



COMMUNICATION MEDIA COMPONENTS GROUP

NGK SPARK PLUG CO.,LTD
2808,IWASAKI,KOMAKI,AICHI,485,JAPAN

Rev. D / Jan.2006

STF General Design Guide



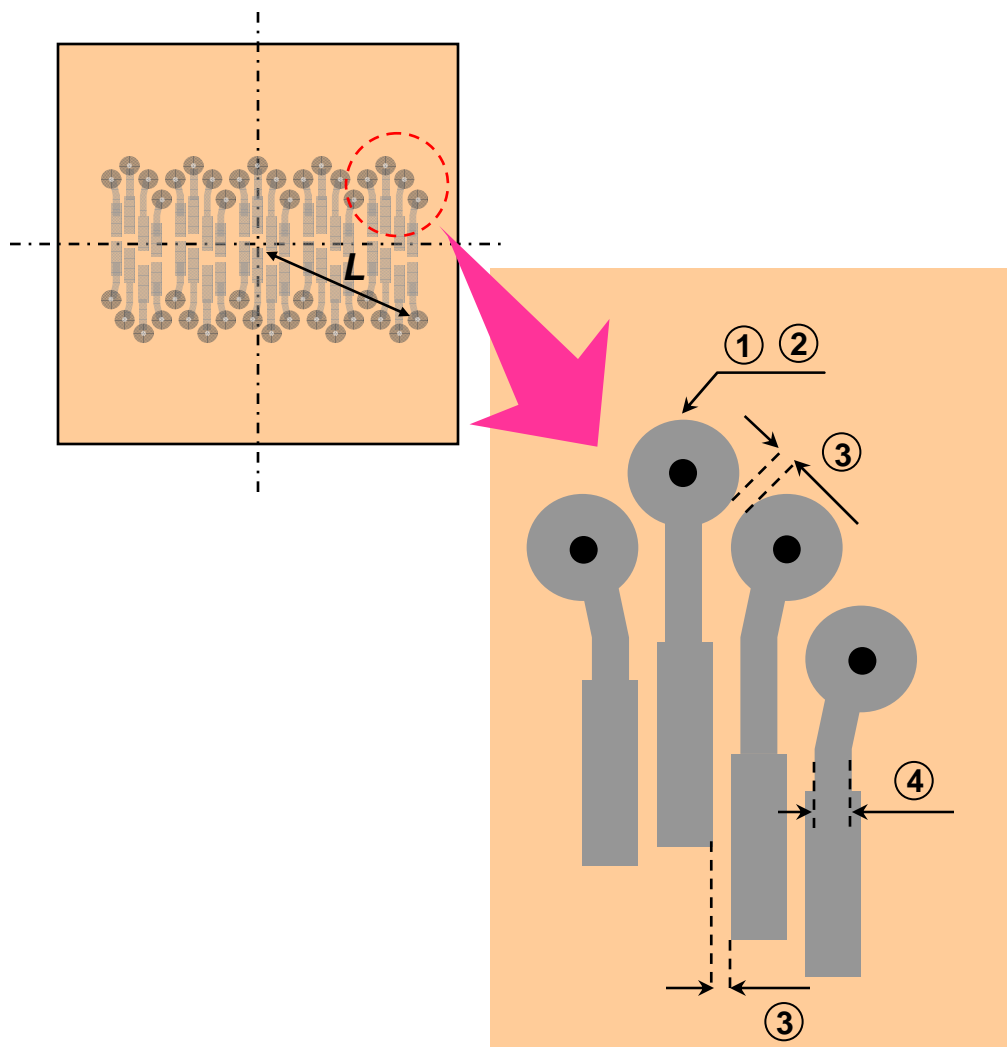
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- HTCC+Thin Film multiple DUT Space Transformer -

1. Surface Thin Film Pattern (Probe Pad)

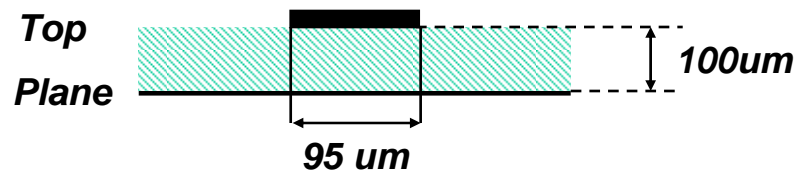


UNIT: μm

Design Parameter	Standard	Special
① Via Diameter	≥ 100	85
② Cover Pad / LGA Pad Diameter	$\geq 2SL + 1.05V + 20$ <i>S : 0.0050 (Special 0.0030)</i> <i>L : Distance from origin to farthest via</i> <i>V : Via Diameter</i>	
③ Isolation Gap	≥ 40	≥ 30
④ Line Width	$\geq 95(*)$	≥ 50

