TX_EN RX receive node See, e.g., reverse engineered circuit schematic of the KCT8576HE product's low noise amplifier die, annotated to show the location of a second switch circuit, receive node, low noise amplifier (LNA), and antenna node. See also, 1[pre]-1[A].
1[D] a first capacitor formed on the semiconductor substrate and connected in	The KCT8576HE comprises a first capacitor formed on the semiconductor substrate and connected in series with the first switch circuit between the first switch circuit and the antenna node. For example, in the KCT8576HE, the first capacitor (indicated by the corresponding red arrow below) is formed on the semiconductor substrate and is connected in series with the first switch circuit (indicated by the corresponding red arrow below). The approximate signal path during transmit mode is shown by the green dashed line in the

Claim	KCT8576HE
series with the first switch circuit between the first switch circuit and the antenna node;	figure below. In addition, the first capacitor is located between the first switch circuit and the antenna node (ANT) (indicated by the corresponding red arrow below). See, e.g., reverse engineered circuit schematic of the KCT8576HE product's low noise amplifier die, annotated to show the location of a first switch circuit, first capacitor, and antenna node. See also, 1[A].
1[E] a second	The KCT8576HE comprises a second capacitor formed on the semiconductor substrate and connected in series

Claim	KCT8576HE
capacitor formed on the semiconductor substrate and connected in series with the second switch circuit between the second switch circuit and the antenna node; and	with the second switch circuit between the second switch circuit and the antenna node. For example, in the KCT8576HE, the second capacitor (indicated by the corresponding red arrow below) is formed on the semiconductor substrate and is connected in series with the second switch circuit (indicated by the corresponding red arrow below). In receive mode, the approximate signal path from the antenna node (ANT) (indicated by the corresponding red arrow below) to the receive node (RX) (indicated by the corresponding red arrow below) is shown by the purple dashed line in the figure below. In addition, the second capacitor is located between the second switch circuit and the antenna node (ANT).  The diagram illustrates the internal circuitry of the KCT8576HE, divided into two main sections: a Power Amplifier (PA) on the left and a Receiver (RX) on the right. The PA section includes a PA_IN input, a Voltage Reference block, and a series of transistors and capacitors leading to a node labeled BACK3. The RX section includes a second switch circuit, a second capacitor, an LNA (Low Noise Amplifier), and a node labeled BACK2. A receive node is indicated at the output of the RX section. A purple dashed line traces the signal path from the antenna node (ANT) through the second switch circuit and the second capacitor to the receive node (RX). Various other components like capacitors, inductors, and transistors are shown throughout the circuit. Labels like BACK0, BACK1, BACK3, and BACK4 are also present.

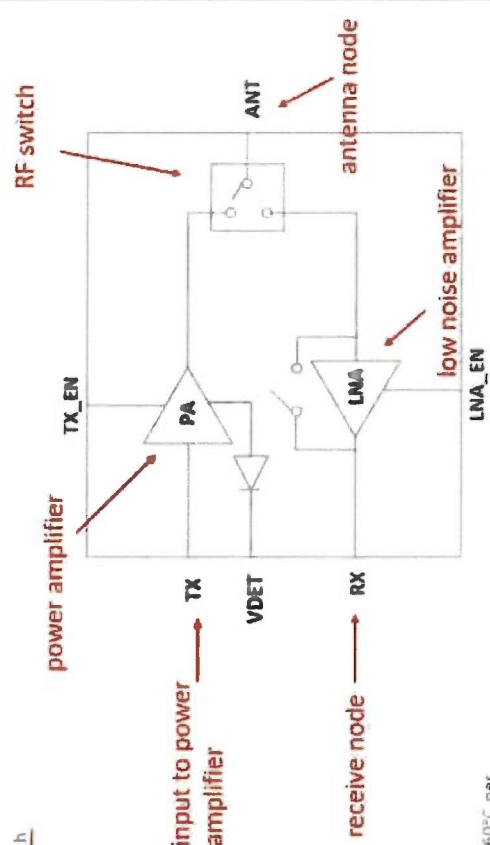
Claim	KCT8576HE
	See, e.g., reverse engineered circuit schematic of the KCT8576HE product's low noise amplifier die, annotated to show the location of a second capacitor, low noise amplifier (LNA), second switch circuit, receive node, and antenna node. See also, 1[A].
1[F] a first shunt arm formed on the semiconductor substrate and connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground.	The KCT8576HE comprises a first shunt arm formed on the semiconductor substrate and connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground. For example, in the KCT8576HE, the first shunt arm (indicated by the dashed line box below) is formed on the semiconductor substrate and is connected to the first switch circuit (indicated by the corresponding red arrow below) and the transmit node (PA IN) (highlighted by a red box). The first shunt arm includes a third switch circuit (indicated by the corresponding red bracket below) connected to ground (BACK3) (indicated by the corresponding red arrow below).

Claim	KCT8576HE
	 The schematic diagram illustrates the internal circuitry of the KCT8576HE integrated circuit. It features a central horizontal line representing the signal path. On the left, an antenna (ANT) is connected to the path. A red box labeled 'transmit node' is connected to the path via a red arrow. The path then splits into two main sections. The top section, labeled 'first switch circuit' and 'first shunt arm', contains a complex network of transistors and capacitors. The bottom section, labeled 'third switch circuit' and 'third shunt arm', also contains a similar network. A red dashed box encloses the third switch circuit. Below the third switch circuit, there are two yellow rectangular blocks labeled 'BACK0' and 'BACK1', and a green rectangular block labeled 'BACK2'. A red arrow points from the third switch circuit to the BACK0 block. The path continues to the right, where it is connected to a receiver (RX) input. A 'Voltage Reference' block is connected to the path near the RX input. Various other components, including capacitors and resistors, are shown throughout the circuit.
7[pre]. A method for	See, e.g., reverse engineered circuit schematic of the KCT8576HE product's low noise amplifier die, annotated to show the location of the transmit node, first switch circuit, first shunt arm, third switch circuit, and ground. See also, 1[A]. To the extent that the preamble of claim 7 is limiting, the KCT8576HE performs a method for operating a radio-frequency (RF) device, comprising the steps shown below and for claim elements 7[A]-7[C].

Claim	KCT8576HE
operating a radio-frequency (RF) device, the method comprising:	For example, the KCT8576HE product description below states that the KCT8576HE is an “RF Front-end Module” which “incorporates key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range.”³ The image shows a small, square, black integrated circuit (IC) chip. The chip has a gold-colored wire-bonded package. The text 'KCT 8576HE' is printed in white on the top surface of the chip. The chip is shown at a slight angle, revealing its top and one side. KCT8576HE 5GHz Mid-High Power 802.11ax RF Front-end Module Introduction KCT8576HE is a highly integrated RF front-end integrated circuit incorporates key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range. KCT8576HE integrates a high-efficiency, high-linearity power amplifier (PA), a low noise amplifier (LNA) with bypass, the associated matching network, LO rejection, and harmonic filters all in one device. KCT8576HE has simple and low-voltage control logic, and requires minimal external components. A power detector is also integrated for accurately monitoring of output power from the PA. KCT8576HE is assembled in a compact, low profile 2.5x2.5x0.55mm 16-lead QFN package. KCT8576HE is the ideal RF front-end solution for implementing 5GHz high-power WLAN systems supporting multiple standards including 802.11a/n/ac/ax. See, e.g., KCT8576HE product description, https://perma.cc/N2ZN-83UW. For example, the KCT8576HE has an RF switch (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals.⁴ The KCT product description describes the switch as a transmit/receive “T/R switch” (indicated by the red underlining in the text below). The figure below also shows the power amplifier (indicated by the corresponding red arrow below), the antenna node (indicated by the

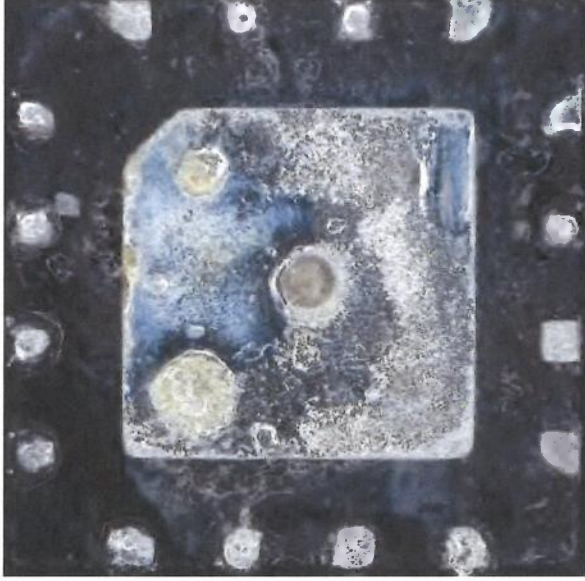
³ See <https://perma.cc/N2ZN-83UW>.

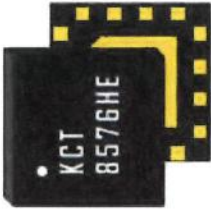
⁴ See <https://perma.cc/N2ZN-83UW>.

Claim	KCT8576HE
	corresponding red arrow below), the receive node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the corresponding red arrow below). Specifications Integrated 802.11ax 5GHz PA, LNA with bypass and T/R switch Integrated power detector Transmit gain: 30.5dB at 5V Receive gain: 15.5dB at 5V Noise Figure: 1.8dB at 5V Output power: +18dBm @ -43dB EVM, HET60/MCS11, 5V +21dBm @ -40dB EVM, HET60/MCS11, 5V +23dBm @ -35dB EVM, VHT80/MCS9, 5V +24dBm @ -30dB EVM, HT20/MCS7, 5V ESD protection circuitry on all pins Small package: QFN-16L, 2.5mm x 2.5mm x 0.55mm (MSL3, 260°C per JEDEC J-STD-020) RoHS and REACH compliant  The diagram illustrates the internal architecture of the KCT8576HE. It features a central RF switch controlled by TX_EN and LNA_EN pins. The switch routes signals between an antenna (ANT) and two main processing blocks: a Power Amplifier (PA) and a Low Noise Amplifier (LNA). The PA block includes an input to the power amplifier (indicated by a red arrow) and is controlled by VDET. The LNA block includes a low noise amplifier (indicated by a red arrow) and is controlled by RX. The entire system is powered by a 5V supply.

See, e.g., KCT8576HE product description, <https://perma.cc/N2ZN-83UW>.

For example, the photos below show the exterior of the KCT8576HE device die package, front (left) and back (right).

Claim	KCT8576HE	
	  <i>See, e.g. photos of the KCT8576HE product.</i>	7[A] providing an RF device including a first switch circuit connected between an antenna node and a transmit node, a second switch circuit connected between the antenna node and a receiver node, a first capacitor connected in series with the first switch circuit between the first switch circuit and the antenna node, a second capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node, and a first shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground.

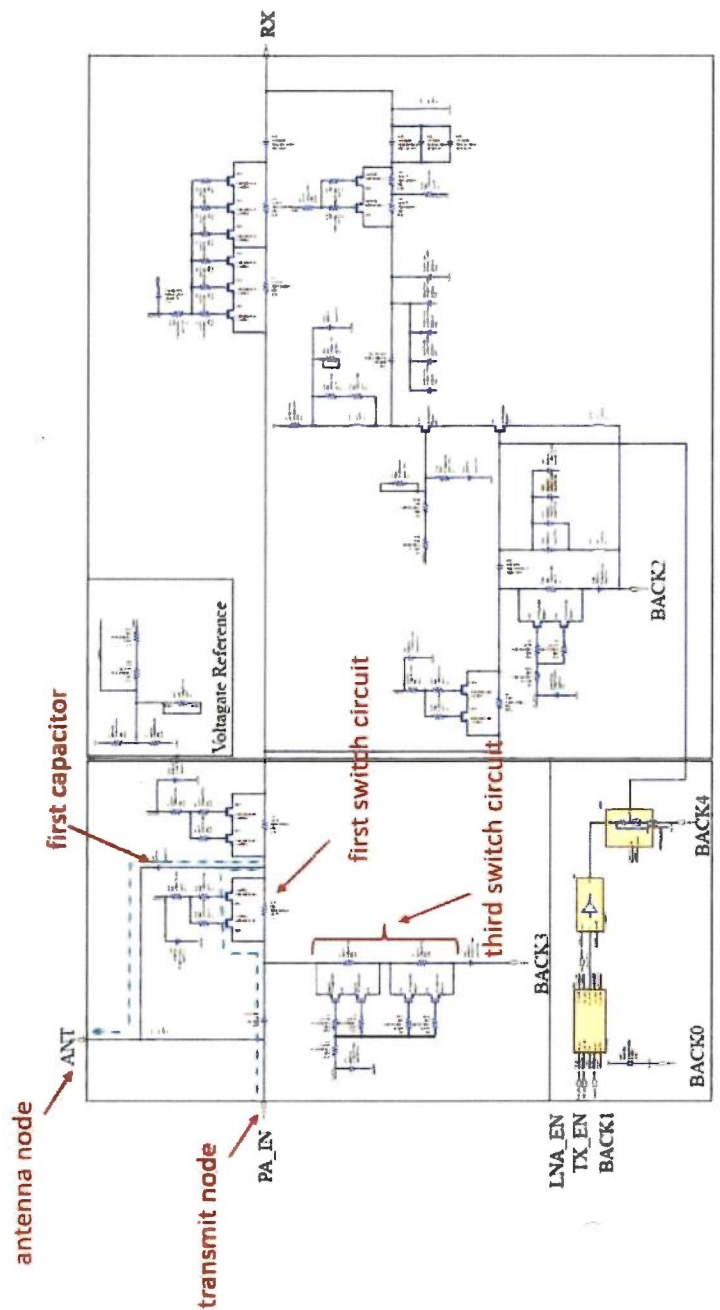
Claim	KCT8576HE
antenna node and a transmit node, a second switch circuit connected between the antenna node and a receiver node, a first capacitor connected in series with the first switch circuit between the first switch circuit and the antenna node, a second capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node, and a first shunt arm connected to the first switch	For example, the KCT8576HE is an RF device. The KCT product description describes the KCT8576HE as an “RF Front-end Module” and states that the KCT8576HE “incorporates key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range.”⁵  KCT8576HE 5GHz Mid-High Power 802.11ax RF Front-end Module Introduction KCT8576HE is a highly integrated RF front-end integrated circuit incorporates key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range. KCT8576HE integrates a high-efficiency, high-linearity power amplifier (PA), a low noise amplifier (LNA) with bypass, the associated matching network, LO rejection, and harmonic filters all in one device KCT8576HE has simple and low-voltage control logic, and requires minimal external components. A power detector is also integrated for accurately monitoring of output power from the PA. KCT8576HE is assembled in a compact, low-profile 2.5x2.5x0.55mm 16-lead QFN package. KCT8576HE is the ideal RF front-end solution for implementing 5GHz high-power WLAN systems supporting multiple standards including 802.11a/n/ac/ax See, e.g., KCT8576HE product description on KCT website, https://perma.cc/N2ZN-83UW. See also, claims 1 [pre]-1 [F], 7 [pre].

⁵ See <https://perma.cc/N2ZN-83UW>.

Claim	KCT8576HE
circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground;	
7[B] controlling an RF switch of the RF device by placing the first switch circuit in an ON state and	The KCT8576HE controls an RF switch of the RF device by placing the first switch circuit in an ON state and placing the third switch circuit in an OFF state. For example, the KCT8576HE has an RF switch (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals. The KCT product description describes the switch as a “T/R switch” (indicated by the red underlining in the text below).⁶ The figure also shows the power amplifier (indicated by the corresponding red arrow below), the antenna node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the corresponding red arrow below).

⁶ See <https://perma.cc/N2ZN-83UW>.

Claim	KCT8576HE
	Specifications <u>Integrated 802.11ax 5GHz PA, LNA with bypass and T/R switch</u> Integrated power detector Transmit gain: 30.5dB at 5V Receive gain: 15.5dB at 5V Noise Figure 1.8dB at 5V Output power: +18dBm @ -43dB EVM, HE160/MCS11, 5V +21dBm @ -40dB EVM, HE160/MCS11, 5V +23dBm @ -35dB EVM, VHT80/MCS9, 5V +24dBm @ -30dB EVM, HT20/MCS7, 5V ESD protection circuitry on all pins Small package: QFN-16L, 2.5mm x 2.5mm x0.55mm (MSL3, 260°C per JEDEC J-STD-020) RoHS and REACH compliant The diagram shows the internal architecture of the KCT8576HE. It includes a Power Amplifier (PA) and a Low Noise Amplifier (LNA). An RF switch is positioned between the PA and the LNA. The PA is controlled by TX_EN and has an input to power amplifier. The LNA is controlled by LNA_EN and has a receive node. Both the PA and LNA are connected to an antenna node (ANT). The diagram also shows a VDET pin and a TX pin. Red arrows indicate the signal flow and control signals. See, e.g., KCT8576HE product description, https://perma.cc/N2ZN-83UW. For example, during use, the RF switch of the KCT8576HE works by turning ON the first switch circuit (indicated by the corresponding red arrow below) while turning OFF the third switch circuit (indicated by the corresponding red bracket below) to allow a signal to pass through the first switch circuit. This allows the signal to be transmitted from the transmit node (indicated by the corresponding red arrow below) to the antenna node (indicated by the corresponding red arrow below) as shown by the path of the green dashed lines below.

Claim	KCT8576HE
	 The diagram is a detailed circuit schematic for the KCT8576HE. It features an antenna node connected to an ANT pin, which leads into a transmit node at the PA_IN pin. A first capacitor is connected between the antenna node and the transmit node. The circuit includes a first switch circuit and a third switch circuit, both controlled by LNA_EN and TX_EN signals. The first switch circuit is connected to the transmit node and a first capacitor. The third switch circuit is connected to the first capacitor and a third capacitor. The circuit also includes a Voltage Reference and a RX pin. The schematic is divided into several blocks labeled BACK0, BACK1, BACK2, BACK3, and BACK4.
7[C] inhibiting a low-frequency blocker signal from mixing	See, e.g., reverse engineered circuit schematic of the KCT8576HE product's low noise amplifier die, identifying the antenna node, first capacitor, first switch circuit, third switch circuit, and transmit node. See also, claim 7[pre]. The KCT8576HE inhibits a low-frequency blocker signal from mixing with a fundamental-frequency signal in the RF switch using the first capacitor. For example, during use, the first capacitor inhibits a low frequency blocker signal from mixing with a fundamental

Claim	KCT8576HE
with a fundamental-frequency signal in the RF switch using the first capacitor.	frequency signal in the RF switch (indicated by the corresponding red arrow below). See, e.g., KCT8576HE simplified block diagram, https://perma.cc/N2ZN-83UW. For example, in the KCT8576HE, the positioning of the first capacitor (indicated by the corresponding red arrow below) between the antenna node (indicated by the corresponding red arrow below) and the first switch circuit performs this function. The first capacitor filters the low frequency signal because the low frequency signal, in contrast to a high frequency signal, allows the capacitor time to charge. This charging process stops the low frequency signal from continuing along the signal path during transmission (indicated by the green dashed line below).

Claim	KCT8576HE
	The diagram is a detailed circuit schematic of the KCT8576HE product. It features several key components and nodes labeled with red text and arrows: 'antenna node' pointing to the ANT input, 'transmit node' pointing to the PA_IN input, 'first capacitor' pointing to a capacitor in the PA_IN path, 'first switch circuit' pointing to a switch structure, and 'third switch circuit' pointing to another switch structure. The schematic includes a 'Voltage Reference' block, an 'LNA_EN' input, a 'TX_EN' input, and a 'BACK1' input. The output is labeled 'RX'. The circuit is composed of various transistors, capacitors, and inductors, with specific nodes labeled 'BACK0', 'BACK1', 'BACK2', 'BACK3', and 'BACK4'. The overall layout shows a complex arrangement of these components, with the 'first switch circuit' and 'third switch circuit' being prominent features in the central part of the diagram.

