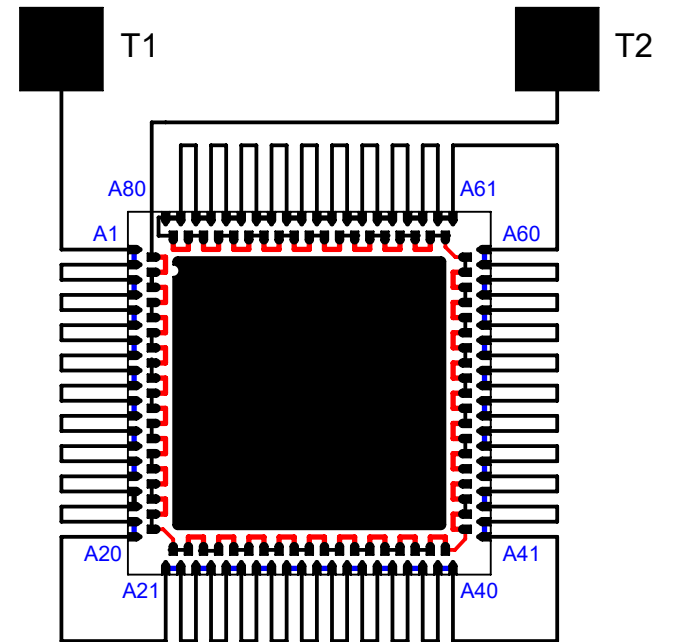
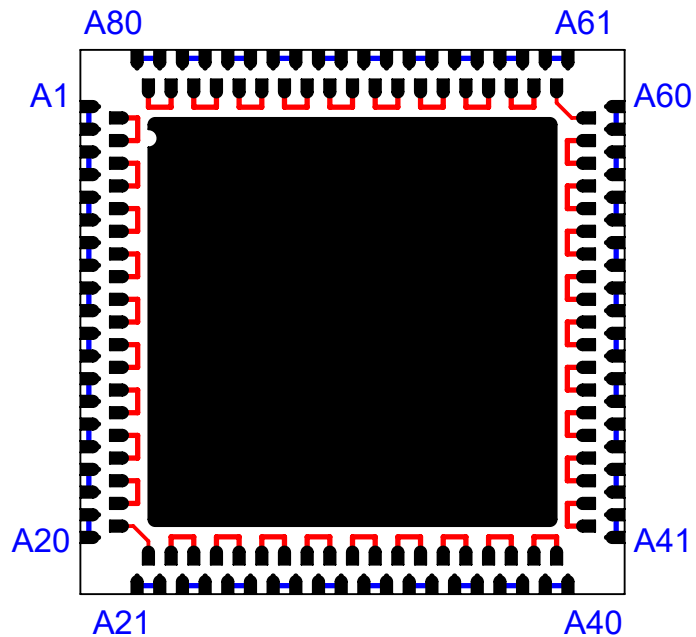