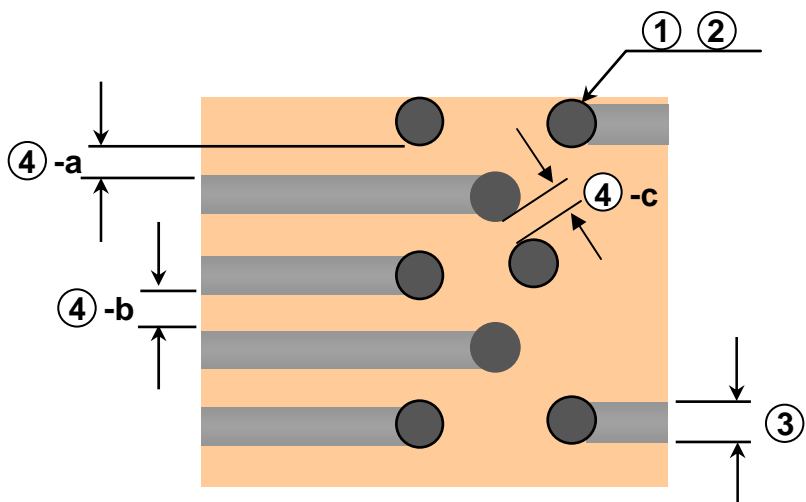
(*) $Z_0 = 50 \text{ OHM control}$

Line Width 95 μm & Layer thick 100 μm



2 Internal Design rule

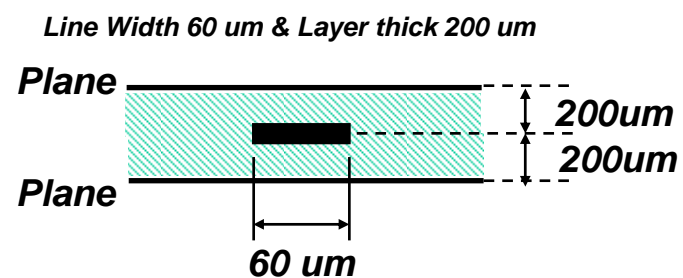
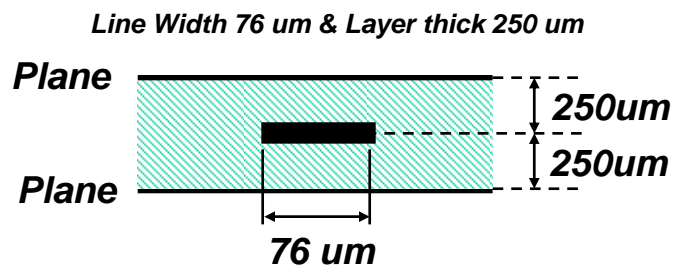
2-1 Signal Line



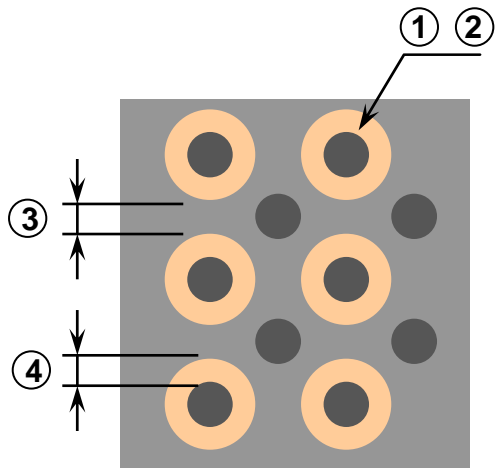
UNIT: μm

Design Parameter	Standard	Special
① Via Diameter	≥ 100	≥ 95
② Cover Pad	≥ 100	≥ 95
③ Line Width	76 / 60 (*)	—
④ -a Isolation Gap (via to line)	≥ 100	≥ 70
④ -b Isolation Gap (line to line)	≥ 90	≥ 70
④ -c Isolation Gap (via to via)	≥ 300	≥ 225

(*) $Z_0 = 50 \text{ OHM control}$



2-2 PWR / GND Plane



Design Parameter	Standard	Special	UNIT; μm	
			7.0 INCH SQ STF	
① Via Diameter	≥ 100	≥ 95	100	150
② Cover Pad Diameter	≥ 100	≥ 95	150	200
③ Metal Path width	100 (≥ 50)	≥ 40	100 (≥ 50)	
④ Isolation Gap	200 (≥ 135)	≥ 100	175	