See, e.g., reverse engineered circuit schematic of the KCT8576HE product's low noise amplifier die, identifying the antenna node, first capacitor, first switch circuit, third switch circuit, and transmit node.

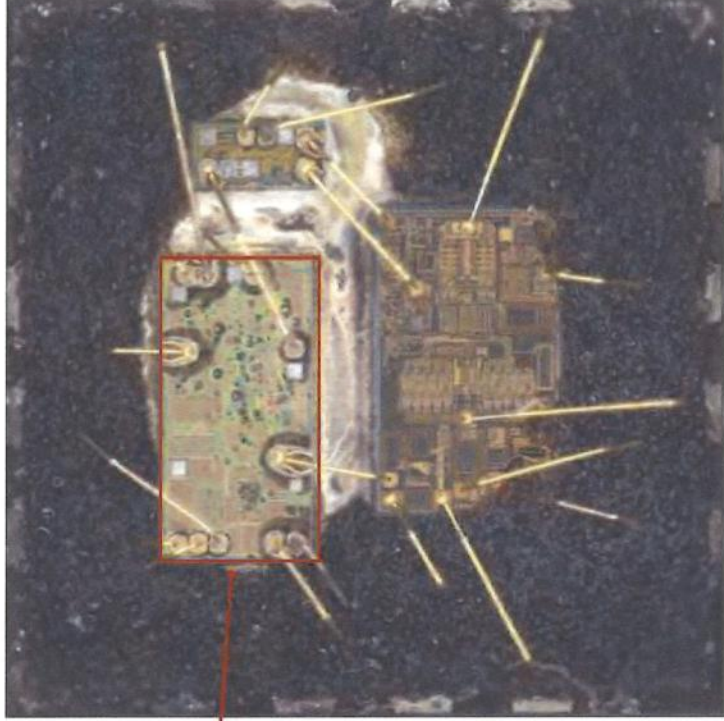
EXHIBIT 23

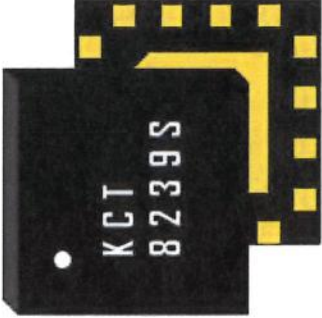
EXHIBIT 23
SKYWORKS SOLUTIONS, INC.'S INFRINGEMENT CHART
KCT8239S
U.S. Patent No. 9,450,579
Independent Claims 1 and 7

Skyworks Solutions, Inc. ("Skyworks") provides this exemplary claim chart for independent claims 1 and 7 of U.S. Patent No. 9,450,579 (the "'579 patent") applied to Kangxi Communication Technologies (Shanghai) Co., Ltd.'s and Grand Chip Labs, Inc.'s (collectively, "KCT") KCT8239S product. The disclosures in this claim chart directed to the KCT8239S are also more broadly directed to any sale, offer for sale, use, or importation of the KCT8239S in the U.S., including in an end product such as a wireless router or as a standalone product that is not incorporated in an end product.

The claim chart below demonstrates infringement by comparing each element of the charted claims to corresponding components, aspects, and/or features of the KCT8239S product. This claim chart is not intended to constitute an expert report on infringement. This claim chart includes information provided by way of example, and not by way of limitation.

The analysis set forth below is based only upon information from publicly available sources regarding the KCT8239S product. Further analysis of non-public information during fact discovery will likely assist in identifying all infringing features and functionalities used by KCT in the KCT8239S product. Accordingly, Skyworks reserves the right to supplement this infringement analysis once such information is made available to Skyworks. Further, Skyworks reserves the right to supplement this infringement analysis, as appropriate, upon issuance of an order construing any terms recited in the asserted claims or as other circumstances so merit.

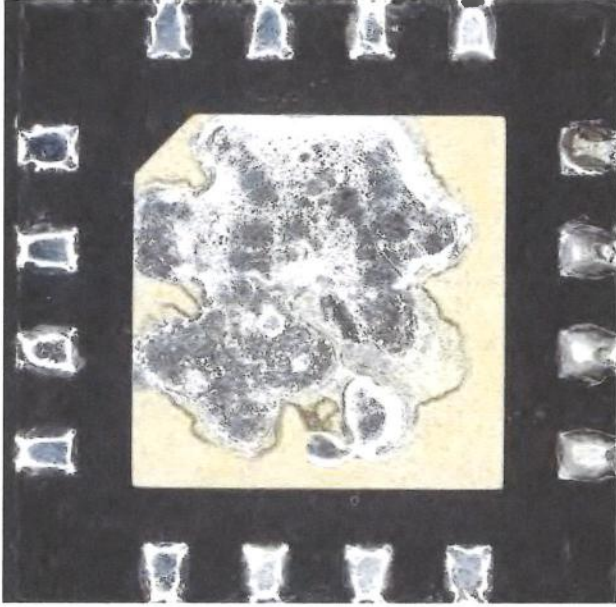
Claim	KCT8239S
1[pre] A semiconductor die comprising:	To the extent that the preamble of claim 1 is limiting, the KCT8239S comprises a semiconductor die. For example, the KCT8239S has a semiconductor die, highlighted by the red box below.  semiconductor die See, e.g., photo of the KCT8239S product identifying the semiconductor die.

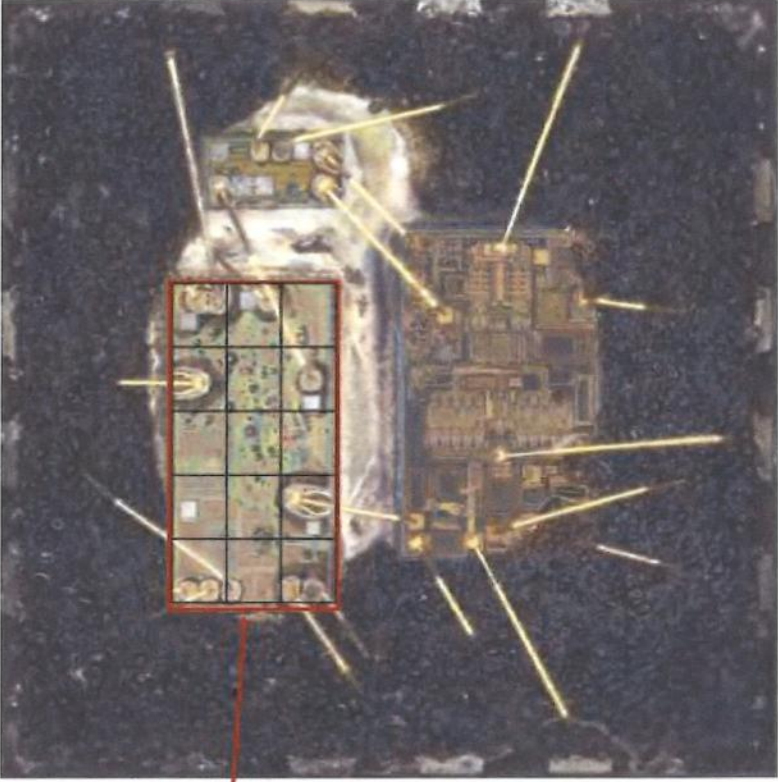
Claim	KCT8239S
	For example, the KCT8239S product description below states that the KCT8239S is an “RF Front-end Module” that “is a fully integrated 802.11b/g/n/ac/ax WLAN RF Front-end module (FEM) which incorporates key RF functionality.”¹  KCT8239S 2.4GHz 802.11ax RF Front-End Module Introduction <u>KCT8239S is a fully integrated 802.11b/g/n/ac/ax WLAN RF Front-end module (FEM) which incorporates key RF functionality. It is integrated with a high-efficiency power amplifier (PA), a low noise amplifier (LNA) with bypass, the associated matching network and a single-pole double-throw (SPDT) switch all in one device</u> The PA power detector and a digital enable control are also integrated KCT8239S is assembled in a compact low-profile 3*3*0.55mm 16-pin MIS package. It is the perfect RF Front-end solution for implementing 2.4GHz high-performance WLAN systems supporting multiple standards. See, e.g., KCT8239S product description, https://perma.cc/NS2E-VPYU.

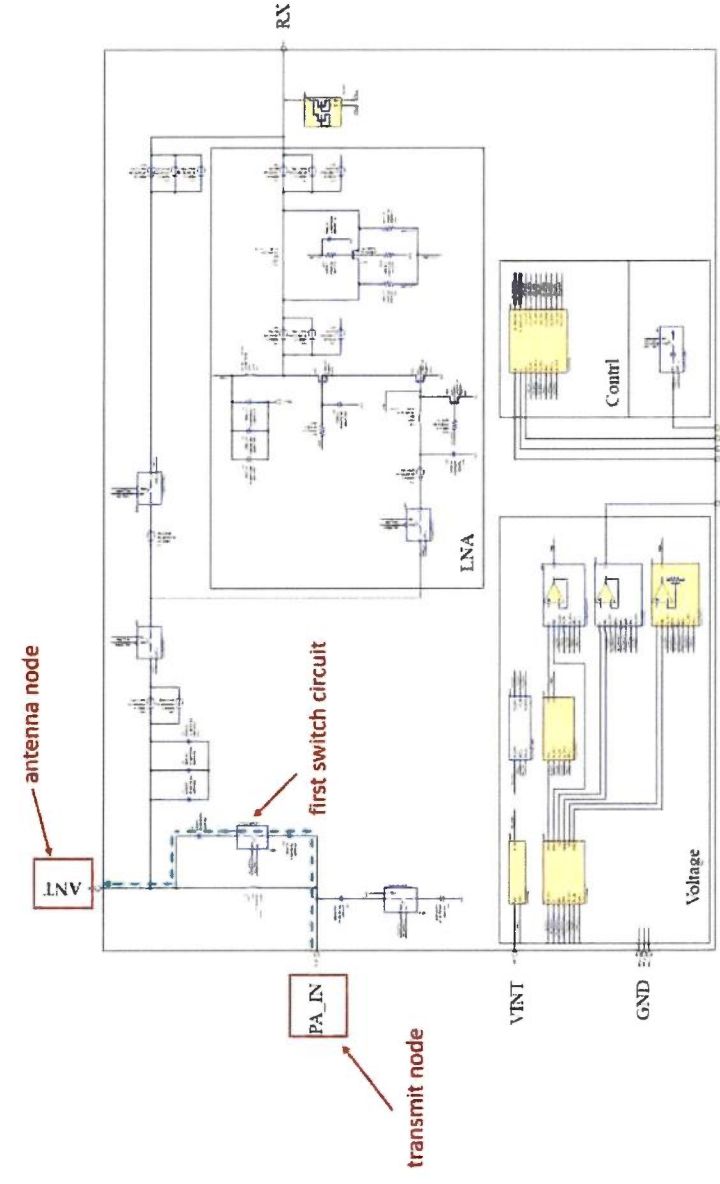
¹ See <https://perma.cc/NS2E-VPYU>.

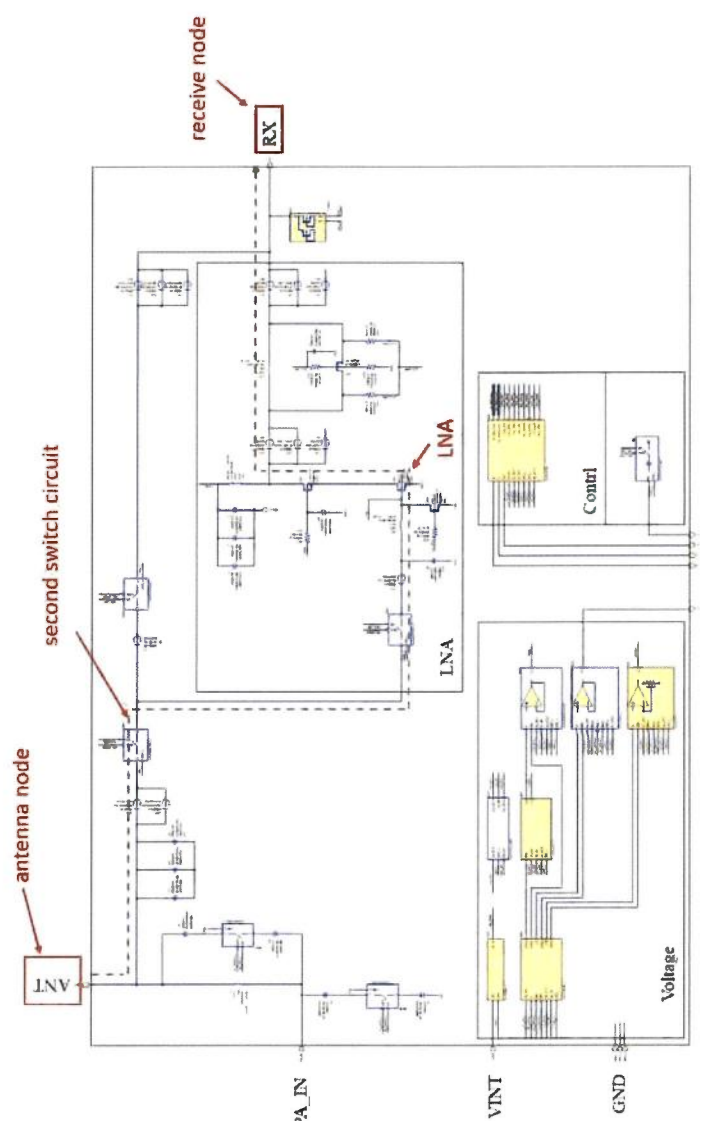
Claim	KCT8239S
	For example, the KCT8239S has an RF switch (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals.² The KCT product description describes the switch as a “T/R switch” (indicated by the red underlining in the text below). The figure below also shows the power amplifier (indicated by the corresponding red arrow below), the antenna node (indicated by the corresponding red arrow below), the receive node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the corresponding red arrow below). Specifications <u>Integrated high performance 2.4GHz PA, LNA with by-pass, and T/R switch</u> Fully-matched input and output Integrated Power Detector Output power • 20dBm @ DEVM=-43dB HE40/MCS11, 5V • 20.5dBm @ DEVM=-40dB HE40/MCS11, 5V • 22dBm @ DEVM=-35dB VHT40/MCS9, 5V • 23dBm @ DEVM=-30dB HT20/MCS7, 5V Transmit gain 29dB at 5V Receive gain 19dB at 5V Noise Figure 2.6dB at 5V ESD protection circuitry on all PINs Minimal External Components Required Small package MIS-16L 3x3x0.55mm (MSL-16L 260°C per JEDEC J-STD-Q20) ROHS and REACH Compliant The diagram shows a 16-pin package with the following connections and annotations: Pin 1: PDET Pin 2: VCC2 Pin 3: VCC1 Pin 4: PA_EN Pin 5: TX Pin 6: GND Pin 7: GND Pin 8: RX Pin 9: VDD Pin 10: GND Pin 11: C0 Pin 12: C1 Pin 13: GND Pin 14: GND Pin 15: ANT Pin 16: GND Red annotations include: antenna node: points to the ANT pin (15). RF switch: points to the switch between the antenna node and the power amplifier. power amplifier: points to the PA block. input to power amplifier: points to the input of the PA block. low noise amplifier: points to the LNA block. receive node: points to the RX pin (8).

² See <https://perma.cc/NS2E-VPYU>.

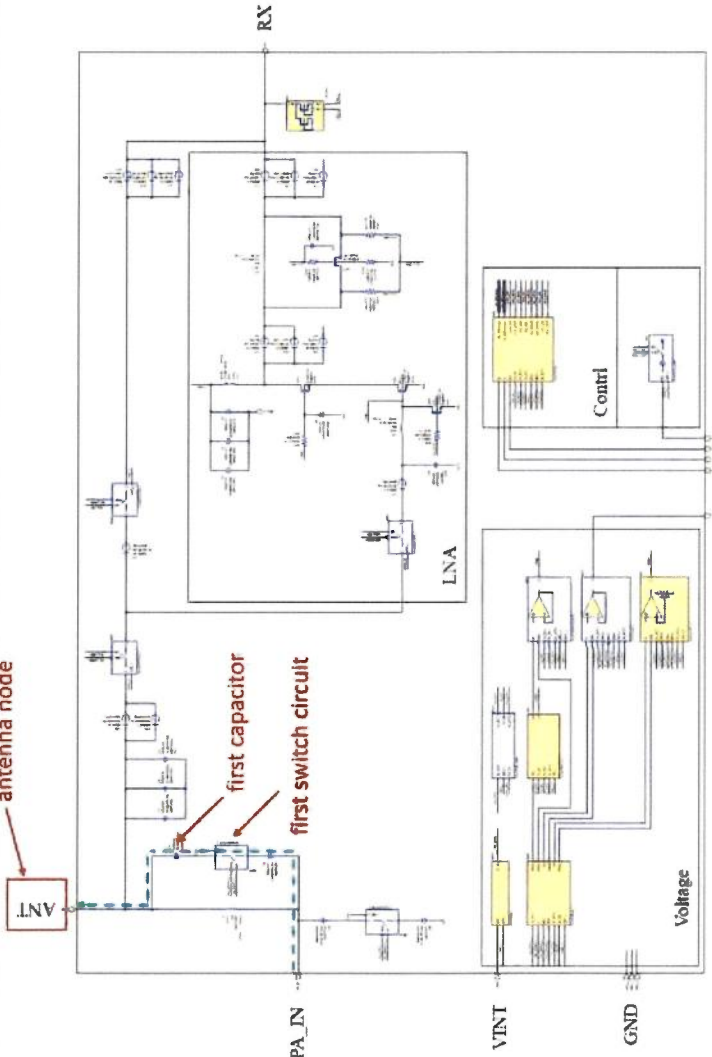
Claim	KCT8239S
	See, e.g., KCT8239S product description and simplified block diagram, https://perma.cc/NS2E-VPYU. For example, the photos below show the exterior of the KCT8239S device die package, front (left) and back (right).   See, e.g. photo of the KCT8239S product, exterior of package, front (left) and back (right).
1[A] a semiconductor substrate;	The KCT8239S comprises a semiconductor substrate. For example, a semiconductor substrate for the KCT8239S (indicated by black grid lines below) is the material upon which the devices on the die are fabricated.