RECOMMENDED  
PCB PADS



AFTER MOUNTING  
ON PCB

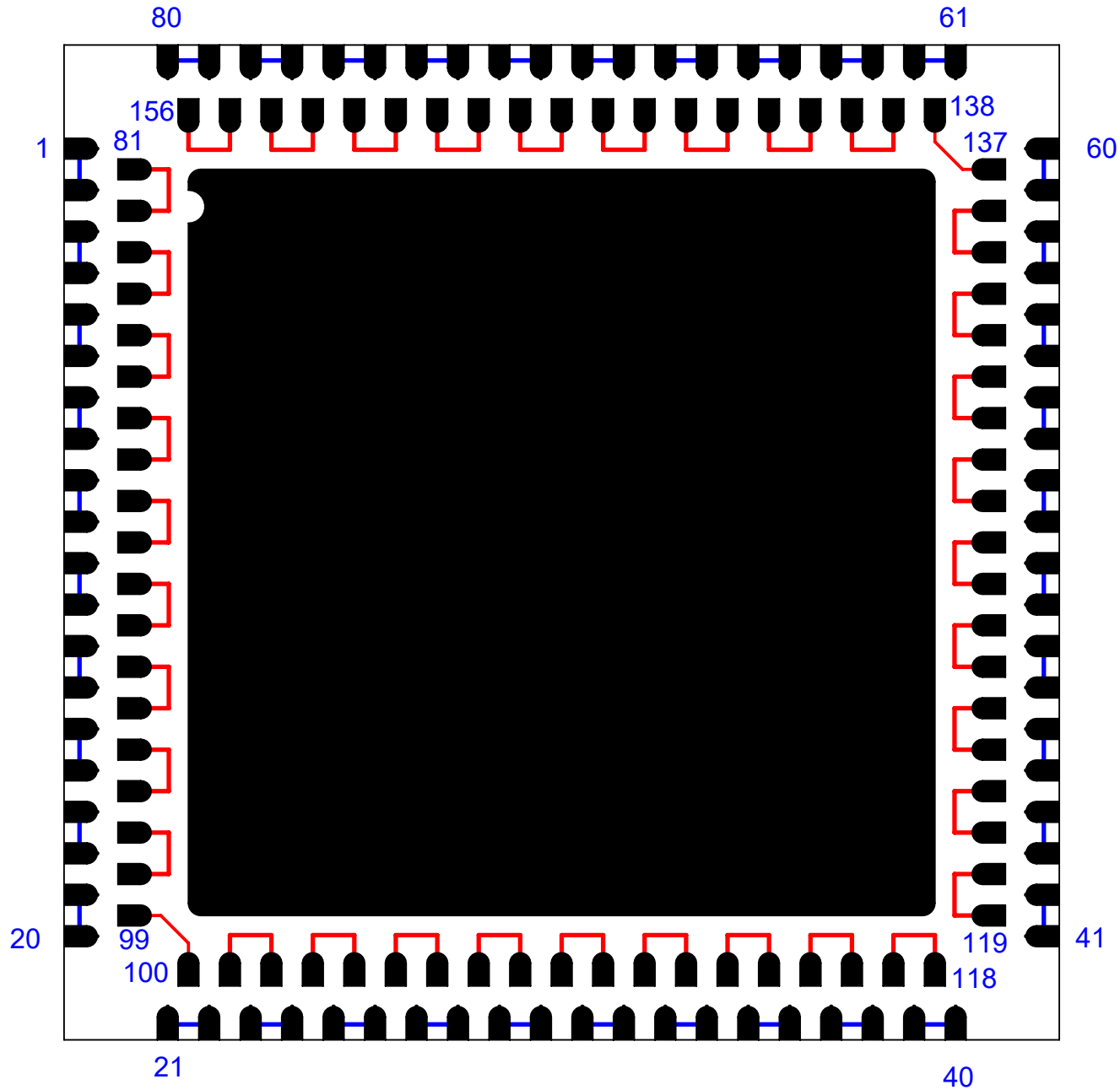


VIEW FROM TOP

NOTE:  
DAISY CHAIN INTERNAL COPPER TRACES  
INSIDE THE COMPONENT.

<b>TopLine®</b>			
TITLE 156-LEAD 12mm P0.5mm LQFN DAISY CHAIN PAD 9.0mm			
SCALE 6:1	SIZE A	DRAWING NO. 451560	REV A
DO NOT SCALE DRAWING			SHEET 2 OF 7