Via size
100 DIA : Signal NET
150 DIA : PWR/GND NET
(Except Top and Bottom Layer)



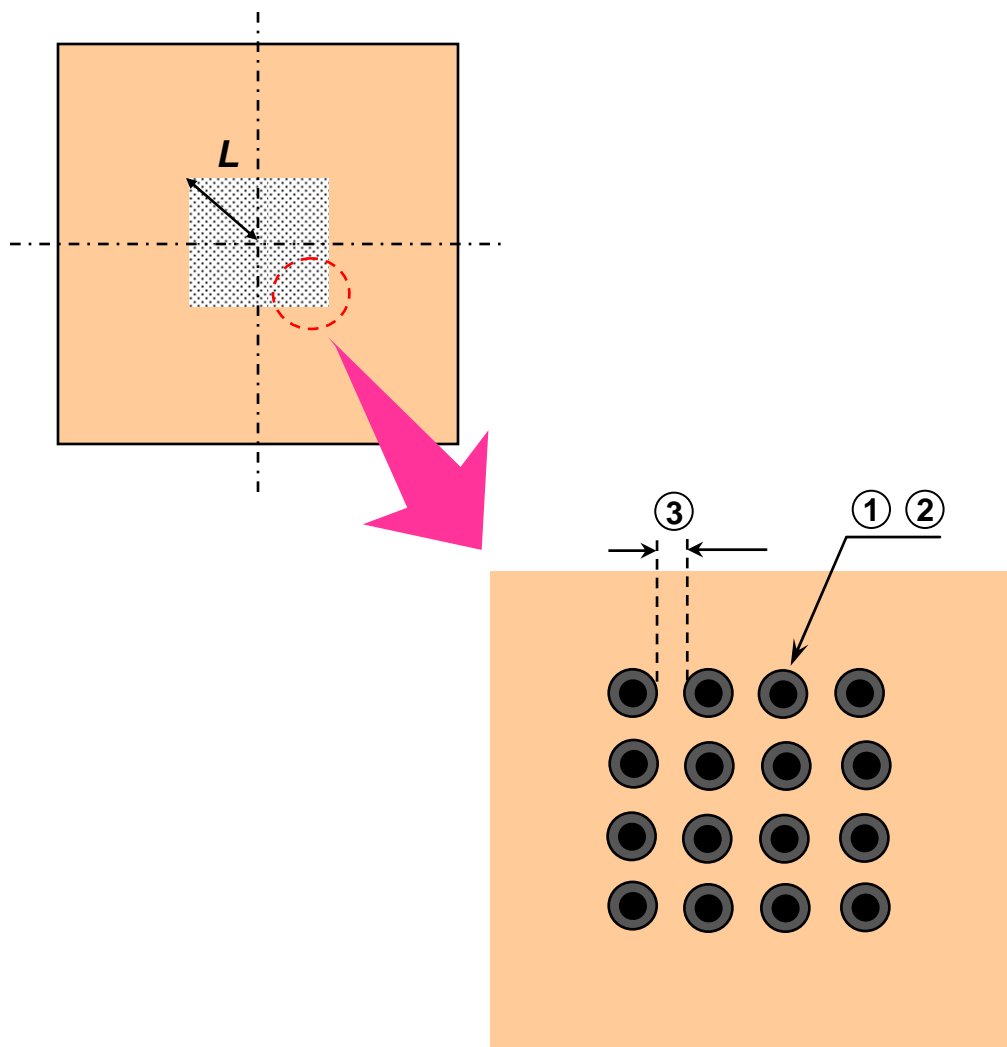
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3. Surface Thin Film Pattern (Probe Pad)