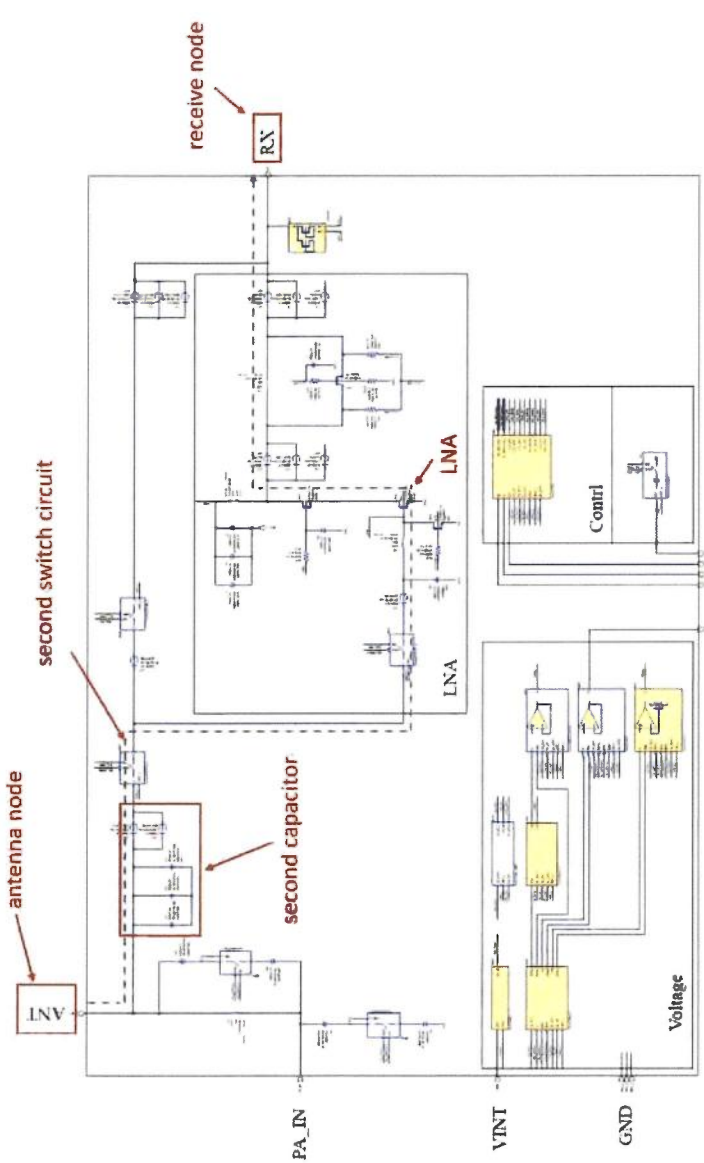
Claim	KCT8239S
	 semiconductor substrate <i>See, e.g.,</i> photo of the KCT8239S product, annotated to show the location of the semiconductor substrate.
1[B] a first switch circuit formed on the semiconductor substrate connected between an	The KCT8239S comprises a first switch circuit formed on the semiconductor substrate connected between an antenna node and a transmit node. For example, in the KCT8239S, the first switch circuit (identified by the corresponding red arrow below) is connected between the antenna node ("ANT," highlighted by the red box) and the transmit node ("PA IN," highlighted by the red box). In transmit mode, the signal path from the transmit node, through the first switch

Claim	KCT8239S antenna node and a transmit node; circuit, and to the antenna node is shown by the dashed green line below. The first switch circuit is formed on the semiconductor substrate.  The diagram is a detailed circuit schematic of the KCT8239S product. It shows an antenna node labeled 'ANT' connected to a first switch circuit. The switch circuit is controlled by a 'Control' block. The output of the switch circuit is connected to a transmit node labeled 'PA_IN'. The PA_IN node is connected to a Low Noise Amplifier (LNA) block. The LNA block is connected to a receiver (RX) block. The schematic also shows various other components like capacitors, inductors, and a voltage source labeled 'Voltage' connected to ground (GND). Red arrows point from the labels 'antenna node', 'transmit node', and 'first switch circuit' to their respective components in the schematic.
1[C] a second switch circuit formed on the	See, e.g., reverse engineered circuit schematic of the KCT8239S product's low noise amplifier die, annotated to show the location of a first switch circuit, transmit node, and antenna node. See also, 1[pre]-1[A]. The KCT8239S comprises a second switch circuit formed on the semiconductor substrate and connected between the antenna node and a receive node.

Claim semiconductor substrate and connected between the antenna node and a receive node;	KCT8239S For example, in the KCT8239S, the second switch circuit (indicated by the corresponding red arrow below) is connected between the antenna node ("ANT," highlighted by the red box) and the receive node ("RX," highlighted by the corresponding red box below). In receive mode, the approximate signal path from the antenna node (ANT) to the receive node (RX) through the low noise amplifier (LNA) (indicated by the corresponding red arrow below) is shown by the purple dashed line in the figure below. The second switch circuit is formed on the semiconductor substrate.  See, e.g., reverse engineered circuit schematic of the KCT8239S product's low noise amplifier die, annotated to show the location of a second switch circuit, receive node, low noise amplifier (LNA), and antenna node.
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Claim	KCT8239S
	<i>See also</i>, 1[pre]-1[A].
1[D] a first capacitor formed on the semiconductor substrate and connected in series with the first switch circuit between the first switch circuit and the antenna node;	The KCT8239S comprises a first capacitor formed on the semiconductor substrate and connected in series with the first switch circuit between the first switch circuit and the antenna node. For example, in the KCT8239S, the first capacitor (indicated by the corresponding red arrow below) is formed on the semiconductor substrate and is connected in series with the first switch circuit (indicated by the corresponding red arrow below). The approximate signal path during transmit mode is shown by the green dashed line in the figure below. In addition, the first capacitor is located between the first switch circuit and the antenna node (ANT) (indicated by the corresponding red arrow below).

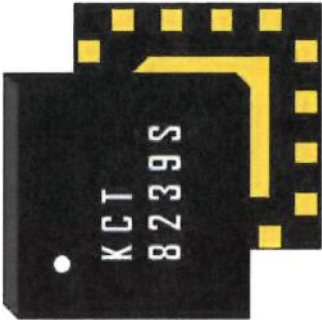
Claim	KCT8239S
	 The schematic diagram illustrates the internal components of the KCT8239S. At the top left, an 'ANT' block is connected to an 'antenna node'. This node leads to a 'first capacitor' and then a 'first switch circuit'. The output of the switch circuit is labeled 'PA_IN'. The signal path continues through a Low Noise Amplifier ('LNA') block, which is shown with its internal transistor and matching network details. The output of the LNA is labeled 'RX'. Below the main signal path, there are three yellow rectangular blocks labeled 'VENT', 'GND', and 'Voltage'. A 'Control' block is also present, connected to the 'Voltage' and 'GND' blocks. Various capacitors and inductors are shown throughout the circuit, with some values like 0.01, 0.001, and 0.0001 indicated. See, e.g., reverse engineered circuit schematic of the KCT8239S product's low noise amplifier die, annotated to show the location of the first switch circuit, first capacitor, and antenna node. See also, 1 [A].
1 [E] a second capacitor formed on the semiconductor substrate and	The KCT8239S comprises a second capacitor formed on the semiconductor substrate and connected in series with the second switch circuit between the second switch circuit and the antenna node. For example, in the KCT8239S, the second capacitor (indicated by the corresponding red arrow below) is formed on the semiconductor substrate and is connected in series with the second switch circuit (indicated by the

Claim connected in series with the second switch circuit between the second switch circuit and the antenna node; and	KCT8239S corresponding red arrow below). In receive mode, the approximate signal path from the antenna node (ANT) (indicated by the corresponding red arrow below) to the receive node (RX) (indicated by the corresponding red arrow below) through the low noise amplifier (LNA) (indicated by the corresponding red arrow below) is shown by the purple dashed line in the figure below. In addition, the second capacitor is located between the second switch circuit and the antenna node (ANT).  The diagram is a detailed circuit schematic for the KCT8239S product. It illustrates the signal path in receive mode. At the top left, a box labeled 'ANT' (antenna node) is connected to a circuit. A red arrow points to a component labeled 'second capacitor' between the antenna node and a 'second switch circuit'. The signal path continues through the second switch circuit, then through a 'LNA' (low noise amplifier) block, and finally to a box labeled 'RX' (receive node). A purple dashed line traces this path. Other components include a 'PA_IN' input, a 'Voltage' section with 'VTNT' and 'GND' pins, and a 'Control' section. Various electronic components like capacitors, inductors, and transistors are shown in detail.
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See, e.g., reverse engineered circuit schematic of the KCT8239S product's low noise amplifier die, annotated to show the second capacitor, low noise amplifier (LNA), second switch circuit, receive node, and antenna node.

Claim	KCT8239S
	See also, 1[A].
1[F] a first shunt arm formed on the semiconductor substrate and connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground.	The KCT8239S comprises a first shunt arm formed on the semiconductor substrate and connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground. For example, in the KCT8239S, the first shunt arm (indicated by the corresponding red bracket below) is formed on the semiconductor substrate and is connected to the first switch circuit (indicated by the corresponding red arrow below) and the transmit node (PA IN) (highlighted by a red box). The first shunt arm (indicated by the corresponding bracket below) includes a third switch circuit (indicated by the corresponding red arrow below) connected to ground (GND_2) (indicated by the corresponding red arrow below).

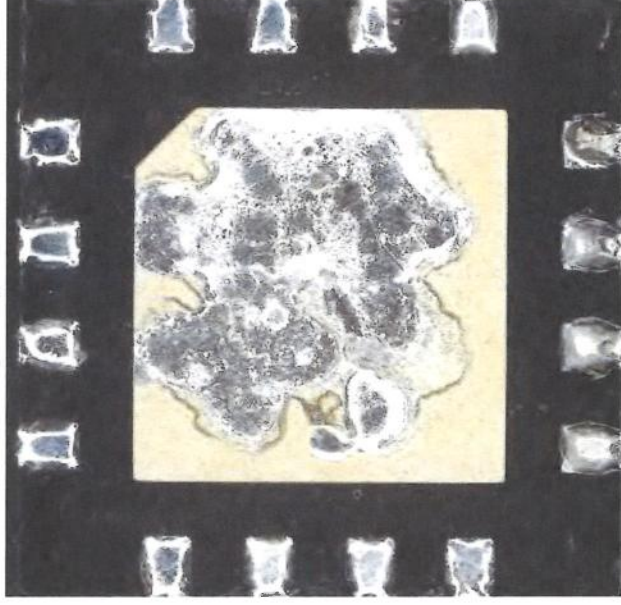
Claim	KCT8239S
	The diagram is a detailed circuit schematic for the KCT8239S. It features an antenna node (ANT) connected to a network of capacitors and inductors. A PA_IN signal is input to a first switch circuit, which is connected to a first shunt arm leading to ground. A third switch circuit is also shown, connected to a VINT node. A Voltage section contains three yellow blocks representing power management components. A Control section includes a microcontroller-like component. An LNA (Low Noise Amplifier) block is connected to the RX (Receiver) output. The schematic includes various passive components like capacitors and inductors, and active components like transistors and diodes.
	See, e.g., reverse engineered circuit schematic of the KCT8239S product's low noise amplifier die identifying the transmit node, the first switch circuit, first shunt arm, third switch circuit, and ground. See also, 1[A].
7[pre]. A method for operating a radio-frequency (RF) device, the	To the extent that the preamble of claim 7 is limiting, the KCT8239S performs a method for operating a radio-frequency (RF) device, comprising the steps shown below and for claim elements 7[A]-7[C].

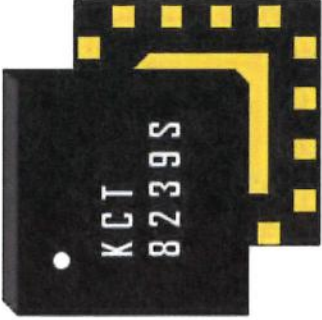
Claim	KCT8239S
method comprising:	For example, the KCT8239S product description below states that the KCT8239S is an “RF Front-end Module” that “is a fully integrated 802.11b/g/n/ac/ax WLAN RF Front-end module (FEM) which incorporates key RF functionality.”³ KCT8239S 2.4GHz 802.11ax RF Front-End Module Introduction KCT8239S is a fully integrated 802.11b/g/n/ac/ax WLAN RF Front-end module (FEM) which incorporates key RF functionality. It is integrated with a high-efficiency power amplifier (PA), a low noise amplifier (LNA) with bypass the associated matching network and a single-pole double-throw (SPDT) switch all in one device  The PA power detector and a digital enable control are also integrated. KCT8239S is assembled in a compact low-profile 3*3*0.55mm 16-pin MIS package. It is the perfect RF Front-end solution for implementing 2.4GHz high-performance WLAN systems supporting multiple standards. See, e.g., KCT8239S product description, https://perma.cc/NS2E-VPYU.

³ See <https://perma.cc/NS2E-VPYU>.

Claim	KCT8239S
	For example, the KCT8239S has an RF switch (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals.⁴ The KCT product description describes the switch as a “T/R switch” (indicated by the red underlining in the text below). The figure below also shows the power amplifier (indicated by the corresponding red arrow below), the antenna node (indicated by the corresponding red arrow below), the receive node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the corresponding red arrow below). Specifications <u>Integrated high performance 2.4GHz PA, LNA with by-pass, and T/R switch</u> Fully-matched input and output Integrated Power Detector Output power • 20dBm @ DEVM=-43dB HE40/MCS11, 5V • 20.5dBm @ DEVM=-40dB HE40/MCS11, 5V • 22dBm @ DEVM=-35dB VHT40/MCS9, 5V • 23dBm @ DEVM=-30dB HT20/MCS7, 5V Transmit gain: 29dB at 5V Receive gain: 19dB at 5V Noise Figure: 2.6dB at 5V ESD protection circuitry on all PINs Minimal External Components Required Small package: MSL-16L, 3x3x0.55mm (MSL-16L, 260°C per JEDEC J-STD-020) ROHS and REACH Compliant The diagram shows a 16-pin package with the following connections and annotations: Pin 1: PDET Pin 2: VCC2 Pin 3: VCC1 Pin 4: PA_EN Pin 5: TX Pin 6: GND Pin 7: GND Pin 8: RX Pin 9: VDD Pin 10: GND Pin 11: C0 Pin 12: C1 Pin 13: GND Pin 14: GND Pin 15: ANT Pin 16: GND Internal circuitry includes a power amplifier (PA) and a low noise amplifier (LNA). Red arrows point to the following components: antenna node: Points to the ANT pin (Pin 15). power amplifier: Points to the PA block. low noise amplifier: Points to the LNA block. input to power amplifier: Points to the input of the PA block. receive node: Points to the RX pin (Pin 8). RF switch: Points to the switch between the ANT pin and the PA/LNA blocks.

⁴ See <https://perma.cc/NS2E-VPYU>.

Claim	KCT8239S See, e.g., KCT8239S product description and simplified block diagram, https://perma.cc/NS2E-VPYU. For example, the photos below show the exterior of the KCT8239S device die package, front (left) and back (right).   See, e.g. photo of the KCT8239S product, exterior of package, front (left) and back (right).
7[A] providing an RF device including a first switch circuit connected between an antenna node and a transmit node, a second switch circuit connected between the antenna node and a receiver node, a first capacitor connected in series with the first switch circuit between the first switch circuit and the antenna node, a second capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node, and a first shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground.	The KCT8239S provides an RF device including a first switch circuit connected between an antenna node and a transmit node, a second switch circuit connected between the antenna node and a receiver node, a first capacitor connected in series with the first switch circuit between the first switch circuit and the antenna node, a second capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node, and a first shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground.

Claim	KCT8239S
a transmit node, a second switch circuit connected between the antenna node and a receiver node, a first capacitor connected in series with the first switch circuit between the first switch circuit and the antenna node, a second capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node, and a first shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch	For example, the KCT8239S product description below states that the KCT8239S is an “RF Front-end Module” that “is a fully integrated 802.11b/g/n/ac/ax WLAN RF Front-end module (FEM) which incorporates key RF functionality.”⁵ KCT8239S 2.4GHz 802.11ax RF Front-End Module Introduction <u>KCT8239S is a fully integrated 802.11b/g/n/ac/ax WLAN RF Front-end module (FEM) which incorporates key RF functionality. It is integrated with a high-efficiency power amplifier (PA), a low noise amplifier (LNA) with bypass the associated matching network and a single-pole double-throw (SPDT) switch all in one device</u> The PA power detector and a digital enable control are also integrated. KCT8239S is assembled in a compact, low-profile 3*3*0.55mm 16-pin MIS package. It is the perfect RF Front-end solution for implementing 2.4GHz high-performance WLAN systems supporting multiple standards  See, e.g., KCT8239S product description, https://perma.cc/NS2E-VPYU.

⁵ See <https://perma.cc/NS2E-VPYU>.

KCT8239S	
Claim	<i>See also, claims 1 [pre]-1 [F], 7 [pre].</i>
circuit connected to ground;	
7[B] controlling an RF switch of the RF device by placing the first switch circuit in an ON state and the RF device by placing the first switch circuit in an OFF state and placing the third switch circuit in an ON state and placing the third switch circuit in an OFF state; and	The KCT8239S controls an RF switch of the RF device by placing the first switch circuit in an ON state and placing the third switch circuit in an OFF state. For example, the KCT8239S has an RF switch (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals.⁶ The KCT product description describes the switch as a “T/R switch” (indicated by the red underlining in the text below). The figure below also shows the power amplifier (indicated by the corresponding red arrow below), the antenna node (indicated by the corresponding red arrow below), the receive node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the corresponding red arrow below).

⁶ See <https://perma.cc/NS2E-VPYU>.

Specifications

Integrated high performance 2.4GHz PA, LNA with bypass and T/R switch

Fully-matched input and output

Integrated Power Detector

Output power

+20dBm @ DEVN=-43dB HE40MCS11 5V

+20.5dBm @ DEVN=-40dB HE40MCS11 5V

+22dBm @ DEVN=-35dB VHT40MCS8 5V

+23dBm @ DEVN=-30dB HT20MCS7 5V

Transmit gain 28dB at 5V

Receive gain 19dB at 5V

Noise Figure 2.6dB at 5V

ESD protection circuitry on all PINs

Minimal External Components Required

Small package MIS-16L 3*3*0.55mm (MSL 16L 260°C per JEDEC J-STD-020)

ROHS and REACH Compliant

See, e.g., KCT8239S product description and simplified block diagram, <https://perma.cc/NS2E-VPYU>.

For example, during use, the RF switch of the KCT8239S works by turning ON the first switch circuit (indicated by the corresponding red arrow below) while turning OFF the third switch circuit (indicated by the corresponding red arrow below) to allow a signal to pass through the first switch circuit. This allows the signal to be transmitted from the transmit node (indicated by the corresponding red arrow below) to the antenna node (indicated by the corresponding red arrow below) as shown by the path of the green dashed line below.

Claim	KCT8239S
	The schematic diagram illustrates the internal components of the KCT8239S. At the top, an 'antenna node' is connected to an 'LNA' (Low Noise Amplifier) block. Below the antenna node, a 'first capacitor' and a 'first switch circuit' are shown. A 'PA_IN' block, labeled as a 'transmit node', is connected to the first switch circuit. The first switch circuit is connected to a 'third switch circuit'. The third switch circuit is connected to a 'VINT' node, which is also connected to a 'GND' node. A 'Voltage' block is connected to the VINT node. A 'Control' block is connected to the VINT node and the GND node. The RX (Receiver) output is shown at the top right of the schematic.
	See, e.g., reverse engineered circuit schematic of the KCT8239S product's low noise amplifier die, identifying the antenna node, first capacitor, first switch circuit, third switch circuit, and transmit node. See also, claim 7 [pre].
7[C] inhibiting a low-frequency blocker signal from mixing with	The KCT8239S inhibits a low-frequency blocker signal from mixing with a fundamental-frequency signal in the RF switch using the first capacitor.

Claim	KCT8239S
a fundamental-frequency signal in the RF switch using the first capacitor.	For example, during use, the first capacitor inhibits a low frequency blocker signal from mixing with a fundamental frequency signal in the RF switch (indicated by the corresponding red arrow below). RF switch See, e.g., KCT8239S simplified block diagram, https://perma.cc/NS2E-VPYU. For example, in the KCT8239S, the positioning of the first capacitor (indicated by the corresponding red arrow below) between the antenna node (indicated by the corresponding red arrow below) and the first switch circuit performs this function. The first capacitor filters the low frequency signal because the low frequency signal, in contrast to a high frequency signal, allows the capacitor time to charge. This charging process stops a low frequency signal from continuing along the signal path during transmission (indicated by the green dashed line below).

