Thick Film Metallization: Gold

substrate material	ANCeram Aluminium Nitride (AlN)	
surface	standard, CLA ≤ 1.0 µm	DIN 41850 resp. 4768
metallization	Gold paste (Au)	
film thickness	12 µm (typ.), 8 µm (min.)	
insulation resistance	>$10^{12}\Omega$	MIL-STD-883 C, method 1003
sheet resistivity	5 ± 1 mΩ / □	DIN 41850
breakdown voltage	>3 kV/mm	DIN 41848
min. line width	100 µm	DIN 41850
min. line spacing	150 µm	
bondability	Thermo-Sonic-Bonding, e.g. Au–L 30 µm, AuBe 25 µm or Ultra-Sonic-Bonding AlSi1 25 µm, AlSi1 50 µm for Au-wire: $\bar{x} > 7$ cN, $x_{min} > 5$ cN for 25 µm-Al-wire: $\bar{x} > 6$ cN, $x_{min} > 4$ cN for 50 µm-Al-wire : $\bar{x} > 6$ cN, $x_{min} > 4$ cN	Bond criteria acc. to DIN IEC 47 (CO) 760 resp. MIL-STD-883 C, method 2011-4, test cond. D
recommended solder	PbIn 50, PbSn 4	
adhesive strength	33 ± 5 N	DIN 41850

Thermo-mechanical tests according to DIN 41848 resp. MIL-STD-883 C show excellent results. ANCeram thin film Ti-Pt-Au meets the requirements of below mentioned test procedures:

heat resistance test (burn in)	150°C/1000 h	MIL-STD-102 F, method 108 A MIL-STD-883 C, method 1005
temperature cycling	-65°C / +150°C; 1000 cycles	MIL-STD-202 F, method 107 C MIL- STD-883 C, method 1010.5, test cond. C IEC 68 (2)
humidity test	85°C / 85% rel. humidity 1000 h, 60 V bias	IEC 68 (2) IEC 50B (CO) 264
pressure cooker test	120°C / 2 bar, 500 h	

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