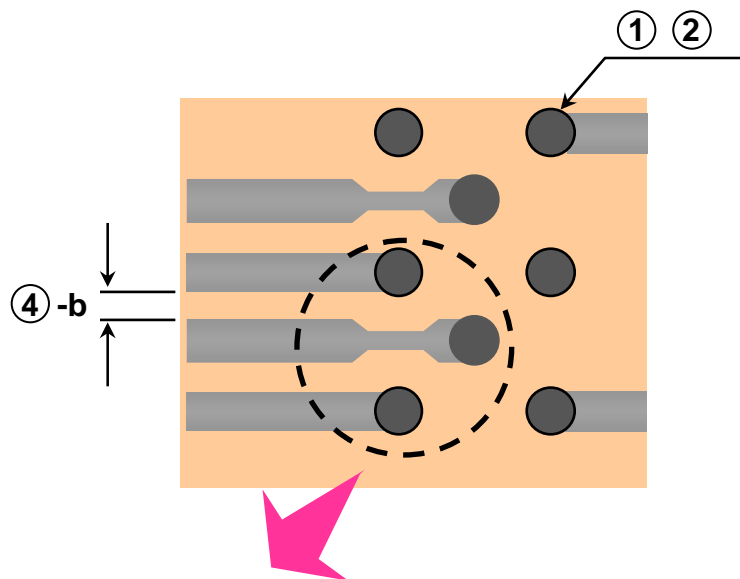


UNIT: μm

Design Parameter	Standard	Special
① Via Diameter	≥ 100	70
② Cover Pad / LGA Pad Diameter	$\geq 2SL + 1.05V + 20$ S : 0.0050 (Special 0.0025) L : Distance from origin to farthest via V : Via Diameter	
③ Isolation Gap	≥ 40	≥ 25

4 Internal Design rule

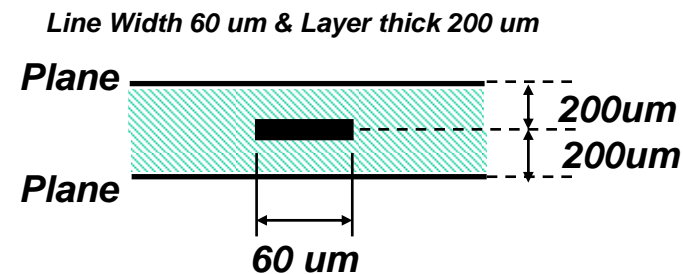
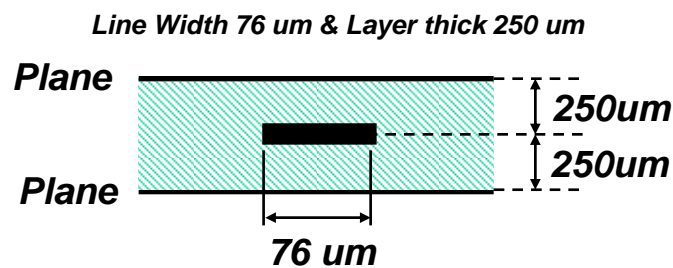
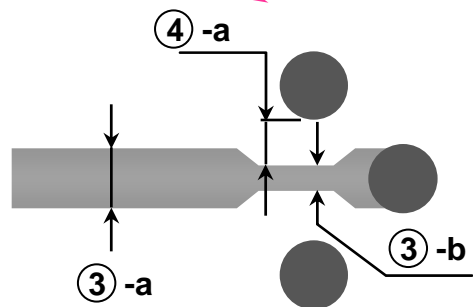
4-1 Signal Line (C4 Area)



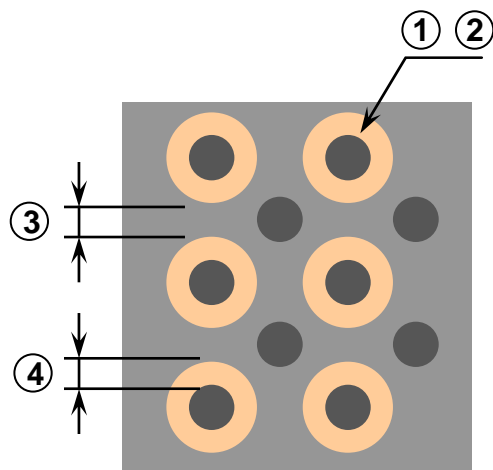
UNIT: μm

Design Parameter	Standard	Special
① Via Diameter	≥ 100	≥ 70
② Cover Pad	≥ 100	≥ 70
③ - a Line Width	76 / 60 (*)	—
③ - b Line Width (between vias)	≥ 50	≥ 40
④ - a Isolation Gap (via to line)	≥ 100	≥ 70
④ - b Isolation Gap (line to line)	≥ 100	≥ 70

(*) $Z_0 = 50 \text{ OHM control}$



4-2 PWR / GND Plane(C4 Area)



Design Parameter	UNIT; μm	
	Standard	Special
① Via Diameter	≥ 100	≥ 70
② Cover Pad Diameter	≥ 100	≥ 70
③ Metal Path width	100 (≥ 50)	≥ 40
④ Isolation Gap	120 (≥ 90)	≥ 70