Claim	KCT8239S
	The diagram is a detailed circuit schematic for the KCT8239S product. It features several key components and nodes: Antenna Node: Indicated by a red box labeled 'ANT' and a red arrow pointing to the antenna input. First Capacitor: A red arrow points to a capacitor in the input matching network. First Switch Circuit: A red arrow points to a switch structure in the input path. Transmit Node: A red box labeled 'PA_IN' with a red arrow pointing to the input of the power amplifier section. Third Switch Circuit: A red arrow points to a switch structure in the output path. LNA (Low Noise Amplifier): A large block in the center-right of the schematic. RX (Receiver): A block at the top right of the schematic. Voltage and Control: Two blocks at the bottom right, labeled 'Voltage' and 'Control', which manage the power and operation of the circuit.

See, e.g., reverse engineered circuit schematic of the KCT8239S product's low noise amplifier die, identifying the antenna node, first capacitor, first switch circuit, third switch circuit, and transmit node.

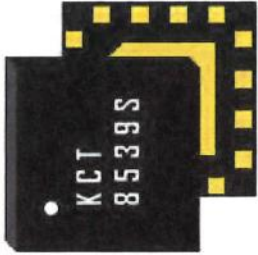
EXHIBIT 24

EXHIBIT 24
SKYWORCS SOLUTIONS, INC.'S INFRINGEMENT CHART
KCT8539S
U.S. Patent No. 9,148,194
Independent Claim 4

Skyworks Solutions, Inc. ("Skyworks") provides this exemplary claim chart for independent claim 4 of U.S. Patent No. 9,148,194 (the "'194 patent") applied to Kangxi Communication Technologies (Shanghai) Co., Ltd.'s and Grand Chip Labs, Inc.'s (collectively, "KCT") KCT8539S product. The disclosures in this claim chart directed to the KCT8539S are also more broadly directed to any sale, offer for sale, use, or importation of the KCT8539S in the U.S., including in an end product such as a wireless router or as a standalone product that is not incorporated in an end product.

The claim chart below demonstrates infringement by comparing each element of the charted claim to corresponding components, aspects, and/or features of the KCT8539S product. This claim chart is not intended to constitute an expert report on infringement. This claim chart includes information provided by way of example, and not by way of limitation.

The analysis set forth below is based only upon information from publicly available sources regarding the KCT8539S product. Further analysis of non-public information during fact discovery will likely assist in identifying all infringing features and functionalities used by KCT in the KCT8539S product. Accordingly, Skyworks reserves the right to supplement this infringement analysis once such information is made available to Skyworks. Further, Skyworks reserves the right to supplement this infringement analysis, as appropriate, upon issuance of an order construing any terms recited in the asserted claim or as other circumstances so merit.

Claim 4	KCT8539S
4[pre] A radio-frequency (RF) switch system comprising:	To the extent the preamble of claim 4 is limiting, the KCT8539S comprises a radio-frequency (RF) switch system. For example, the KCT8539S product description below states that the KCT8539S is an “RF Front-end Module” that “incorporates key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.85GHz range.”¹  KCT8539S 5GHz 802.11ax RF Front-End Module Introduction KCT8539S is a highly integrated RF Front-End Integrated Circuit incorporates key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.85GHz range. KCT8539S integrates a high-efficiency high-linearity power amplifier (PA), a low noise amplifier (LNA) with bypass, the associated matching network, LO rejection and harmonic filters all in one device. KCT8539S has simple and low-voltage control logic and requires minimal external components. A power detector is also integrated for accurately monitoring of output power from the PA. KCT8539S is assembled in a compact low-profile 3x3x0.85mm 16-lead LGA package. KCT8539S is the ideal RF front-end solution for implementing 5GHz high-power WLAN systems supporting multiple standards including 802.11a/n/ac/ax. See, e.g., KCT8539S product description, https://perma.cc/DA7F-4CED. For example, the KCT8539S has a transmit/receive switch (“T/R switch”) (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals.² The KCT product description

¹ See <https://perma.cc/DA7F-4CED>.

² See <https://perma.cc/DA7F-4CED>.

Claim 4

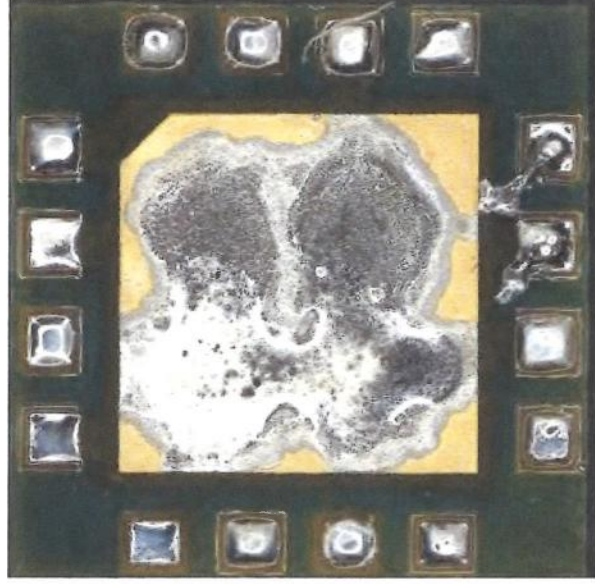
KCT8539S

describes the switch as a “T/R switch” (indicated by the red underlining in the text below). The figure below also shows the power amplifier (indicated by the corresponding red arrow below), the antenna node (indicated by the corresponding red arrow below), the receive node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the corresponding red arrow below).

The diagram illustrates the internal architecture of the KCT8539S. It features a central T/R switch (Transmit/Receive switch) that routes signals between an antenna node (ANT) and either a power amplifier (PA) or a low noise amplifier (LNA). The PA is labeled 'input to power amplifier' and the LNA is labeled 'receive node'. A 'switch system' label points to the T/R switch. A 'VDET' (voltage detector) is connected to the PA. The PA has a 'PA_EN' (power amplifier enable) input. The LNA has a 'low noise amplifier' label. The antenna node is labeled 'ANT'. The diagram also shows a 'TX' (transmit) and 'RX' (receive) port. Red arrows point to the PA, LNA, T/R switch, and antenna node, corresponding to the red annotations in the text below.

Specifications	
Integrated 107.11MHz 5GHz PA, LNA with bypass and T/R switch	
Fully matched input and output	
Integrated power detector	
Transmit gain	30dB at 5V
Receive gain	14dB at 5V
Noise Figure	2.6dB at 5V
Output power	
• 17dBm @ 43dB DEVM	HF1670MCS11 5V
• 20dBm @ 40dB DEVM	HE1670MCS11 5V
• 21.5dBm @ 35dB DEVM	VHT670MCS9 5V
• 22.5dBm @ 30dB DEVM	HT20MCS7 5V
ESD protection circuitry on all I/Os	
Minimal external components required	
Small package: LGA 1xL 3mmx3mmx0.35mm (HSL3, 260°C per JEDEC J STD 020)	
RoHS and REACH Compliant	

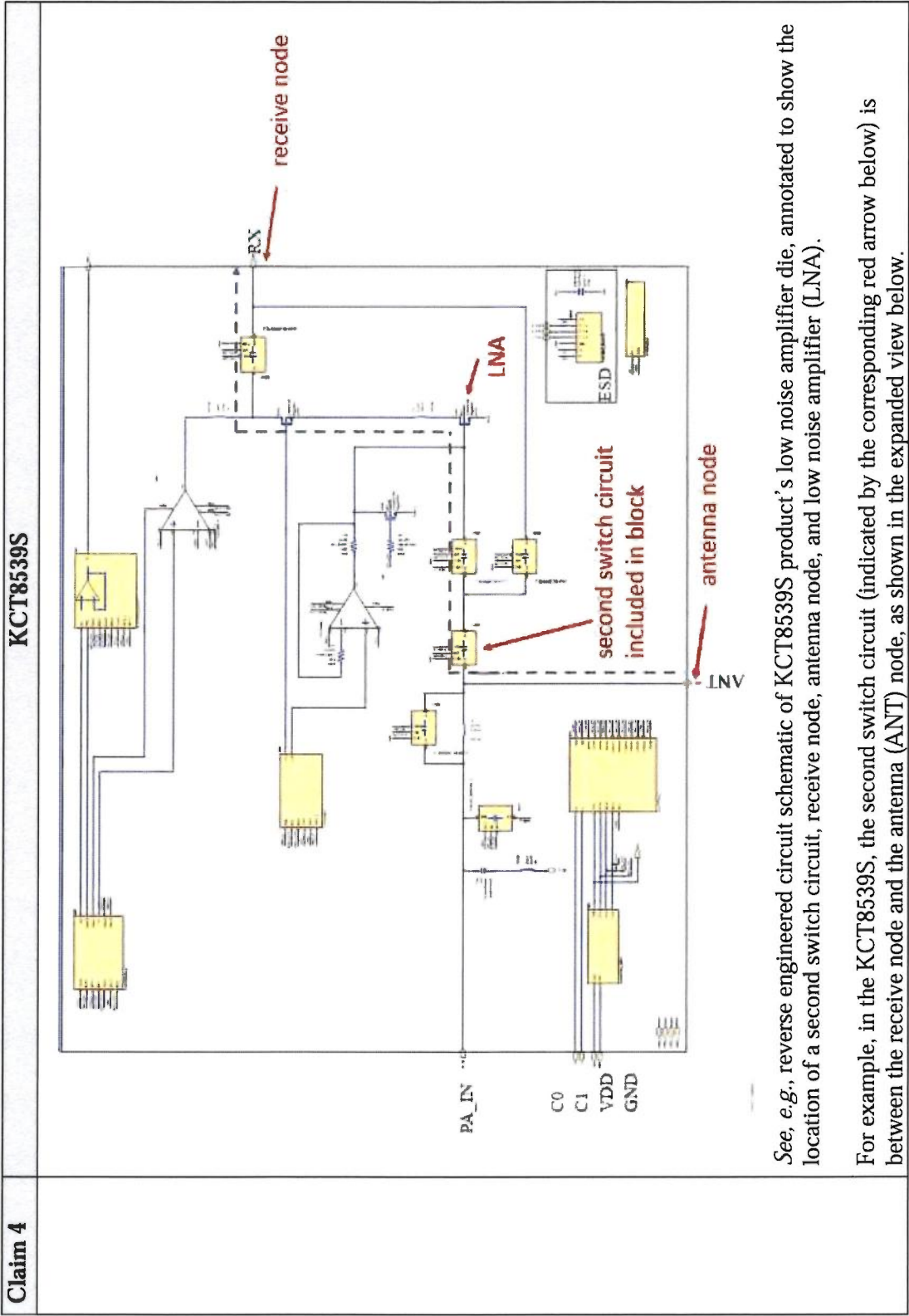
See, e.g., KCT8539S product description and simplified block diagram, <https://perma.cc/DA7F-4CED>.

Claim 4	KCT8539S
	For example, the photos below show the exterior of the KCT8539S device die package, front (left) and back (right).   <i>See, e.g.</i> photo of KCT8539S product, exterior of package, front (left) and back (right).
4[A] a first switch circuit connected between an antenna node and a transmit node;	The KCT8539S comprises a first switch circuit connected between an antenna node and a transmit node. For example, in the KCT8539S, the first switch circuit (located within the block and identified by the corresponding red arrow below) is connected between the antenna node (indicated by the corresponding red arrow below) and the transmit node (indicated by the corresponding red arrow below). In transmit mode, the signal path from the transmit node, through the first switch circuit, and to the antenna node is shown by the green dashed line below.

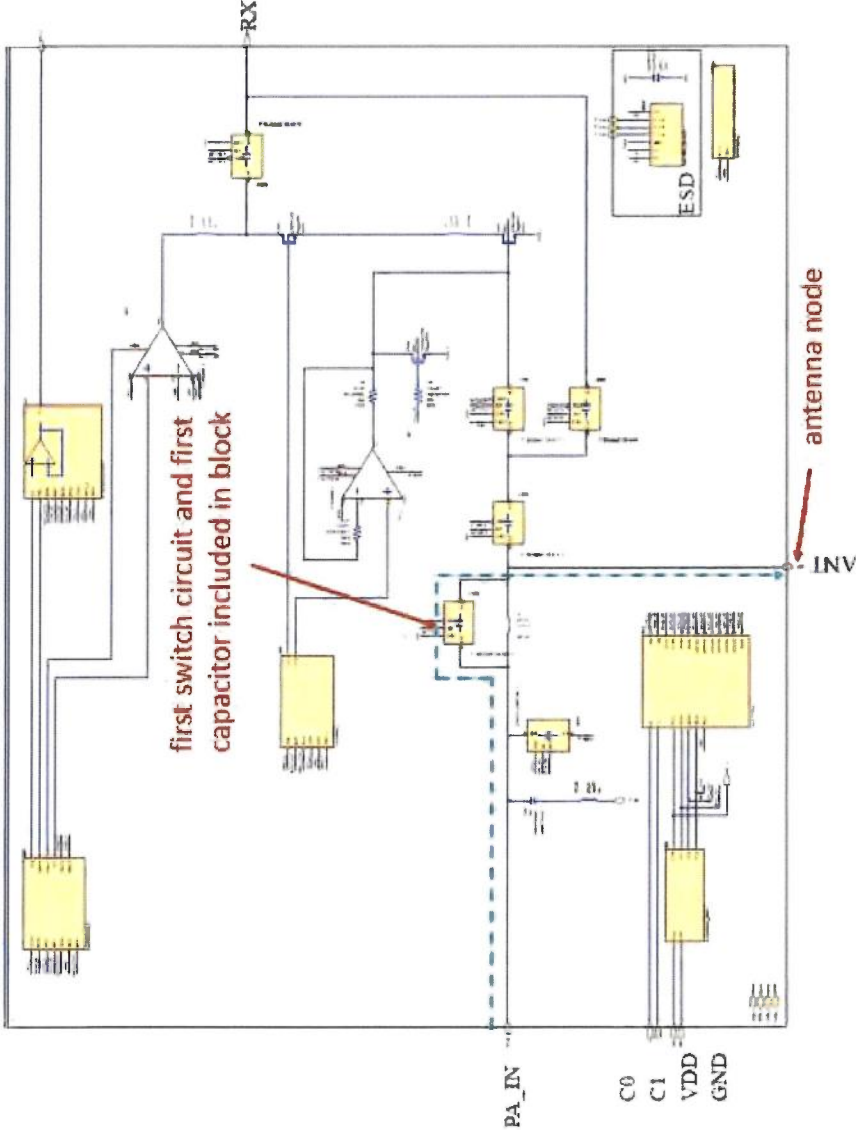
Claim 4	KCT8539S The diagram is a reverse-engineered circuit schematic for the KCT8539S. It features a central IC with multiple pins. Key nodes are highlighted with red arrows and labels: 'transmit node' points to the PA_IN pin; 'first switch circuit included in block' points to a dashed blue rectangular area on the left side of the IC; and 'antenna node' points to the INV pin. The circuit includes various components such as capacitors (C0, C1), a voltage divider (VDD), ground connections (GND), and an ESD protection circuit. A receiver path (RX) is also shown on the right side of the IC. See, e.g., reverse engineered circuit schematic of KCT8539S product, annotated to show the location of a first switch circuit, transmit node, and antenna node. For example, in the KCT8539S, the first switch circuit (indicated by the corresponding red arrow below) is between the transmit node and the antenna (ANT) node, as shown in the expanded view below.
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Claim 4	KCT8539S The schematic diagram illustrates the internal circuitry of the KCT8539S component. It features a central horizontal line representing a signal path. Above this line, there are two main sections. The left section, labeled 'To antenna node', includes a series of resistors and capacitors. The right section, labeled 'To transmit node', also includes resistors and capacitors. A red bracket labeled 'first switch circuit' spans across the middle of the schematic, indicating a specific functional block. Various electronic components are labeled with their values, such as resistors (e.g., 10k, 1k, 100k) and capacitors (e.g., 100pF, 1nF). The diagram is oriented vertically on the page.
4[B] a	The KCT8539S comprises a second switch circuit connected between the antenna node and a receive node.

Claim 4	KCT8539S
second switch circuit connected between the antenna node and a receive node;	For example, in the KCT8539S, the second switch circuit (located in the box and identified by the corresponding red arrow below) is connected between the antenna node (indicated by the corresponding red arrow below) and the receive node (indicated by the corresponding red arrow below). In receive mode, the approximate signal path from the antenna node to the receive node through the low noise amplifier (LNA) is shown by the dashed purple line in the figure below.



Claim 4	
	The diagram shows a detailed circuit schematic for the KCT8539S product. It features two input nodes at the top: "To receive node" on the left and "To antenna node" on the right. The circuit includes several capacitors labeled C20 through C26, many resistors with values like 1k, 10k, 100k, and various MIMCAP components. A central section is highlighted with a bracket and labeled "second switch circuit". At the bottom, there are connections for "SW" (switch) and "GND".
	See, e.g., reverse engineered circuit schematic of KCT8539S product showing an expanded view of block containing the second switch circuit on the low noise amplifier die.
4[C] a first capacitor connected in series	The KCT8539S comprises a first capacitor connected in series with the first switch circuit between the first switch circuit and the antenna node. For example, in the KCT8539S, the first capacitor (indicated by the corresponding red arrow below) is connected in

Claim 4 with the first switch circuit between the first switch circuit and the antenna node;	KCT8539S series with the first switch circuit (indicated by the corresponding red arrow below). The approximate signal path during transmit mode is shown by the green dashed line in the figure below. In addition, the first capacitor is located between the first switch circuit and the antenna node (ANT) (indicated by the corresponding red arrow below).  PA_IN C0 C1 VDD GND ESD ANT antenna node first switch circuit and first capacitor included in block
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Claim 4	KCT8539S
	See, e.g., reverse engineered circuit schematic of KCT8539S product's low noise amplifier die, annotated to show the location of a first switch circuit, first capacitor, and antenna node. For example, in the KCT8539S, the first switch circuit and first capacitor are in series. In addition, the first capacitor is between the first switch circuit and the antenna (ANT) node, as shown below.

Claim 4

KCT8539S

The circuit schematic shows a signal path from an antenna node through a first capacitor and a first switch circuit. The first capacitor is a 10 nF capacitor. The first switch circuit consists of a 100 pF capacitor and a 100 pF capacitor. The circuit also includes a 100 pF capacitor and a 100 pF capacitor. The circuit is powered by a 1.5V battery and a 1.5V battery. The circuit is labeled with various component values and part numbers.

To antenna node

first capacitor

first switch circuit

See, e.g., reverse engineered circuit schematic of KCT8539S product showing an expanded view of block containing the first switch circuit and first capacitor.

Claim 4	KCT8539S
4[D] a second capacitor connected in series with the second switch circuit between the antenna node;	The KCT8539S comprises a second capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node. For example, in the KCT8539S, the second capacitor and the second switch circuit (indicated by the corresponding red arrow below) are located in the block, in which the second capacitor is connected in series with the second switch circuit. In receive mode, the approximate signal path from the antenna node (ANT) (indicated by the corresponding red arrow below) to the receive node (RX) (indicated by the corresponding red arrow below) through the low noise amplifier (LNA) (indicated by the corresponding red arrow below) is shown by the purple dashed line in the figure below. The second capacitor and the second switch circuit are in the block as indicated by the corresponding red arrow below.