VIEW FROM TOP  
PINS 1 to 156



**TopLine®**

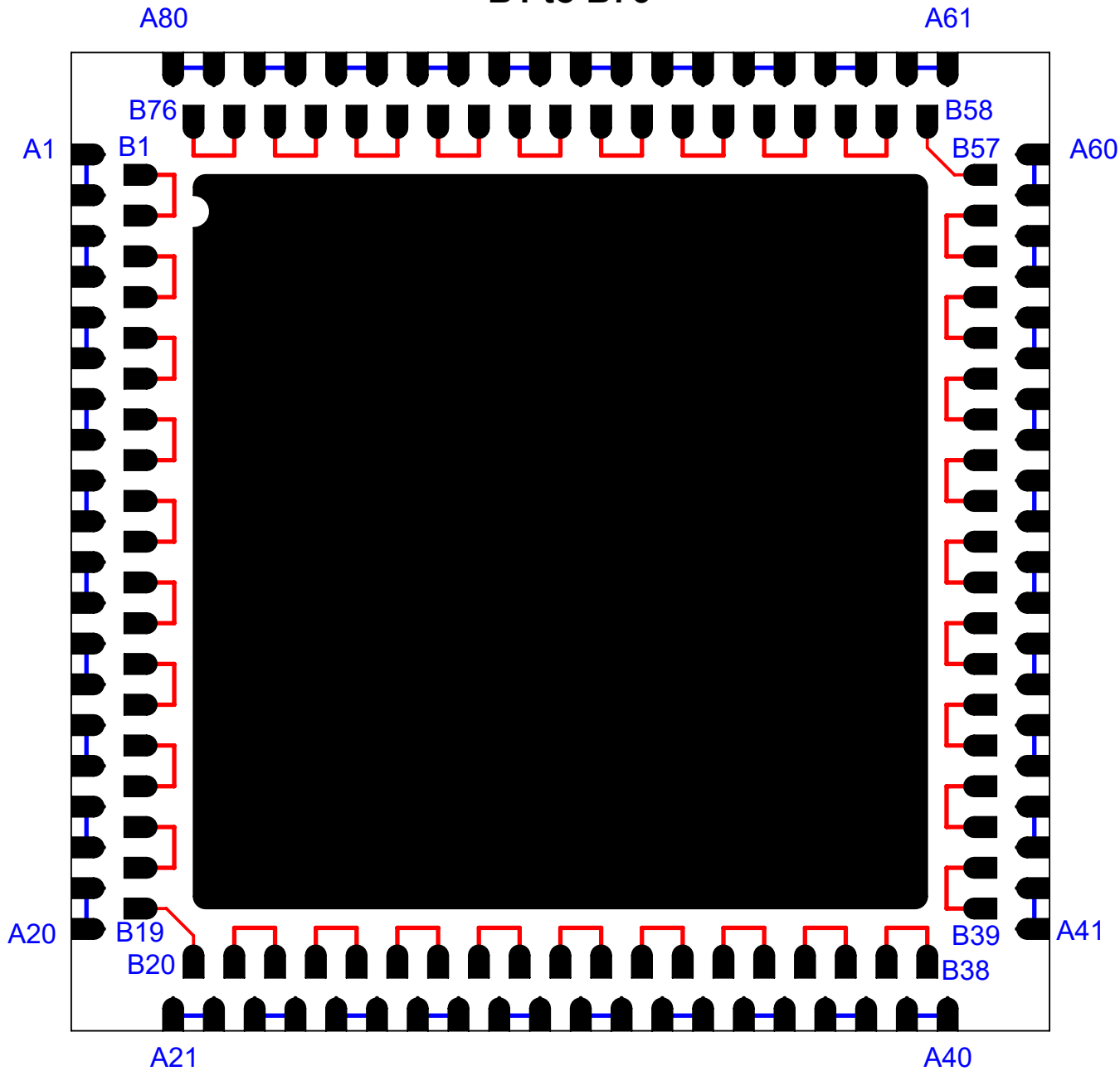
TITLE 156-LEAD 12mm P0.5mm  
LQFN DAISY CHAIN PAD 9.0mm

SCALE	SIZE	DRAWING NO.	REV
6:1	A	451560	A

DO NOT SCALE DRAWING

SHEET 3 OF 7

MAPPING FROM TOP  
PINS A1 to A80  
B1 to B76



**TopLine**<sup>®</sup>

TITLE 156-LEAD 12mm P0.5mm  
LQFN DAISY CHAIN PAD 9.0mm

SCALE	SIZE	DRAWING NO.	REV
6:1	A	451560	A

DO NOT SCALE DRAWING

SHEET 4 OF 7

## DAISY CHAIN NET LIST

OUTER ROW	
I/O	PIN
1 ~ 2	A1 ~ A2
3 ~ 4	A3 ~ A4
5 ~ 6	A5 ~ A6
7 ~ 8	A7 ~ A8
9 ~ 10	A9 ~ A10
11 ~ 12	A11 ~ A12
13 ~ 14	A13 ~ A14
15 ~ 16	A15 ~ A16
17 ~ 18	A17 ~ A18
19 ~ 20	A19 ~ A20
21 ~ 22	A21 ~ A22
23 ~ 24	A23 ~ A24
25 ~ 26	A25 ~ A26
27 ~ 28	A27 ~ A28
29 ~ 30	A29 ~ A30
31 ~ 32	A31 ~ A32
33 ~ 34	A33 ~ A34
35 ~ 36	A35 ~ A36
37 ~ 38	A37 ~ A38
39 ~ 40	A39 ~ A40

