DIE ATTACH

The die mounting surface must be clean and flat. Our MMICs are all back metalized which also serves as ground. The back side must be both electrically and thermally connected using soldering or epoxy with high thermal and electrical conductivity. Using conductive silver filled epoxy, recommended epoxies are DieMat DM6030HK-PT/H579. Apply sufficient epoxy to meet required epoxy bond line thickness, epoxy fillet height and epoxy coverage around total die periphery. The thickness of our MMICs is 50 µm (2 mil). For the best RF performance, the circuit board line should be at the same height. It is recommended to use antistatic die pick up tools only.

WIRE BONDING

Bond pad openings in the surface passivation above the bond pads are provided to allow wire bonding to the square gold bond pads. Bond force, time, ultrasonic power and temperature are all critical parameters for good attachment.

We recommend using 25 µm (1 mil) diameter bond wires or 75 µm × 12.5 µm (3 × 0.5 mil) ribbons. The width of the RF pads on the MMIC is 72 µm and DC is 90 µm. All RF bondwires should be kept as short as possible and not exceeding 300 µm. Long bond wires will result in an undesirable series inductance that is difficult to compensate for over large bandwidths. Bondwires to DC pads should preferably also be kept as short as possible.

To the DC pads, we recommended first bonding to a 100 pF SLC capacitor and then to a 50 nF-1 µF capacitor onto the circuit board.

Table 1. Typical wire dimensions for wedge bonding

Parameter	Min	Typ	Max	Unit
RF bond wire diameter	17	25	25	um
RF bond wire length	0	150	300	um
DC bond wire diameter	17	25	75	um
DC bond wire length	0	300	2000	um

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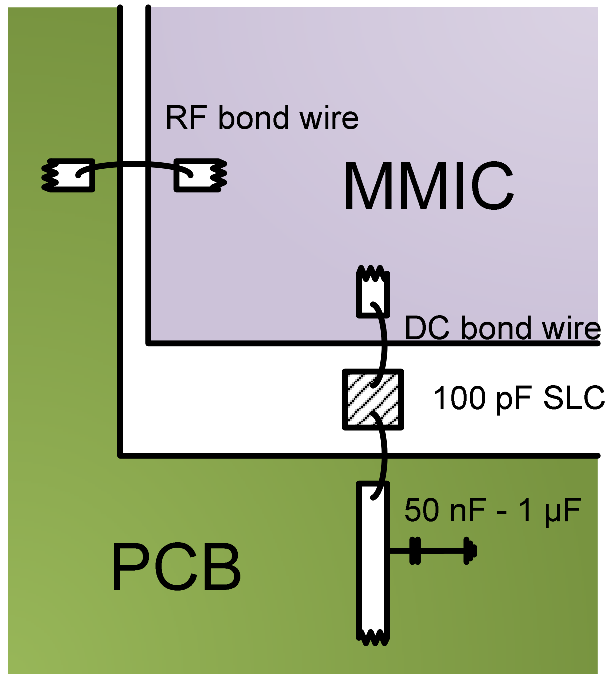

Figure 1. Assembly diagram

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