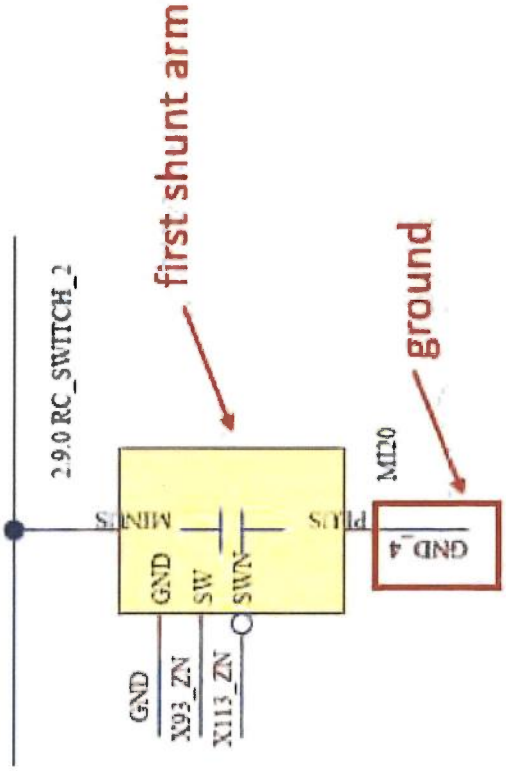
Claim 4	KCT8539S
	The diagram is a reverse-engineered circuit schematic of the KCT8539S product's low noise amplifier (LNA) die. It shows a complex network of transistors, capacitors, and inductors. Key components and nodes are labeled: PA_IN, C0, C1, VDD, GND, RX, LNA, and INV. A dashed line separates the circuit into two main sections. A red arrow points to a node labeled 'receive node' near the RX input. Another red arrow points to a node labeled 'antenna node' near the INV input. A third red arrow points to a node labeled 'second switch circuit and second capacitor included in black' near the LNA output. The schematic includes various passive components like capacitors (C0, C1) and inductors (L), as well as active components like transistors and diodes. The overall layout is organized to show the signal flow from the antenna node through the LNA to the RX output.

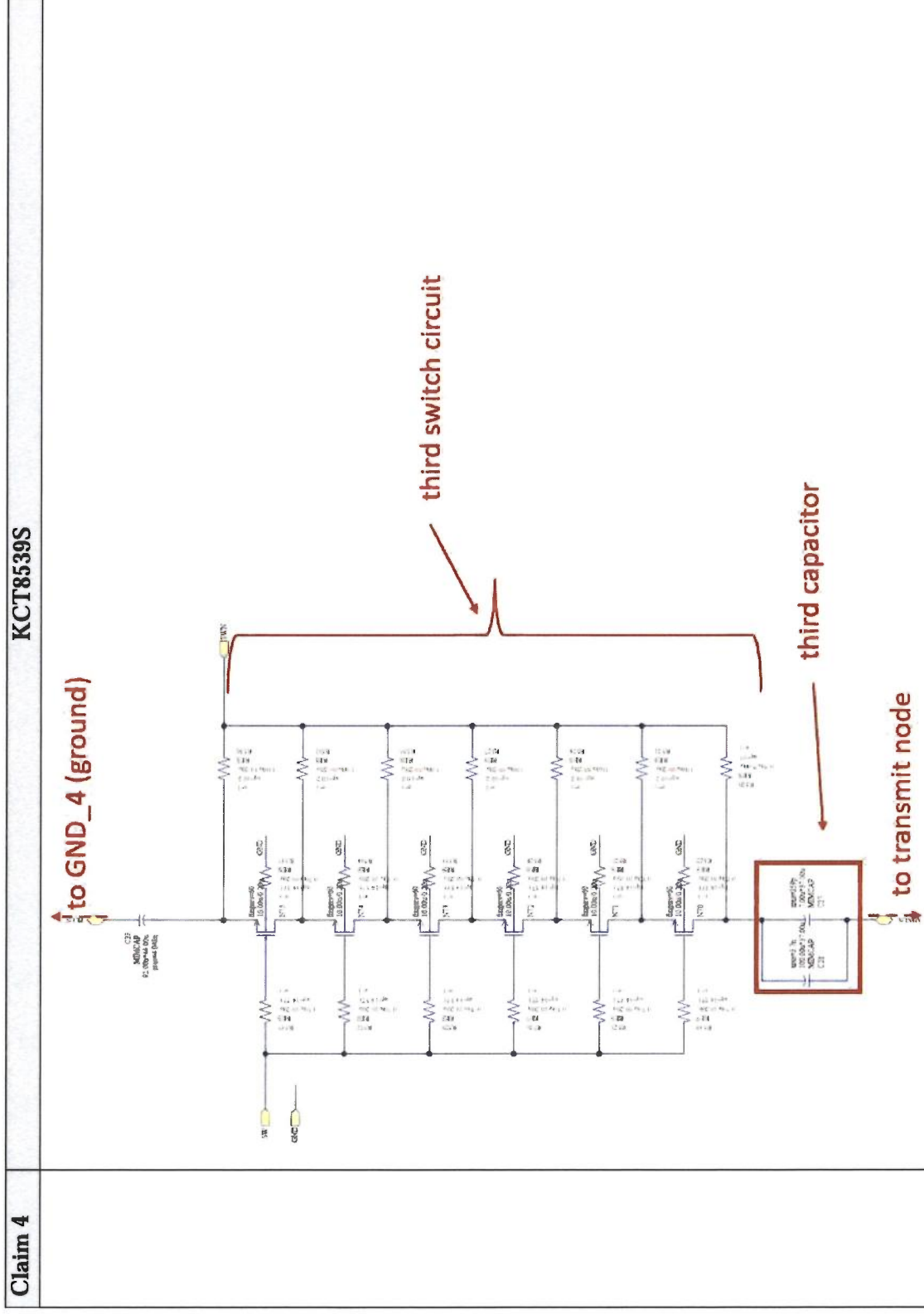
See, e.g., reverse engineered circuit schematic of KCT8539S product's low noise amplifier die, annotated to show the antenna node, receive node, low noise amplifier (LNA), second switch circuit, and second capacitor.

For example, the second capacitor (indicated by the corresponding red arrow below) is connected in series with the second switch circuit (indicated by the corresponding red arrow below). In addition, the second capacitor is located

Claim 4	KCT8539S
shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground and a third capacitor connected between the third switch circuit and the transmit node.	arm including a third switch circuit connected to ground and a third capacitor connected between the third switch circuit and the transmit node. For example, in the KCT8539S, the first shunt arm (indicated by the corresponding red arrow identifying the corresponding block below) is connected to the first switch circuit (indicated by the red arrow identifying the corresponding block below) and the transmit node (indicated by the corresponding red arrow below). The first shunt arm (indicated by the corresponding red arrow identifying the corresponding block below) includes a third switch circuit (indicated by the red arrow identifying the corresponding block below) connected to ground (indicated by the corresponding red arrow below).

Claim 4	KCT8539S
	The schematic diagram illustrates the internal circuitry of the KCT8539S low noise amplifier. Key components and nodes are labeled with red text and arrows: transmit node: Points to the PA_IN input node. third switch circuit included in block: Points to a switch circuit connected to the PA_IN node. first shunt arm: Points to a shunt arm circuit. first switch circuit included in block: Points to a switch circuit connected to the first shunt arm. ground: Points to a ground connection. Other labeled components include: RX, ESD, C0, C1, VDD, GND, and IN_T. The diagram shows various transistors, capacitors, and interconnects typical of a high-frequency integrated circuit.
See, e.g., reverse engineered circuit schematic of KCT8539S product's low noise amplifier die showing the first shunt arm, the first switch circuit, third switch circuit, transmit node, and ground. For example, an enlarged view of the circuit schematic block corresponding to the first shunt arm (indicated by the corresponding red arrow below) shows that it is connected to ground (GND 4) (indicated by the corresponding red arrow below).	

Claim 4	KCT8539S
	arrow below).  See, e.g., reverse engineered circuit schematic of KCT8539S product showing the ground connection of the first shunt arm on the low noise amplifier die. For example, in the KCT8539S, the first shunt arm shown below includes a third switch circuit (indicated by the corresponding red arrow and bracket) and a third capacitor. The third capacitor (indicated by the corresponding red arrow below) is connected between the third switch circuit and the transmit node.



Claim 4	KCT8539S
	See, e.g., reverse engineered circuit schematic of KCT8539S product showing an expanded view of the first shunt arm, identifying the third switch circuit on the low noise amplifier die.

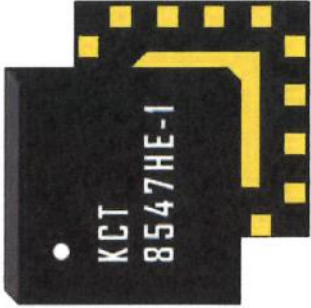
EXHIBIT 25

EXHIBIT 25
SKYWORKS SOLUTIONS, INC.'S INFRINGEMENT CHART
KCT8547HE
U.S. Patent No. 9,148,194
Independent Claim 4

Skyworks Solutions, Inc. ("Skyworks") provides this exemplary claim chart for independent claim 4 of U.S. Patent No. 9,148,194 (the "'194 patent") applied to Kangxi Communication Technologies (Shanghai) Co., Ltd's and Grand Chip Labs, Inc.'s (collectively, "KCT") KCT8547HE product. The disclosures in this claim chart directed to the KCT8547HE are also more broadly directed to any sale, offer for sale, use, or importation of the KCT8547HE in the U.S., including in an end product such as a wireless router or as a standalone product that is not incorporated in an end product.

The claim chart below demonstrates infringement by comparing each element of the charted claim to corresponding components, aspects, and/or features of the KCT8547HE product. This claim chart is not intended to constitute an expert report on infringement. This claim chart includes information provided by way of example, and not by way of limitation.

The analysis set forth below is based only upon information from publicly available sources regarding the KCT8547HE product. Further analysis of non-public information during fact discovery will likely assist in identifying all infringing features and functionalities used by KCT in the KCT8547HE product. Accordingly, Skyworks reserves the right to supplement this infringement analysis once such information is made available to Skyworks. Further, Skyworks reserves the right to supplement this infringement analysis, as appropriate, upon issuance of an order construing any terms recited in the asserted claim or as other circumstances so merit.

Claim 4	KCT8547HE
4[pre] A radio-frequency (RF) switch system comprising:	To the extent the preamble of claim 4 is limiting, the KCT8547HE comprises a radio-frequency (RF) switch system. For example, the KCT8547HE product description below states that the KCT8547HE is an “RF Front-end Module” that is a “highly integrated RF Front-End Integrated Circuit incorporat[ing] key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range.”¹  KCT8547HE-1 5GHz Mid Power 802.11ax RF Front-end Module Introduction KCT8547HE-1 is a highly integrated RF Front-End Integrated Circuit incorporates key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range. KCT8547HE-1 integrates a high-efficiency high-linearity power amplifier (PA), a low noise amplifier (LNA) with bypass, the associated matching network and harmonic filters all in one device. KCT8547HE-1 has simple and low-voltage control logic, and requires minimal external components. A power detector is also integrated for accurately monitoring of output power from the PA. KCT8547HE-1 is assembled in a compact, low-profile 3x3x0.55mm 16-lead MIS package. KCT8547HE-1 is the ideal RF front-end solution for implementing 5GHz high-power WLAN systems supporting multiple standards including 802.11a/n/ac/ax.

¹ See <https://perma.cc/GV2Y-HD8A>.

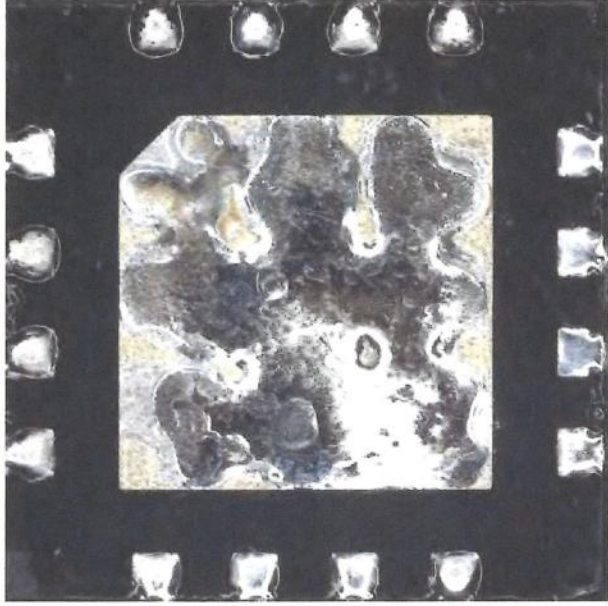
Claim 4	KCT8547HE
	<i>See, e.g.</i>, KCT8547HE product description, https://perma.cc/GV2Y-HD8A. For example, the KCT8547HE has an RF switch (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals.² The KCT product description describes the switch as a “T/R switch” (indicated by the red underlining in the text below). The figure below also shows the power amplifier (indicated by the corresponding red arrow below), the antenna node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the receive node (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the corresponding red arrow below).

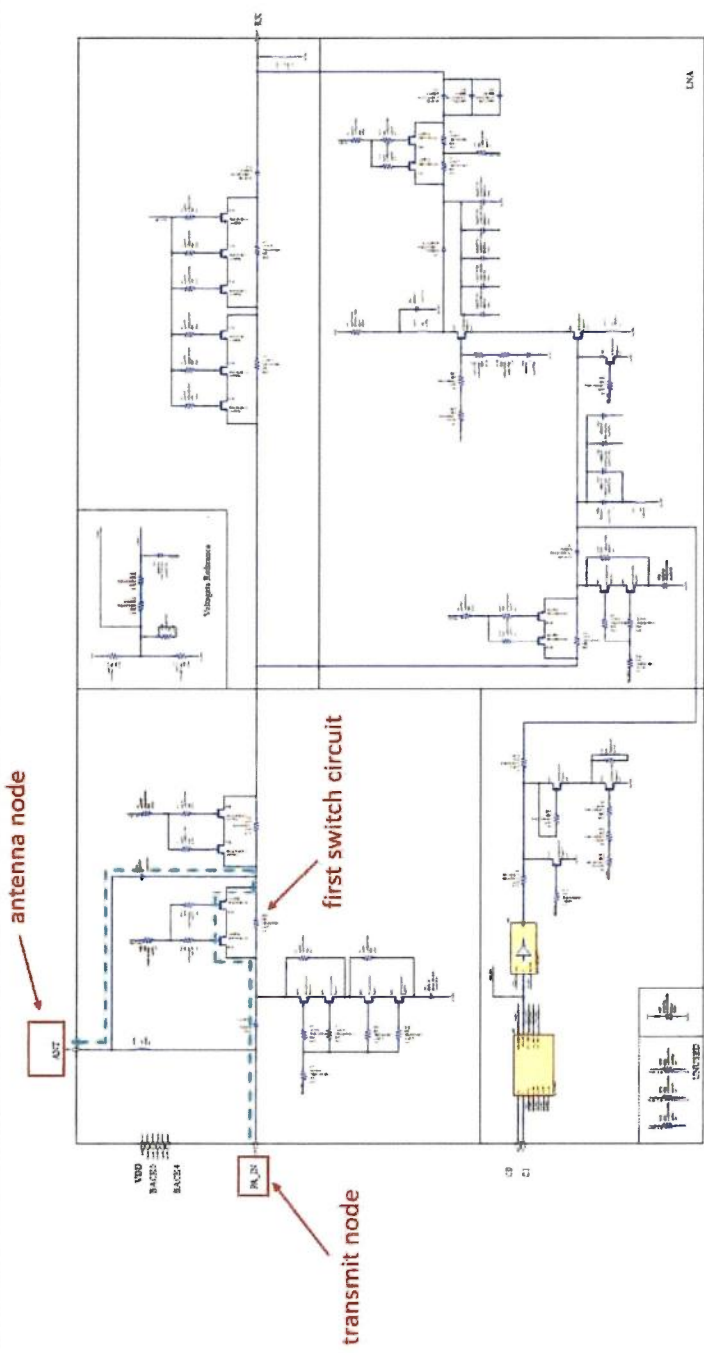
² See <https://perma.cc/GV2Y-HD8A>.