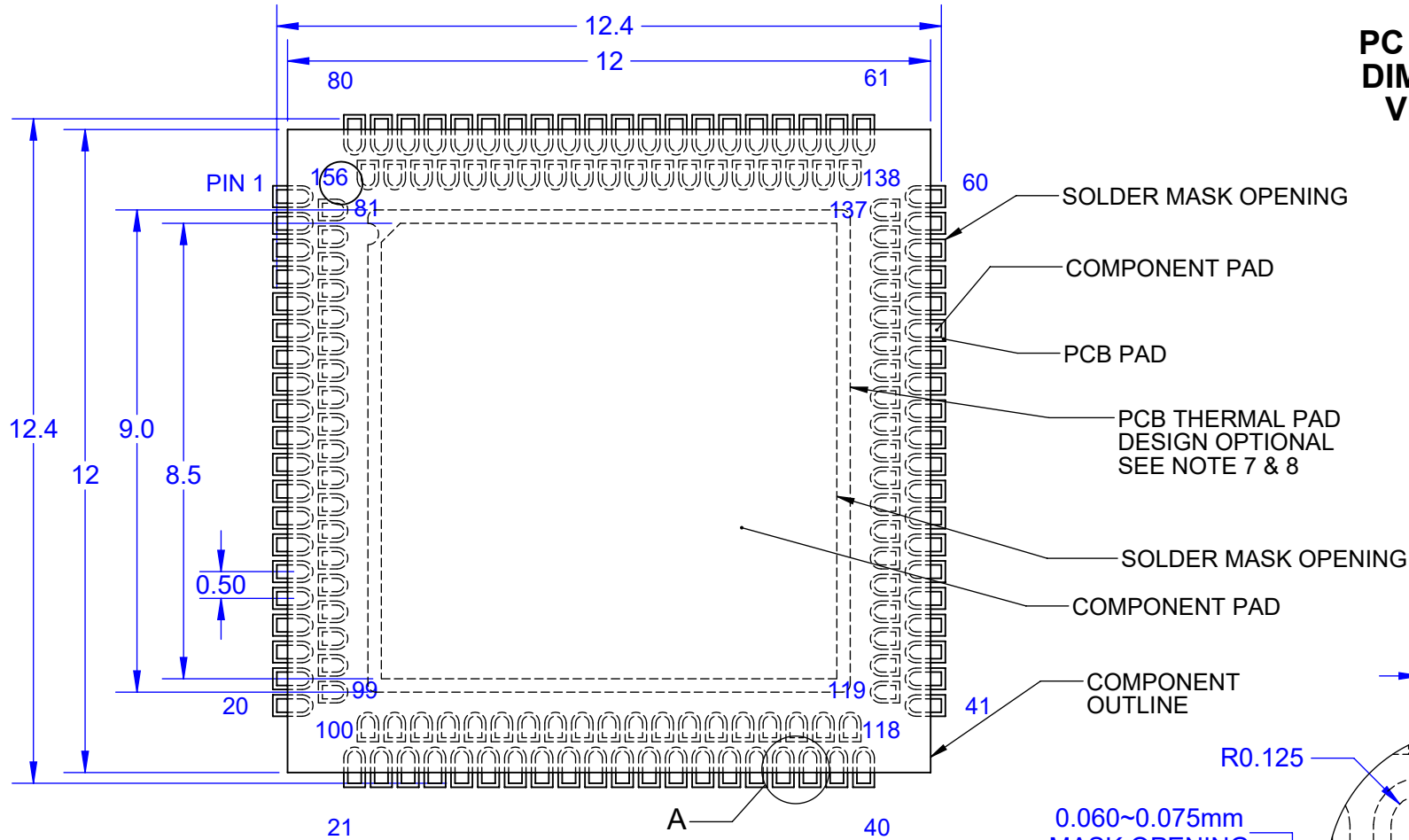
OUTER ROW	
I/O	PIN
41 ~ 42	A41 ~ A42
43 ~ 44	A43 ~ A44
45 ~ 46	A45 ~ A46
47 ~ 48	A47 ~ A48
49 ~ 50	A49 ~ A50
51 ~ 52	A51 ~ A52
53 ~ 54	A53 ~ A54
55 ~ 56	A55 ~ A56
57 ~ 58	A57 ~ A58
59 ~ 60	A59 ~ A60
61 ~ 62	A61 ~ A62
63 ~ 64	A63 ~ A64
65 ~ 66	A65 ~ A66
67 ~ 68	A67 ~ A68
69 ~ 70	A69 ~ A70
71 ~ 72	A71 ~ A72
73 ~ 74	A73 ~ A74
75 ~ 76	A75 ~ A76
77 ~ 78	A77 ~ A78
79 ~ 80	A79 ~ A80

