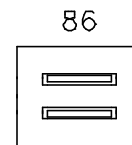
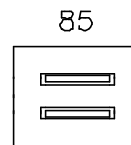
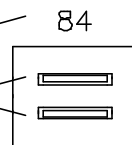
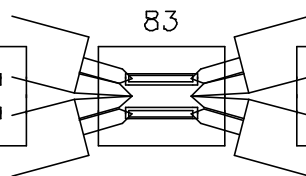
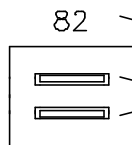
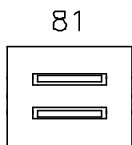
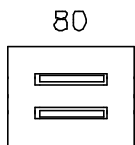
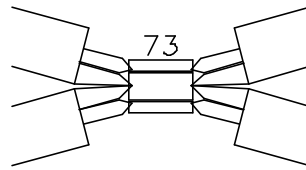
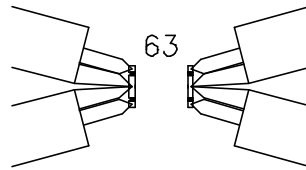
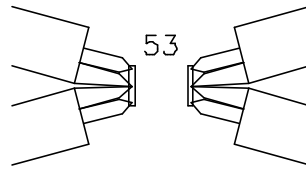
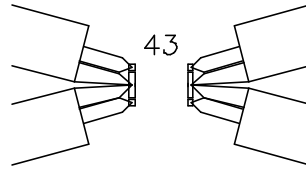
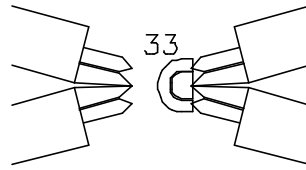
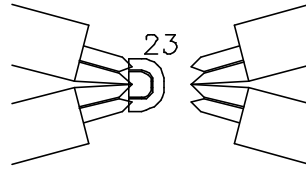
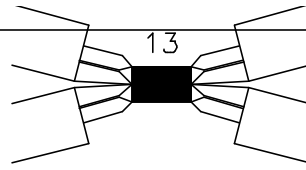


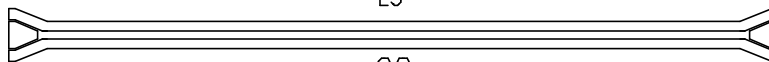
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100 ohm



L5



90

200 ohm



L1

L2

O

S

M

L3

L4

CS-4-150 Calibration Substrate Key (Table 1)

Location #	Description	Coordinates (X,Y in micrometers)
10	Home	(0,0)
11	Home	(1700,0) from 10
12	Home	(3400,0) from 10
13	Home	(5100,0) from 10
14	Home	(6800,0) from 10
15	Home	(8500,0) from 10
16	Home	(10200,0) from 10
20	550 micrometer 180 degree 50 ohm line	(0,2000) from 10
21	550 micrometer 180 degree 50 ohm line	(1700,2000) from 10
22	550 micrometer 180 degree 50 ohm line	(3400,2000) from 10
23	550 micrometer 180 degree 50 ohm line	(5100,2000) from 10
24	550 micrometer 180 degree 50 ohm line	(6800,2000) from 10
25	550 micrometer 180 degree 50 ohm line	(8500,2000) from 10
26	550 micrometer 180 degree 50 ohm line	(10200,2000) from 10
30	550 micrometer 180 degree 50 ohm line	(0,2000) from 10
31	550 micrometer 180 degree 50 ohm line	(1700,2000) from 10
32	550 micrometer 180 degree 50 ohm line	(3400,2000) from 10
33	550 micrometer 180 degree 50 ohm line	(5100,2000) from 10
34	550 micrometer 180 degree 50 ohm line	(6800,2000) from 10
35	550 micrometer 180 degree 50 ohm line	(8500,2000) from 10
36	550 micrometer 180 degree 50 ohm line	(10200,2000) from 10
40	open pads (pair)	(-1700,2000) from 10
41	open pads (pair)	(0,2000) from 10
41	open pads (pair)	(1700,2000) from 10
43	open pads (pair)	(3400,2000) from 10
44	open pads (pair)	(5100,2000) from 10
45	open pads (pair)	(6800,2000) from 10
46	open pads (pair)	(8500,2000) from 10
50	shorting bar (pair)	(-1700,4000) from 10
51	shorting bar (pair)	(0,4000) from 10
52	shorting bar (pair)	(1700,4000) from 10
53	shorting bar (pair)	(3400,4000) from 10
54	shorting bar (pair)	(5100,4000) from 10
55	shorting bar (pair)	(6800,4000) from 10
56	shorting bar (pair)	(8500,4000) from 10
60	50 ohm loads (pair)	(-1700,6000) from 10
61	50 ohm loads (pair)	(0,6000) from 10
62	50 ohm loads (pair)	(1700,6000) from 10
63	50 ohm loads (pair)	(3400,6000) from 10
64	50 ohm loads (pair)	(5100,6000) from 10
65	50 ohm loads (pair)	(6800,6000) from 10
66	50 ohm loads (pair)	(8500,6000) from 10
70	550 micrometer 50 ohm line (pair)	(-1700,8000) from 10
71	550 micrometer 50 ohm line (pair)	(0,8000) from 10
72	550 micrometer 50 ohm line (pair)	(1700,8000) from 10
73	550 micrometer 50 ohm line (pair)	(3400,8000) from 10
74	550 micrometer 50 ohm line (pair)	(5100,8000) from 10
75	550 micrometer 50 ohm line (pair)	(6800,8000) from 10
76	550 micrometer 50 ohm line (pair)	(8500,8000) from 10
81	550 micrometer 50 ohm coplanar line	(0,8000) from 10
82	550 micrometer 50 ohm coplanar line	(1700,8000) from 10
83	550 micrometer 50 ohm coplanar line	(3400,8000) from 10
84	550 micrometer 50 ohm coplanar line	(5100,8000) from 10
85	550 micrometer 50 ohm coplanar line	(6800,8000) from 10
86	550 micrometer 50 ohm coplanar line	(8500,8000) from 10