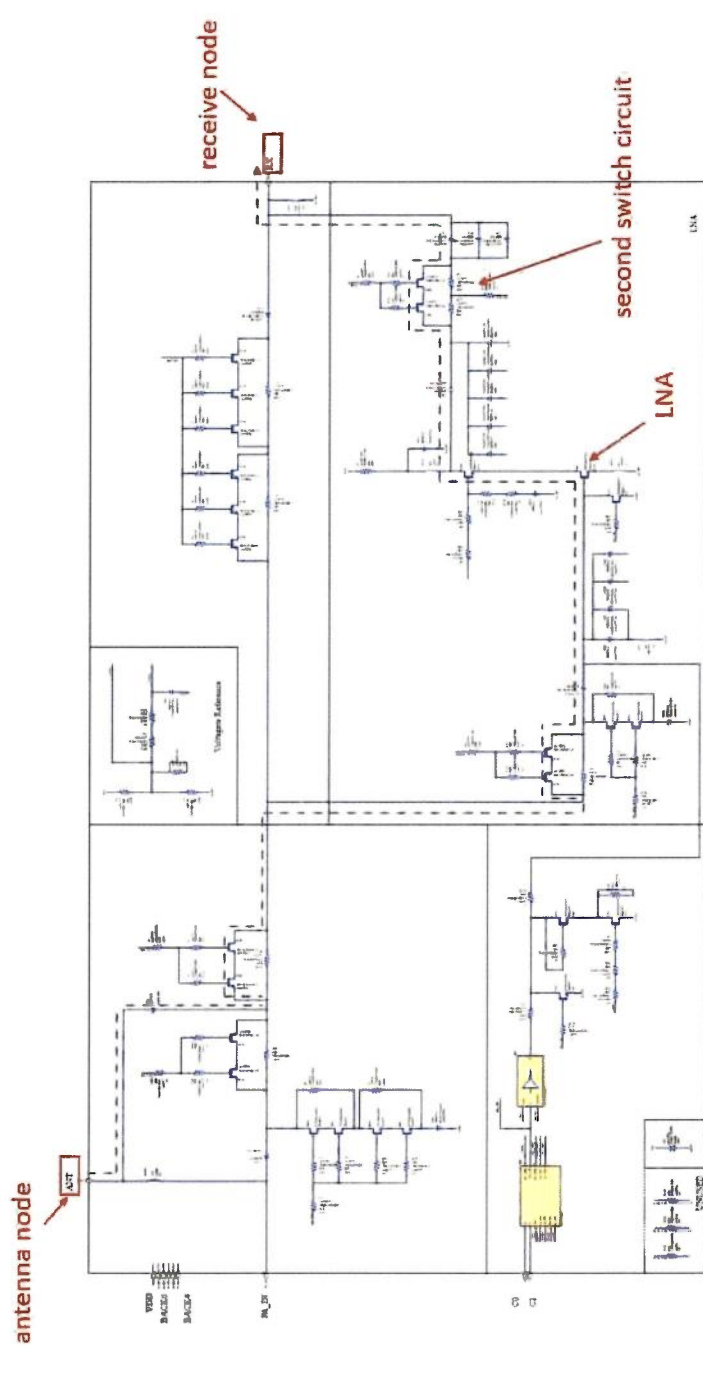
Claim 4	Specifications Integrated 802.11a, 5GHz PA, LNA with bypass and T/R switch fully-matched input and output Integrated power detector Transmit gain: 26dB at 5V Receive gain: 16dB at 5V Noise Figure: 1.6dB at 5V Output power: -17.3dBm @ -43dB EVMA, HE150/MCS11, 5V +19dBm @ -40dB EVMA, HE160/MCS11, 5V +20.5dBm @ -35dB EVMA, VH180/MCS9, 5V +21.5dBm @ -30dB EVMA, HT20/MCS7, 5V Integrated 2.4GHz notch filter ESD protection circuitry on all pins Simplified external components required Small package: MS-16L, 1mm x 3mm x 0.55mm MSL1, 260°C per JEDEC J-STD-020 RoHS and REACH Compliant KCT8547HE input to power amplifier switch system power amplifier T/R switch antenna node low noise amplifier receive node
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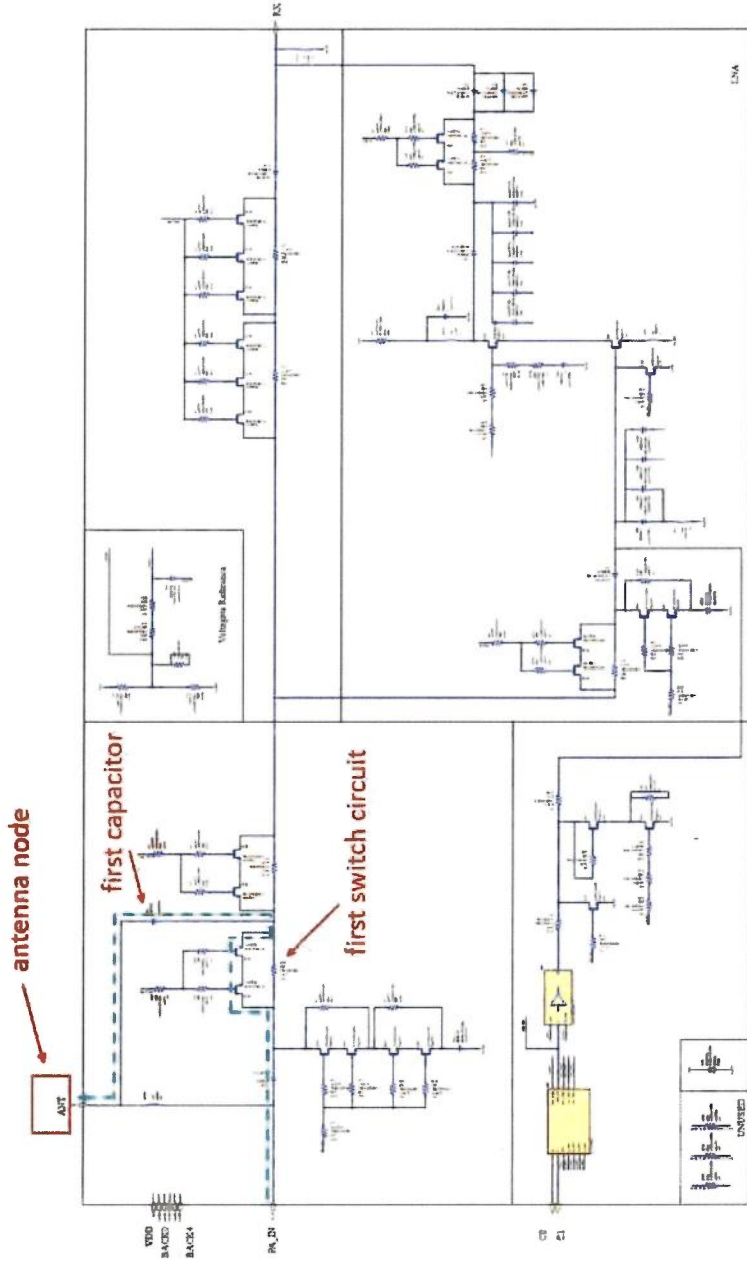
See, e.g., KCT8547HE product description and simplified block diagram, <https://perma.cc/GV2Y-HD8A>.

For example, the photos below show the exterior of the KCT8547HE device die package, front (left) and back (right).

Claim 4	KCT8547HE
	  <i>See, e.g.</i> photo of the KCT8547HE product, exterior of package, front (left) and back (right).
4[A] a first switch circuit connected between an antenna node and a transmit node;	The KCT8547HE comprises a first switch circuit connected between an antenna node and a transmit node. For example, in the KCT8547HE, the first switch circuit (identified by the corresponding red arrow below) is connected between the antenna node (indicated by the corresponding red arrow below) and the transmit node (indicated by the corresponding red arrow below). In transmit mode, the signal path from the transmit node, through the first switch circuit, and to the antenna node is shown by the dashed green line below.

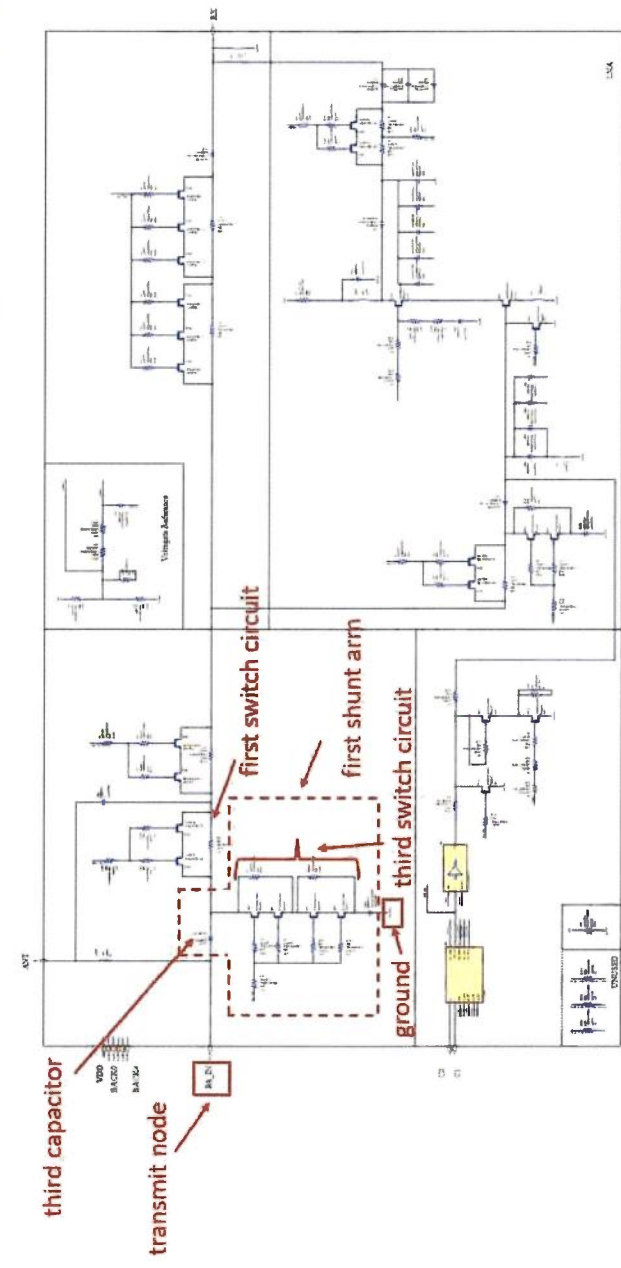
Claim 4	KCT8547HE  antenna node transmit node first switch circuit LNA
4[B] a second switch circuit connected between the antenna	See, e.g., reverse engineered circuit schematic of the KCT8547HE product's low noise amplifier die, annotated to show the location of a first switch circuit, transmit node, and antenna node. The KCT8547HE comprises a second switch circuit connected between the antenna node and a receive node. For example, in the KCT8547HE, the second switch circuit (identified by the corresponding red arrow below) is located between the antenna node ("ANT," highlighted by the corresponding red box below) and the receive node ("RX," highlighted by the corresponding red box below). In receive mode, the approximate signal path from the antenna node (ANT) to the receive node (RX) through the low noise amplifier (LNA) is shown by the purple dashed line in the figure below.

Claim 4	KCT8547HE
node and a receive node;	 The diagram is a detailed circuit schematic for the KCT8547HE product. It shows a multi-stage receiver circuit. At the top left, an 'antenna node' is indicated by a red arrow pointing to a node connected to an antenna symbol. Below this, there is a 'receive node' indicated by a red arrow pointing to a node connected to a 'LNA' (Low Noise Amplifier) block. The LNA block is labeled 'LNA' in red. To the right of the LNA, there is a 'second switch circuit' indicated by a red arrow pointing to a switch symbol. The circuit includes various transistors, capacitors, and inductors, with labels for 'VDD', 'BACKUP', 'PA_IN', and 'LNA'. A green dashed line is drawn across the schematic, indicating a signal path during transmit mode.
4[C] a first capacitor connected in series with the first switch	See, e.g., reverse engineered circuit schematic of KCT8547HE product's low noise amplifier die, annotated to show the location of a second switch circuit, receive node, low noise amplifier (LNA), and antenna node. The KCT8547HE comprises a first capacitor connected in series with the first switch circuit between the first switch circuit and the antenna node. For example, in the KCT8547HE, the first capacitor (indicated by the corresponding red arrow below) is connected in series with the first switch circuit (indicated by the corresponding red arrow below). The approximate signal path during transmit mode is shown by the green dashed line in the figure below. In addition, the first capacitor is located

Claim 4	KCT8547HE
circuit between the first switch circuit and the antenna node;	between the first switch circuit and the antenna node (ANT) (indicated by the corresponding red arrow below).  The diagram is a detailed circuit schematic for the KCT8547HE. It features a central section with two main blocks. The left block is labeled 'first capacitor' with a red arrow pointing to a dashed blue box containing a network of capacitors and inductors. The right block is labeled 'first switch circuit' with a red arrow pointing to a network of transistors and capacitors. Above the first capacitor block, there is a sub-circuit labeled 'ANT' (antenna node) with a red arrow pointing to it. Below the first switch circuit block, there is a sub-circuit labeled 'first capacitor' with a red arrow pointing to it. The schematic includes various components such as capacitors (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100), inductors (L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, L17, L18, L19, L20, L21, L22, L23, L24, L25, L26, L27, L28, L29, L30, L31, L32, L33, L34, L35, L36, L37, L38, L39, L40, L41, L42, L43, L44, L45, L46, L47, L48, L49, L50, L51, L52, L53, L54, L55, L56, L57, L58, L59, L60, L61, L62, L63, L64, L65, L66, L67, L68, L69, L70, L71, L72, L73, L74, L75, L76, L77, L78, L79, L80, L81, L82, L83, L84, L85, L86, L87, L88, L89, L90, L91, L92, L93, L94, L95, L96, L97, L98, L99, L100), and transistors (M1, M2, M3, M4, M5, M6, M7, M8, M9, M10, M11, M12, M13, M14, M15, M16, M17, M18, M19, M20, M21, M22, M23, M24, M25, M26, M27, M28, M29, M30, M31, M32, M33, M34, M35, M36, M37, M38, M39, M40, M41, M42, M43, M44, M45, M46, M47, M48, M49, M50, M51, M52, M53, M54, M55, M56, M57, M58, M59, M60, M61, M62, M63, M64, M65, M66, M67, M68, M69, M70, M71, M72, M73, M74, M75, M76, M77, M78, M79, M80, M81, M82, M83, M84, M85, M86, M87, M88, M89, M90, M91, M92, M93, M94, M95, M96, M97, M98, M99, M100). The schematic also includes a 'VDD' supply, a 'GND' ground, and a 'VDD' supply. The schematic is labeled 'KCT8547HE' in the top right corner.
4[D] a second capacitor	See, e.g., reverse engineered circuit schematic of KCT8547HE product's low noise amplifier die, annotated to show the location of a first switch circuit, first capacitor, and antenna node. The KCT8547HE comprises a second capacitor connected in series with the second switch circuit between the second capacitor and the antenna node.

Claim 4	connected in series with the second switch circuit between the second switch circuit and the antenna node;
Claim 4	KCT8547HE For example, in the KCT8547HE, the second capacitor (indicated by the corresponding red arrow below) is connected in series with the second switch circuit (indicated by the corresponding red arrow below). In receive mode, the approximate signal path from the antenna node (ANT) (indicated by the corresponding red arrow below) to the receive node (RX) (indicated by the corresponding red arrow below) through the low noise amplifier (LNA) (indicated by the corresponding red arrow below) is shown by the purple dashed line in the figure below. In addition, the second capacitor is located between the second switch circuit and the antenna node (ANT) (indicated by the corresponding red arrow below). The diagram illustrates the internal circuitry of the KCT8547HE. It features a central horizontal line representing a common signal path. On the left, a box labeled 'ANT' (antenna node) is connected to the circuit. A red arrow points to this node. The circuit includes several transistors, capacitors, and inductors. A red arrow points to a 'second capacitor' located between the antenna node and the rest of the circuit. Another red arrow points to a 'second switch circuit' further along the path. The signal path continues through a 'LNA' (low noise amplifier) and finally reaches a box labeled 'RX' (receive node) on the right. A purple dashed line traces the signal path from the antenna node, through the second capacitor, the second switch circuit, the LNA, and to the receive node. Various other components and nodes are labeled throughout the diagram, including 'VDD', 'GND', 'M1', 'M2', 'M3', 'M4', 'M5', 'M6', 'M7', 'M8', 'M9', 'M10', 'M11', 'M12', 'M13', 'M14', 'M15', 'M16', 'M17', 'M18', 'M19', 'M20', 'M21', 'M22', 'M23', 'M24', 'M25', 'M26', 'M27', 'M28', 'M29', 'M30', 'M31', 'M32', 'M33', 'M34', 'M35', 'M36', 'M37', 'M38', 'M39', 'M40', 'M41', 'M42', 'M43', 'M44', 'M45', 'M46', 'M47', 'M48', 'M49', 'M50', 'M51', 'M52', 'M53', 'M54', 'M55', 'M56', 'M57', 'M58', 'M59', 'M60', 'M61', 'M62', 'M63', 'M64', 'M65', 'M66', 'M67', 'M68', 'M69', 'M70', 'M71', 'M72', 'M73', 'M74', 'M75', 'M76', 'M77', 'M78', 'M79', 'M80', 'M81', 'M82', 'M83', 'M84', 'M85', 'M86', 'M87', 'M88', 'M89', 'M90', 'M91', 'M92', 'M93', 'M94', 'M95', 'M96', 'M97', 'M98', 'M99', 'M100', 'M101', 'M102', 'M103', 'M104', 'M105', 'M106', 'M107', 'M108', 'M109', 'M110', 'M111', 'M112', 'M113', 'M114', 'M115', 'M116', 'M117', 'M118', 'M119', 'M120', 'M121', 'M122', 'M123', 'M124', 'M125', 'M126', 'M127', 'M128', 'M129', 'M130', 'M131', 'M132', 'M133', 'M134', 'M135', 'M136', 'M137', 'M138', 'M139', 'M140', 'M141', 'M142', 'M143', 'M144', 'M145', 'M146', 'M147', 'M148', 'M149', 'M150', 'M151', 'M152', 'M153', 'M154', 'M155', 'M156', 'M157', 'M158', 'M159', 'M160', 'M161', 'M162', 'M163', 'M164', 'M165', 'M166', 'M167', 'M168', 'M169', 'M170', 'M171', 'M172', 'M173', 'M174', 'M175', 'M176', 'M177', 'M178', 'M179', 'M180', 'M181', 'M182', 'M183', 'M184', 'M185', 'M186', 'M187', 'M188', 'M189', 'M190', 'M191', 'M192', 'M193', 'M194', 'M195', 'M196', 'M197', 'M198', 'M199', 'M200', 'M201', 'M202', 'M203', 'M204', 'M205', 'M206', 'M207', 'M208', 'M209', 'M210', 'M211', 'M212', 'M213', 'M214', 'M215', 'M216', 'M217', 'M218', 'M219', 'M220', 'M221', 'M222', 'M223', 'M224', 'M225', 'M226', 'M227', 'M228', 'M229', 'M230', 'M231', 'M232', 'M233', 'M234', 'M235', 'M236', 'M237', 'M238', 'M239', 'M240', 'M241', 'M242', 'M243', 'M244', 'M245', 'M246', 'M247', 'M248', 'M249', 'M250', 'M251', 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Claim 4	KCT8547HE
4[E] a first shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground and a third capacitor connected between the third switch circuit and the transmit node.	See, e.g., reverse engineered circuit schematic of KCT8547HE product's low noise amplifier die, annotated to show the second capacitor, low noise amplifier (LNA), second switch circuit, receive node, and antenna node. The KCT8547HE comprises a first shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground and a third capacitor connected between the third switch circuit and the transmit node. For example, in the KCT8547HE, the first shunt arm (indicated by the dashed line box below) is connected to the first switch circuit (indicated by the corresponding red arrow below) and the transmit node (PA IN) (highlighted by a red box). The first shunt arm includes a third switch circuit (indicated by the corresponding red arrow below) connected to ground (BACK3) (indicated by the corresponding red arrow below) and a third capacitor (indicated by the corresponding red arrow below). The third capacitor (indicated by the corresponding red arrow below) is connected between the third switch circuit and the transmit node.

Claim 4	KCT8547HE  third capacitor transmit node first switch circuit first shunt arm third switch circuit ground VDD Voltage Reference LMX
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See, e.g., reverse engineered circuit schematic of KCT8547HE product's low noise amplifier die identifying the transmit node, first switch circuit, first shunt arm, third switch circuit, third capacitor, and ground.

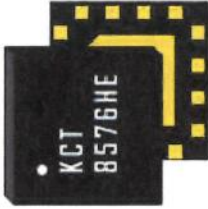
EXHIBIT 26

EXHIBIT 26
SKYWORKS SOLUTIONS INC.'S INFRINGEMENT CHART
KCT8576HE
U.S. Patent No. 9,148,194
Independent Claim 4

Skyworks Solutions, Inc. ("Skyworks") provides this exemplary claim chart for independent claim 4 of U.S. Patent No. 9,148,194 (the "'194 patent") applied to Kangxi Communication Technologies (Shanghai) Co., Ltd's and Grand Chip Labs, Inc.'s (collectively, "KCT") KCT8576HE product. The disclosures in this claim chart directed to the KCT8576HE are also more broadly directed to any sale, offer for sale, use, or importation of the KCT8576HE in the U.S., including in an end product such as a wireless router or as a standalone product that is not incorporated in an end product.