INNER ROW	
I/O	PIN
81 ~ 82	B1 ~ B2
83 ~ 84	B3 ~ B4
85 ~ 86	B5 ~ B6
87 ~ 88	B7 ~ B8
89 ~ 90	B9 ~ B10
91 ~ 92	B11 ~ B12
93 ~ 94	B13 ~ B14
95 ~ 96	B15 ~ B16
97 ~ 98	B17 ~ B18
99 ~ 100	B19 ~ B20
101 ~ 102	B21 ~ B22
103 ~ 104	B23 ~ B24
105 ~ 106	B25 ~ B26
107 ~ 108	B27 ~ B28
109 ~ 110	B29 ~ B30
111 ~ 112	B31 ~ B32
113 ~ 114	B33 ~ B34
115 ~ 116	B35 ~ B36
117 ~ 118	B37 ~ B38
119 ~ 120	B39 ~ B40

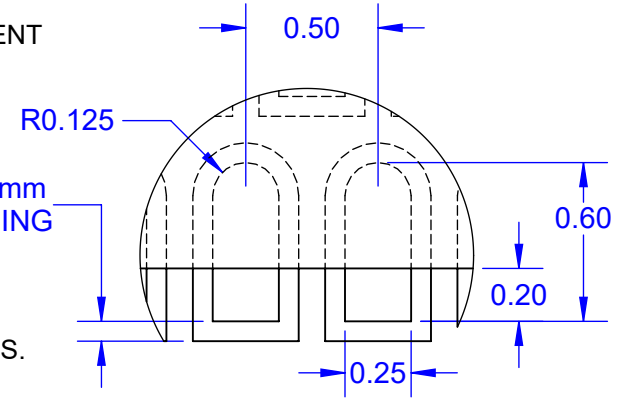
INNER ROW	
I/O	PIN
121 ~ 122	B41 ~ B42
123 ~ 124	B43 ~ B44
125 ~ 126	B45 ~ B46
127 ~ 128	B47 ~ B48
129 ~ 130	B49 ~ B50
131 ~ 132	B51 ~ B52
133 ~ 134	B53 ~ B54
135 ~ 136	B55 ~ B56
137 ~ 138	B57 ~ B58
139 ~ 140	B59 ~ B60
141 ~ 142	B61 ~ B62
143 ~ 144	B63 ~ B64
145 ~ 146	B65 ~ B66
147 ~ 148	B67 ~ B68
149 ~ 150	B69 ~ B70
151 ~ 152	B71 ~ B72
153 ~ 154	B73 ~ B74
155 ~ 156	B75 ~ B76

<b>TopLine<sup>®</sup></b>			
TITLE 156-LEAD 12mm P0.5mm LQFN DAISY CHAIN PAD 9.0mm			
SCALE NONE	SIZE A	DRAWING NO. 451560	REV A
DO NOT SCALE DRAWING			SHEET 5 OF 7