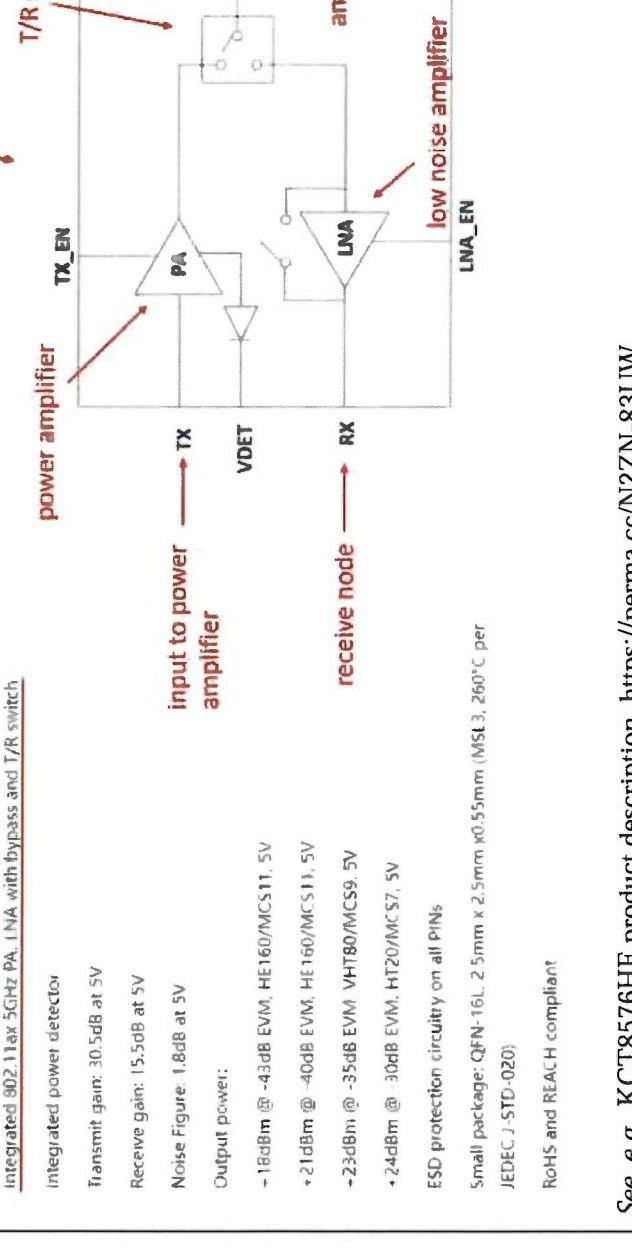
The claim chart below demonstrates infringement by comparing each element of the charted claim to corresponding components, aspects, and/or features of the KCT8576HE product. This claim chart is not intended to constitute an expert report on infringement. This claim chart includes information provided by way of example, and not by way of limitation.

The analysis set forth below is based only upon information from publicly available sources regarding the KCT8576HE product. Further analysis of non-public information during fact discovery will likely assist in identifying all infringing features and functionalities used by KCT in the KCT8576HE product. Accordingly, Skyworks reserves the right to supplement this infringement analysis once such information is made available to Skyworks. Further, Skyworks reserves the right to supplement this infringement analysis, as appropriate, upon issuance of an order construing any terms recited in the asserted claim or as other circumstances so merit.

Claim 4	KCT8576HE
4[pre] A radio-frequency (RF) switch system comprising:	To the extent the preamble of claim 4 is limiting, the KCT8576HE comprises a radio-frequency (RF) switch system. For example, the KCT8576HE product description below states that the KCT8576HE is an “RF Front-end Module” that “incorporates key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range.”¹  KCT8576HE 5GHz Mid-High Power 802.11ax RF Front-end Module Introduction KCT8576HE is a highly integrated RF front-end integrated circuit incorporates key RF functionality needed for IEEE 802.11a/n/ac/ax WLAN systems operating in the 5.15-5.95GHz range. KCT8576HE integrates a high-efficiency, high-linearity power amplifier (PA), a low noise amplifier (LNA) with bypass, the associated matching network, LO rejection, and harmonic filters all in one device. KCT8576HE has simple and low-voltage control logic, and requires minimal external components. A power detector is also integrated for accurately monitoring of output power from the PA. KCT8576HE is assembled in a compact, low profile 2.5x2.5x0.55mm 16-lead QFN package. KCT8576HE is the ideal RF front-end solution for implementing 5GHz high-power WLAN systems supporting multiple standards including 802.11a/n/ac/ax. See, e.g., KCT8576HE product description, https://perma.cc/N2ZN-83UW. For example, as shown below, the KCT8576HE has a transmit/receive switch (“T/R switch”) (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals.² The figure below also shows the power amplifier (indicated by

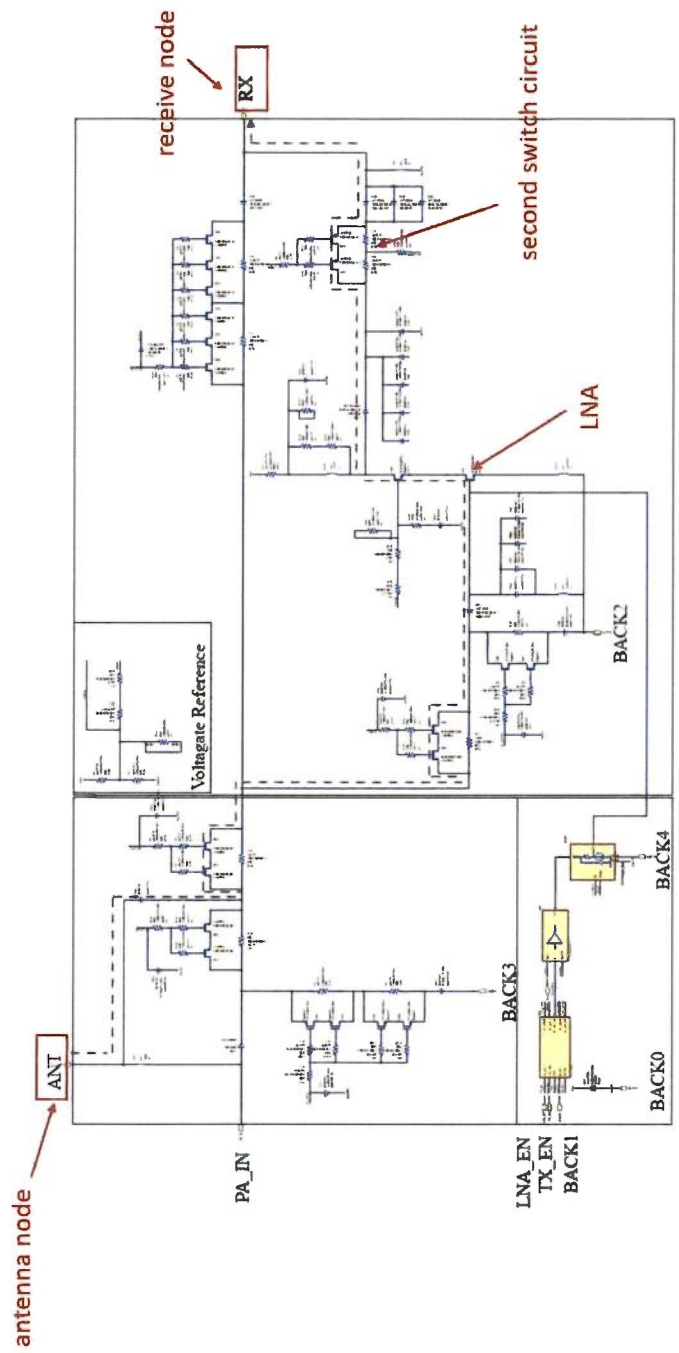
¹ See <https://perma.cc/N2ZN-83UW>.

² See <https://perma.cc/N2ZN-83UW>.

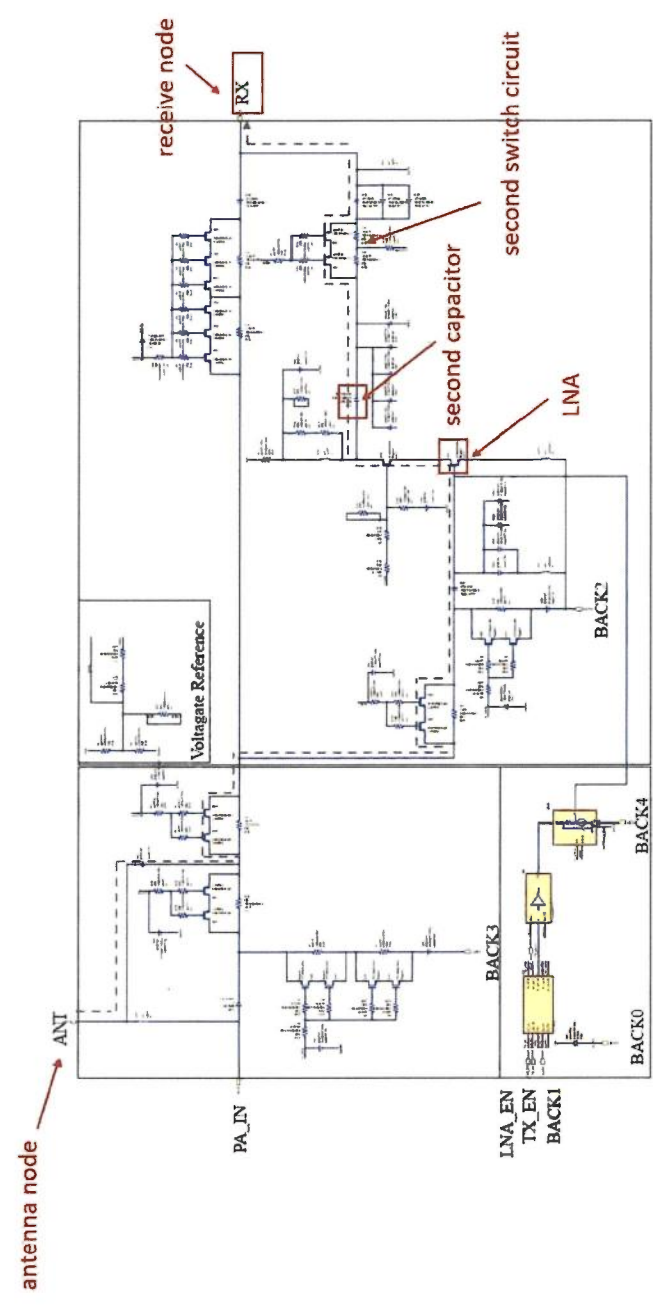
Claim 4	the corresponding red arrow below), the antenna node (indicated by the corresponding red arrow below), the receive node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the corresponding red arrow below). Specifications Integrated 902.11ax 5GHz PA, LNA with bypass and T/R switch Integrated power detector Transmit gain: 30.5dB at 5V Receive gain: 15.5dB at 5V Noise Figure: 1.8dB at 5V Output power: -18dBm @ -43dB EVM, HE160/MCS11, 5V +21dBm @ -40dB EVM, HE160/MCS11, 5V -23dBm @ -35dB EVM, VHT80/MCS9, 5V +24dBm @ -30dB EVM, HT20/MCS7, 5V ESD protection circuitry on all PINs Small package: QFN-16L, 2.5mm x 2.5mm x0.55mm (MSL3, 260°C per JEDEC J-STD-020) RoHS and REACH compliant  See, e.g., KCT8576HE product description, https://perma.cc/N2ZN-83UW. For example, the photos below show the exterior of the KCT8576HE device die package, front (left) and back (right).
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Claim 4	KCT8576HE	
	<i>See, e.g.</i> photos of KCT8576HE product.	
4[A] a first switch circuit connected between an antenna node and a transmit node;	The KCT8576HE comprises a first switch circuit connected between an antenna node and a transmit node. For example, in the KCT8576HE, the first switch circuit (identified by the corresponding red arrow below) is connected between the antenna node ("ANT," highlighted by the red box) and transmit node ("PA IN," highlighted by the red box). In transmit mode, the signal path from the transmit node, through the first switch circuit, and to the antenna node is shown by the green dashed line below.	

Claim 4	KCT8576HE See, e.g., reverse engineered circuit schematic of KCT8576HE product's low noise amplifier die, annotated to show the location of a first switch circuit, antenna node, and transmit node.
4[B] a second switch circuit connected between the antenna node	The KCT8576HE comprises a second switch circuit connected between the antenna node and a receive node. For example, in the KCT8576HE, the second switch circuit (indicated by the corresponding red arrow below) is located between the antenna node ("ANT," highlighted by the red box) and the receive node ("RX," highlighted by the corresponding red box below). In receive mode, the approximate signal path from the antenna node (ANT) to the receive node (RX) through the low noise amplifier (LNA) is shown by the purple dashed line in the figure below.

Claim 4	KCT8576HE
and a receive node;	 The diagram is a detailed circuit schematic of the KCT8576HE integrated circuit. It shows various functional blocks including a Voltage Reference, PA_IN, ANT (antenna node), RX (receive node), LNA (low noise amplifier), and a second switch circuit. The schematic is divided into several sections labeled BACK0, BACK1, BACK2, BACK3, and BACK4. Red arrows point to the ANT, RX, and LNA blocks, and a green dashed line indicates a signal path through the first switch circuit. The diagram also shows various capacitors, inductors, and transistors connected in a complex network.
4[C] a first capacitor connected in series with the first switch circuit	See, e.g., reverse engineered circuit schematic of KCT8576HE product's low noise amplifier die, annotated to show the location of a second switch circuit, receive node, low noise amplifier (LNA), and antenna node. The KCT8576HE comprises a first capacitor connected in series with the first switch circuit between the first switch circuit and the antenna node. For example, in the KCT8576HE, the first capacitor (indicated by the corresponding red arrow below) is connected in series with the first switch circuit (indicated by the corresponding red arrow below). The approximate signal path during transmit mode is shown by the green dashed line in the figure below. In addition, the first capacitor is

KCT8576HE	
Claim 4	located between the first switch circuit and the antenna node (ANT) (indicated by the corresponding red arrow below). The diagram is a detailed circuit schematic for the KCT8576HE. It shows a power amplifier section on the left with a PA_IN input and an output labeled RX. A first switch circuit is located between the PA_IN and the RX path. A first capacitor is connected to the first switch circuit. An antenna node (ANT) is connected to the first capacitor. The schematic also includes a Voltage Reference block, an LNA_EN input, a TX_EN input, and several feedback nodes labeled BACK1, BACK0, BACK4, and BACK2. Red arrows point from the text 'first capacitor' and 'first switch circuit' to their respective components in the schematic. A red box highlights the ANT node, and a red arrow points from the text 'antenna node' to it.
See, e.g., reverse engineered circuit schematic of KCT8576HE product's low noise amplifier die, annotated to show the location of a first switch circuit, first capacitor, and antenna node.	
4[D] a second	The KCT8576HE comprises a second capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node.

Claim 4	KCT8576HE
capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node;	For example, in the KCT8576HE, the second capacitor (indicated by the corresponding red arrow below) is connected in series with the second switch circuit (indicated by the corresponding red arrow below). In receive mode, the approximate signal path from the antenna node (ANT) (indicated by the corresponding red arrow below) to the receive node (RX) (indicated by the corresponding red arrow below) through the low noise amplifier (LNA) (indicated by the corresponding red arrow below) is shown by the purple dashed line in the figure below. In addition, the second capacitor is located between the second switch circuit and the antenna node (ANT).  The diagram is a detailed circuit schematic of the KCT8576HE. It shows a central processing block with various internal components like capacitors, inductors, and transistors. Key nodes and components are labeled: 'ANT' (antenna node) at the top left, 'PA_IN' (power amplifier input) at the top center, 'LNA' (low noise amplifier) at the bottom center, and 'RX' (receive node) at the bottom right. A 'Voltage Reference' block is located on the left side. Several capacitors are highlighted with red boxes and labeled 'second capacitor' with red arrows. A 'second switch circuit' is also indicated with a red arrow. A purple dashed line traces a signal path from the ANT node, through the second capacitor, the second switch circuit, and the LNA, eventually reaching the RX node. Other labels include 'BACK0', 'BACK1', 'BACK2', 'BACK3', 'BACK4', 'LNA_EN', and 'TX_EN'.

See, e.g., reverse engineered circuit schematic of KCT8576HE product's low noise amplifier die, annotated to show the location of the second capacitor, low noise amplifier (LNA), second switch circuit, receive node, and antenna

Claim 4	KCT8576HE
4[E] a first shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground and a third capacitor connected between the third switch circuit and the transmit node. For example, in the KCT8576HE, the first shunt arm (indicated by the dashed line box below) is connected to the first switch circuit (indicated by the corresponding red arrow below) and the transmit node (PA IN) (highlighted by a red box). The first shunt arm includes a third switch circuit (indicated by the corresponding red bracket below) connected to ground (BACK3) (indicated by the corresponding red arrow below) and a third capacitor (indicated by the corresponding red arrow below). The third capacitor (indicated by the corresponding red arrow below) is connected between the third switch circuit and the transmit node.	node.

The diagram is a detailed circuit schematic of the KCT8576HE product's low noise amplifier. It features a central 'transmit node' (PA_IN) connected to a 'third capacitor'. This node is part of a larger circuit that includes a 'first shunt arm' and a 'first switch circuit'. A 'third switch circuit' is also shown, connected to a 'third capacitor' and a 'ground' node. The schematic includes various components such as transistors, capacitors, and inductors, with labels for different sections: AINT, Voltagate Reference, BACK0, BACK1, BACK2, BACK3, BACK4, LNA_EN, TX_EN, and RX. Red arrows and boxes highlight specific components and nodes, including the 'third capacitor', 'transmit node', 'first shunt arm', 'first switch circuit', 'third switch circuit', and 'third capacitor'.

See, e.g., reverse engineered circuit schematic of KCT8576HE product's low noise amplifier die identifying the transmit node, first switch circuit, first shunt arm, third switch circuit, third capacitor, and ground.

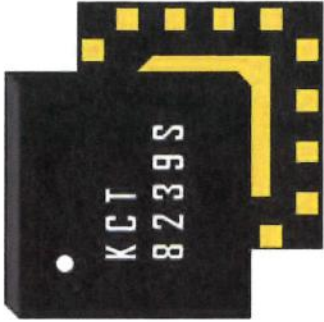
EXHIBIT 27

EXHIBIT 27
SKYWORKS SOLUTIONS, INC.'S INFRINGEMENT CHART
KCT8239S
U.S. Patent No. 9,148,194
Independent Claim 4

Skyworks Solutions, Inc. ("Skyworks") provides this exemplary claim chart for independent claim 4 of U.S. Patent No. 9,148,194 (the "'194 patent") applied to Kangxi Communication Technologies (Shanghai) Co., Ltd's and Grand Chip Labs, Inc.'s (collectively, "KCT") KCT8239S product. The disclosures in this claim chart directed to the KCT8239S are also more broadly directed to any sale, offer for sale, use, or importation of the KCT8239S in the U.S., including in an end product such as a wireless router or as a standalone product that is not incorporated in an end product.

The claim chart below demonstrates infringement by comparing each element of the charted claim to corresponding components, aspects, and/or features of the KCT8239S product. This claim chart is not intended to constitute an expert report on infringement. This claim chart includes information provided by way of example, and not by way of limitation.

The analysis set forth below is based only upon information from publicly available sources regarding the KCT8239S product. Further analysis of non-public information during fact discovery will likely assist in identifying all infringing features and functionalities used by KCT in the KCT8239S product. Accordingly, Skyworks reserves the right to supplement this infringement analysis once such information is made available to Skyworks. Further, Skyworks reserves the right to supplement this infringement analysis, as appropriate, upon issuance of an order construing any terms recited in the asserted claim or as other circumstances so merit.

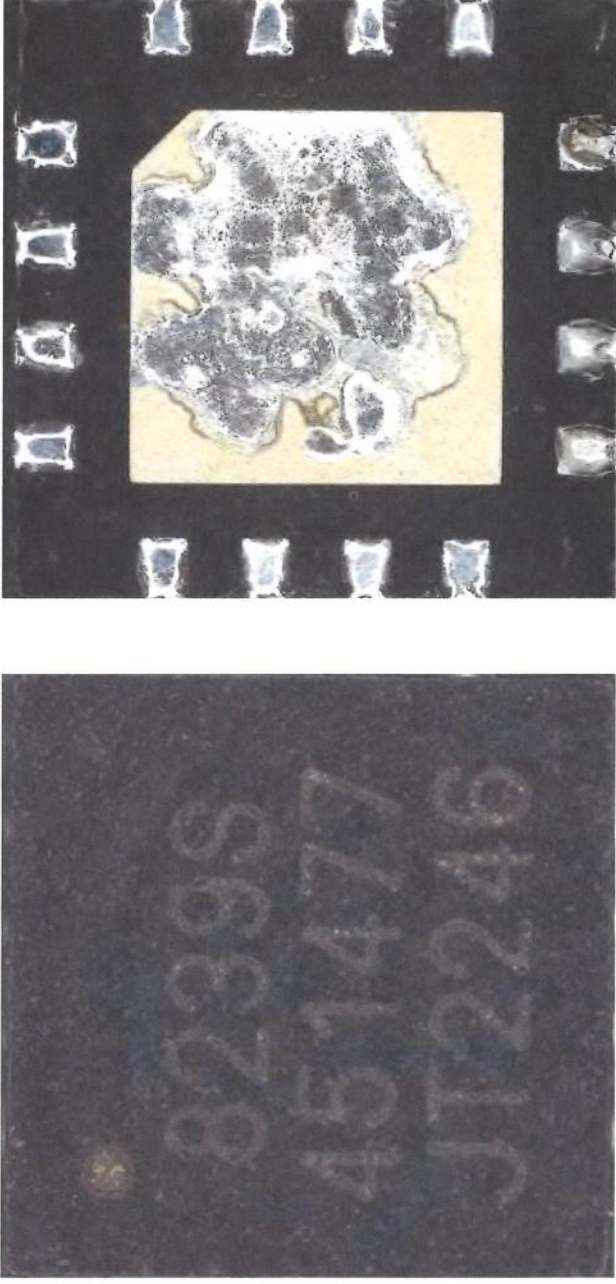
Claim 4	KCT8239S
4[pre] A radio-frequency (RF) switch system comprising:	To the extent the preamble of claim 4 is limiting, the KCT8239S comprises a radio-frequency (RF) switch system. For example, the KCT8239S product description below states that the KCT8239S is an “RF Front-end Module” that “is a fully integrated 802.11b/g/n/ac/ax WLAN RF Front-end module (FEM) which incorporates key RF functionality.”¹ KCT8239S 2.4GHz 802.11ax RF Front-End Module Introduction KCT8239S is a fully integrated 802.11b/g/n/ac/ax WLAN RF Front-end module (FEM) which incorporates key RF functionality. It is integrated with a high-efficiency power amplifier (PA), a low noise amplifier (LNA) with bypass, the associated matching network and a single-pole, double-throw (SPDT) switch all in one device. The PA power detector and a digital enable control are also integrated KCT8239S is assembled in a compact, low-profile 3*3*0.55mm 16-pin MIS package. It is the perfect RF Front-end solution for implementing 2.4GHz high-performance WLAN systems supporting multiple standards 

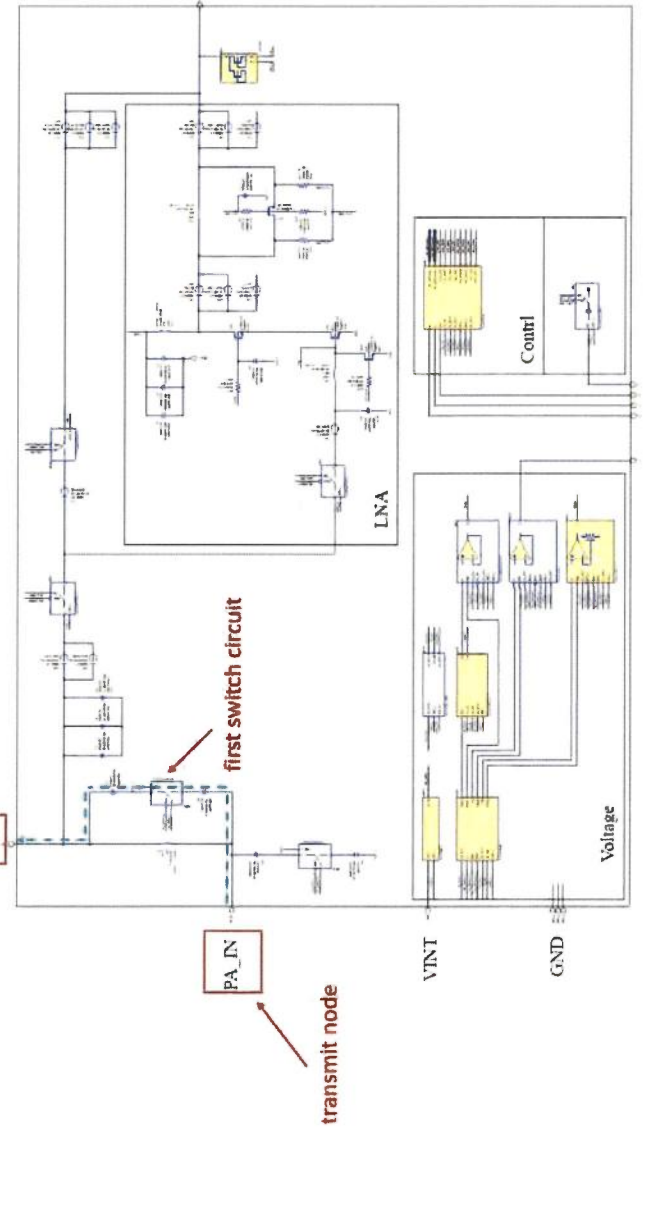
¹ See <https://perma.cc/NS2E-VPYU>.

Claim 4	KCT8239S
	<i>See, e.g.</i>, KCT8239S product description, https://perma.cc/NS2E-VPYU. For example, as shown below, the KCT8239S has a transmit/receive switch (“T/R switch”) (indicated by the corresponding red arrow in the figure below) that selectively allows either transmission or reception of signals.² The KCT product description describes the switch as a “T/R switch” (indicated by the red underlining in the text below). The figure below also shows the power amplifier (indicated by the corresponding red arrow below), the antenna node (indicated by the corresponding red arrow below), the receive node (indicated by the corresponding red arrow below), the low noise amplifier (indicated by the corresponding red arrow below), and the input to the power amplifier (indicated by the corresponding red arrow below).

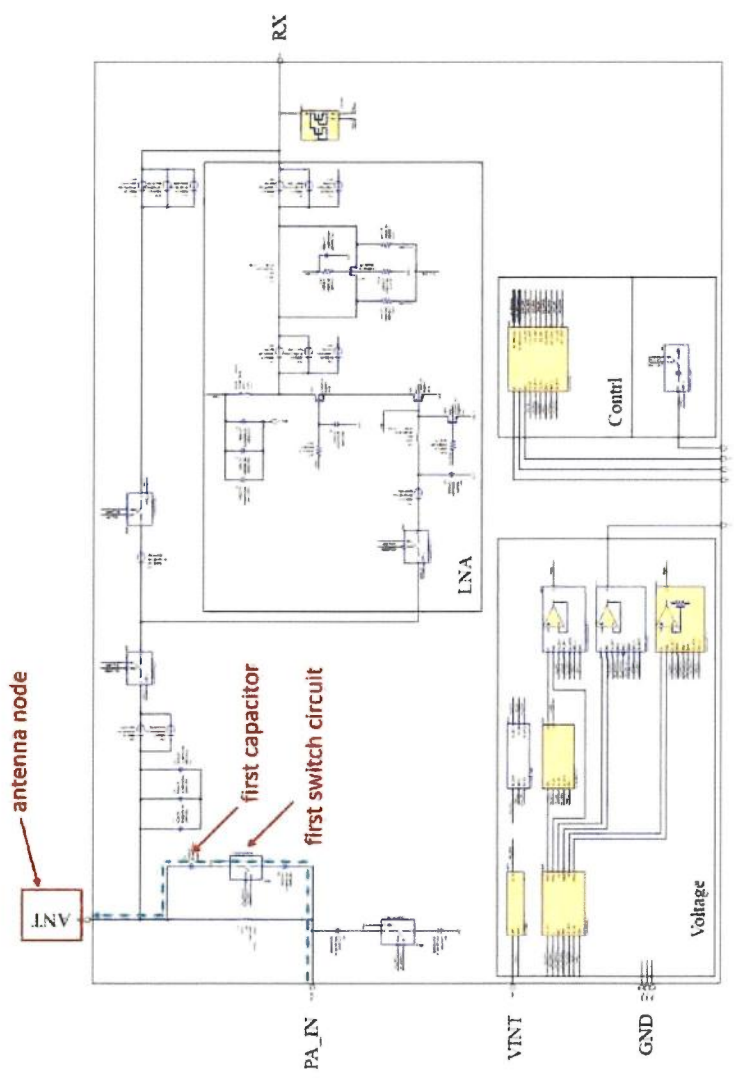
² See <https://perma.cc/NS2E-VPYU>.

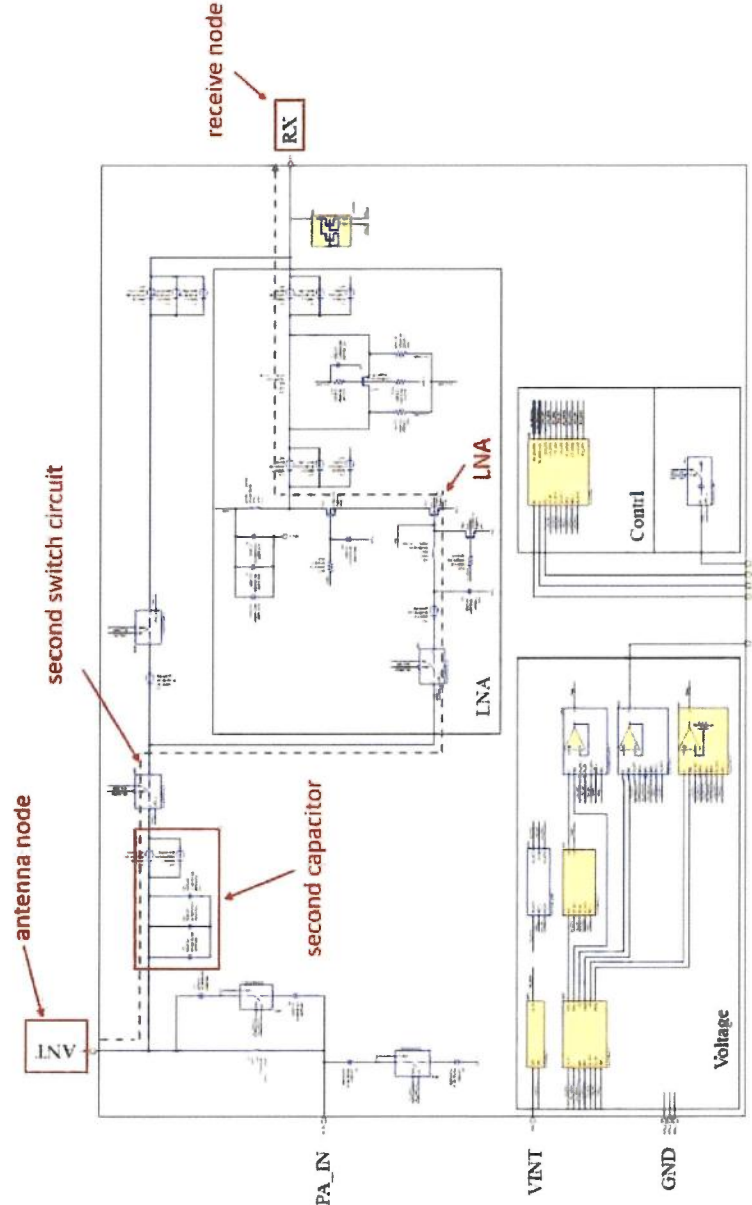
Claim 4	Specifications <u>Integrated high performance 2.4GHz PA, LNA with bypass and T/R switch</u> Fully-matched input and output Integrated Power Detector Output power +20dBm @ DEVN=-43dB HE40/MCS11 5V -20.5dBm @ DEVN=-40dB HE40/MCS11 5V +22dBm @ DEVN=-35dB VHT40/MCS8 5V +23dBm @ DEVN=-30dB HT20/MCS7 5V Transmit gain 29dB at 5V Receive gain 19dB at 5V Noise Figure 2.6dB at 5V ESD protection circuitry on all I/Os Minimal External Components Required Small package M/S-16L 3x3x0.55mm (MSL-16L 260°C per JEDEC J-STD-020) RoHS and REACH Compliant KCT8239S antenna node switch system T/R switch power amplifier low noise amplifier input to power amplifier receive node See, e.g., KCT8239S product description and simplified block diagram, https://perma.cc/NS2E-VPYU. For example, the photos below show the exterior of the KCT8239S device die package, front (left) and back (right).
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Claim 4	KCT8239S
	 <i>See, e.g.</i> photo of KCT8239S product, exterior of package, front (left) and back (right).
4[A] a first switch circuit connected between an antenna node and a transmit node;	The KCT8239S comprises a first switch circuit connected between an antenna node and a transmit node. For example, in the KCT8239S, the first switch circuit (identified by the corresponding red arrow below) is connected between the antenna node (indicated by the corresponding red arrow below) and the transmit node (indicated by the corresponding red arrow below). In transmit mode, the signal path from the transmit node, through the first switch circuit, and to the antenna node is shown by the dashed green line below.

Claim 4	KCT8239S  See, e.g., reverse engineered circuit schematic of the KCT8239S product's low noise amplifier die, annotated to show the location of a first switch circuit, transmit node, and antenna node. The KCT8239S comprises a second switch circuit connected between the antenna node and a receive node. For example, in the KCT8239S, the second switch circuit (identified by the corresponding red arrow below) is located between the antenna node ("ANT," highlighted by the corresponding red box below) and the receive node ("RX," highlighted by the corresponding red box below). In receive mode, the approximate signal path from the antenna node (ANT) to the receive node (RX) through the low noise amplifier (LNA) (indicated by the corresponding red arrow below) is shown by the purple dashed line in the figure below.	4[B] a second switch circuit connected between the antenna node and a
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Claim 4	KCT8239S
receive node;	The diagram is a reverse-engineered circuit schematic of the KCT8239S product. It shows a complex arrangement of components including capacitors, inductors, and transistors. Key components and nodes are labeled: 'ANT' (antenna node) at the top left, 'PA_IN' below it, 'VINT' and 'GND' at the bottom left, 'Voltage' and 'Control' blocks at the bottom right, and 'RX' (receive node) at the top right. A 'second switch circuit' is indicated by a red arrow pointing to a specific part of the circuit. An 'LNA' (low noise amplifier) is also labeled. The circuit is divided into several functional blocks by dashed lines.
4[C] a first capacitor connected in series with the first switch	See, e.g., reverse engineered circuit schematic of KCT8239S product's low noise amplifier die, annotated to show the location of a second switch circuit, receive node, low noise amplifier, and antenna node. The KCT8239S comprises a first capacitor connected in series with the first switch circuit between the first switch circuit and the antenna node. For example, in the KCT8239S, the first capacitor (indicated by the corresponding red arrow below) is connected in series with the first switch circuit (indicated by the corresponding red arrow below). The approximate signal path during transmit mode is shown by the green dashed line in the figure below. In addition, the first capacitor is located

Claim 4	KCT8239S
circuit between the first switch circuit and the antenna node;	between the first switch circuit and the antenna node (ANT) (indicated by the corresponding red arrow below).  The diagram is a detailed circuit schematic for the KCT8239S. It features several key components and connections: - Antenna Node (ANT): A red box labeled 'ANT' is connected to the input of the LNA. A red arrow points to this node with the label 'antenna node'. - First Capacitor: A red arrow points to a capacitor in the input matching network of the LNA, labeled 'first capacitor'. - First Switch Circuit: A red arrow points to a switch circuit in the input matching network, labeled 'first switch circuit'. - LNA (Low Noise Amplifier): A large block containing multiple transistors and capacitors, labeled 'LNA'. - PA_IN (Power Amplifier Input): A connection point for the power amplifier input. - RX (Receiver): A block at the top right of the schematic. - VTNT (Variable Tuning Network): A block containing capacitors and inductors. - GND (Ground): Multiple ground connections throughout the circuit. - Voltage: A block representing the voltage supply. - Control: A block representing the control logic. - Other components: Various capacitors, inductors, and resistors are shown throughout the circuit.
See, e.g., reverse engineered circuit schematic of KCT8239S product's low noise amplifier die, annotated to show the location of a first switch circuit, first capacitor, and antenna node.	
4[D] a second	The KCT8239S comprises a second capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node.

Claim 4 capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node;	KCT8239S For example, in the KCT8239S, the second capacitor (indicated by the corresponding red arrow pointing to the red box below) is connected in series with the second switch circuit (indicated by the corresponding red arrow below). In receive mode, the approximate signal path from the antenna node (ANT) (indicated by the corresponding red arrow below) to the receive node (RX) (indicated by the corresponding red arrow below) through the low noise amplifier (LNA) (indicated by the corresponding red arrow below) is shown by the purple dashed line in the figure below. In addition, the second capacitor is located between the second switch circuit and the antenna node (ANT).  The diagram illustrates the internal circuitry of the KCT8239S. Key components and their connections are labeled with red arrows and text: ANT (Antenna Node): Indicated by a red arrow pointing to a box on the left. second capacitor: Indicated by a red arrow pointing to a capacitor in series with the antenna node. second switch circuit: Indicated by a red arrow pointing to a switch circuit connected to the second capacitor. LNA (Low Noise Amplifier): Two blocks labeled 'LNA' are shown in the center, connected in series. receive node (RX): Indicated by a red arrow pointing to a box on the right. PA_IN: A label for an input signal path. VNT: A label for a voltage node. GND: Ground connection. Voltage: A label for a power supply section. Cont1: A control block connected to the power supply section. A purple dashed line traces the signal path from the ANT node, through the second capacitor and second switch circuit, into the first LNA block, then through the second LNA block, and finally to the RX (receive node).
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Claim 4	KCT8239S
4[E] a first shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground and a third capacitor connected between the third switch circuit and the transmit node.	See, e.g., reverse engineered circuit schematic of KCT8239S product's low noise amplifier die, annotated to show the location of the second capacitor, low noise amplifier (LNA), second switch circuit, receive node, and antenna node. The KCT8239S comprises a first shunt arm connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground and a third capacitor connected between the third switch circuit and the transmit node. For example, in the KCT8239S, the first shunt arm (indicated by the corresponding red bracket below) is connected to the first switch circuit (indicated by the corresponding red arrow below) and the transmit node (PA IN) (highlighted by a red box). The first shunt arm includes a third switch circuit (indicated by the corresponding red arrow below) connected to ground (GND_2) (indicated by the corresponding red arrow below) and a third capacitor (indicated by the corresponding red arrow below). The third capacitor (indicated by the corresponding red arrow below) is connected between the third switch circuit and the transmit node.

Claim 4	KCT8239S
	The diagram is a detailed circuit schematic of the KCT8239S product's low noise amplifier (LNA) die. It features a central LNA block with various internal components like transistors, capacitors, and inductors. To the left, there's a transmit node connected to PA_IN, which includes a first switch circuit and a first shunt arm. A third capacitor and a third switch circuit are also shown in this section, connected to ground. On the right, there's a Voltage section with three yellow blocks and a Control section with a yellow block and a control signal input. The schematic is labeled with RX, LNA, ANV, VINT, GND, and Voltage. Red arrows point from labels to specific components: 'transmit node' points to the PA_IN input; 'first switch circuit' points to a switch in the first shunt arm; 'first shunt arm' points to the shunt arm itself; 'third capacitor' points to a capacitor in the third switch circuit; 'third switch circuit' points to the switch circuit; and 'ground' points to a ground symbol.

See, e.g., reverse engineered circuit schematic of KCT8239S product's low noise amplifier die identifying the transmit node, first switch circuit, first shunt arm, third switch circuit, third capacitor, and ground.