# PC BOARD LAYOUT DIMENSIONS IN MM VIEW FROM TOP



0.060~0.075mm  
MASK OPENING



DETAIL A  
SCALE 35 : 1

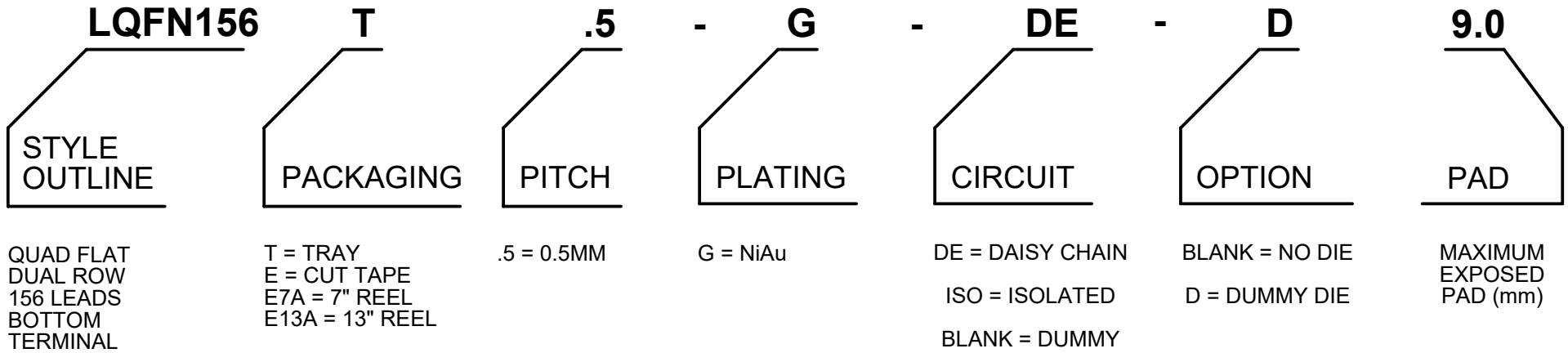
Notes: (Unless Otherwise Specified).

- 1) DIMENSIONS ARE PRESENTED ONLY AS A GUIDELINE. DESIGNERS SHOULD USE THEIR OWN KNOWLEDGE BASE WHEN DESIGNING THE PCB.
- 2) SURROUND EACH SIDE OF I/O PERIMETER PADS WITH 0.060~0.075 mm (NSMD) SOLDER MASK OPENING (2.4~3.0mils) OPTIONALLY OK TO USE RECTANGLE (NSMD) MASK OPENING AROUND I/O PADS.
- 3) ROUNDED PCB LAND PADS REDUCE SOLDER BRIDGING. PAD CHAMFER ANGLE MAY VARY.
- 4) PCB LANDS SHOULD BE 0.2mm LONGER THAN THE PACKAGE I/O PADS.
- 5) THE WIDTH OF PERIMETER PCB PADS SHOULD MATCH (1:1) THE WIDTH OF THE PACKAGE PADS.
- 6) REFER TO INDUSTRY REFERENCES SUCH AS IPC-SM-782 FOR PCB LAND PATTERN DESIGN.
- 7) THERMAL GROUND PADS MAY BE CHANGED TO SUITE REQUIREMENTS OF THE DESIGNER.
  - A) MAKE COPPER THERMAL PAD AS LARGE AS POSSIBLE.
  - B) DRILL MULTIPLE THERMAL VIAS 0.25~0.33mm DIAMETER USING 0.8~1.2mm PITCH GRID.
  - C) PLATE THERMAL VIA BARRELS WITH 1-OUNCE COPPER (18µm).
  - D) TENT (COVER) THERMAL VIAS WITH SOLDER MASK 0.1mm LARGER THAN THE VIA DIAMETER.
- 8) STENCIL DESIGN MAY BE CHANGED TO SUIT REQUIREMENTS OF THE DESIGNER.
  - A) LASER CUT STENCIL 0.125mm (5mil) THICK. APERTURE SIZE-TO-LAND RATIO OF 1:1.
  - B) THE SOLDER PASTE OPENING IN THE THERMAL PAD AREA SHOULD BE A MATRIX ARRAY OF SMALLER APERTURES INSTEAD OF ONE LARGE APERTURE TO CONTROL PASTE AMOUNTS.
  - C) APPLY 50% TO 80% SOLDER PASTE COVERAGE IN THE PAD AREA.



TITLE 156-LEAD 12mm P0.5mm LQFN DAISY CHAIN PAD 9.0mm			
SCALE 8:1	SIZE A	DRAWING NO. 451560	REV A
DO NOT SCALE DRAWING			SHEET 6 OF 7

## PART NUMBERING SYSTEM



PART NUMBER	DAISY CHAIN	PACKAGING	RoHS Pb-FREE	Plating	DUMMY DIE
LQFN156T.5-G-DE-D9.0	YES	JEDEC TRAY	YES	NiAu	YES
LQFN156E.5-G-DE-D9.0	YES	TAPE & REEL	YES	NiAu	YES

OTHER PART NUMBER COMBINATIONS AVAILABLE. CONTACT TOPLINE.

<b>TopLine®</b>			
TITLE 156-LEAD 12mm P0.5mm LQFN DAISY CHAIN PAD 9.0mm			
SCALE NONE	SIZE A	DRAWING NO. 451560	REV A
DO NOT SCALE DRAWING			SHEET 7 OF 7