

U.S. PATENT US 9521753 B1
OTHER PATENTS PENDING

DIMENSION AND WEIGHT (MASS) TABLE								
H HEIGHT ±0.5 mm	PCB MASS	TUNGSTEN BALLS IN CAVITY				Total PID MASS	SCREW ADJUST	SCREW HEX HEAD
		Ø DIA	Per Ball	QTY	Mass			
4.0mm	65g	1.5mm	0.031g	210~225	6.5g	13g	2-56	0.035
4.5mm	80g	2.0mm	0.073g	110~120	8.0g	16g	4-40	0.050
5.0mm	90g	2.3mm	0.102g	88~95	9.0g	17g	6-32	1/16
7.5mm	100g	2.5mm	0.143	70~80	10.0g	22g	6-32	1/16

NOTES: (Unless Otherwise Specified).

1) DIMENSIONS INCH (min)

APPLICATION NOTES:

Contact TopLine for help to select the best PID for your application.

NOTES 2 MOUNTING STYLE (Replace N)

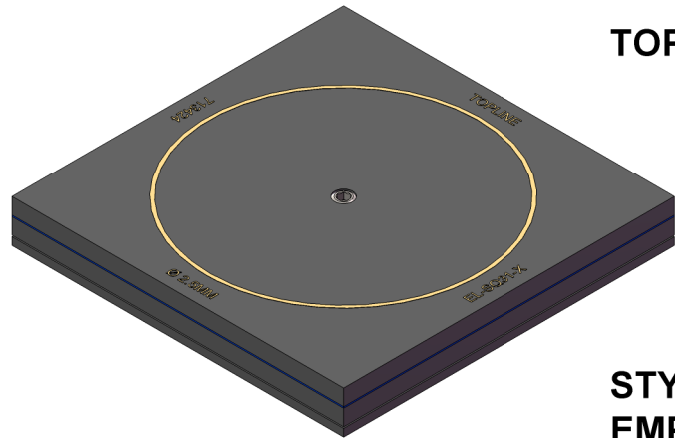
1= LGA (FL) 4= BGA SAC305 (FB)

2= SCREW (FS) 5= BGA SnPb (FP)

3= ADHESIVE (FA) 9= CUSTOM

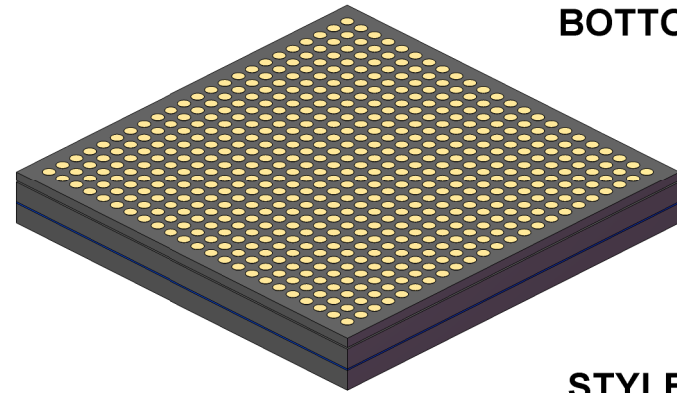
APPROVALS	DATE	TopLine®			
DRAWN	T. Au	TITLE EL-SQ31-X PID VIBRATION DAMPER			
ENG	M. Hart				
MFG		SCALE	SIZE	DRAWING NO.	REV
QA		2:1	A	703124	A
CUST		DO NOT SCALE DRAWING			SHEET 1 OF 3
REVISED					

**MODELS
ATTACHMENT VARIATIONS**



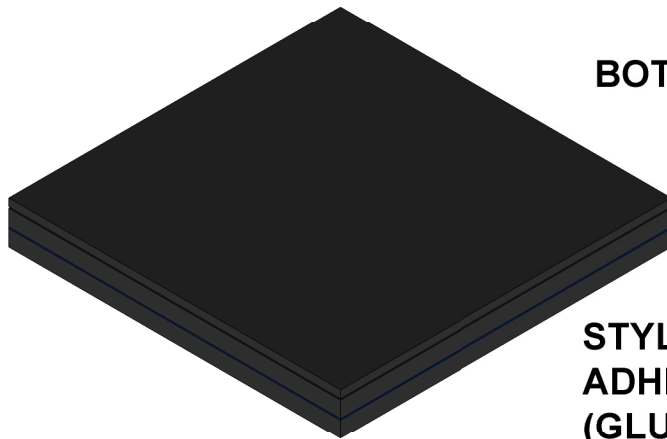
TOP

**STYLE EL
EMPTY**



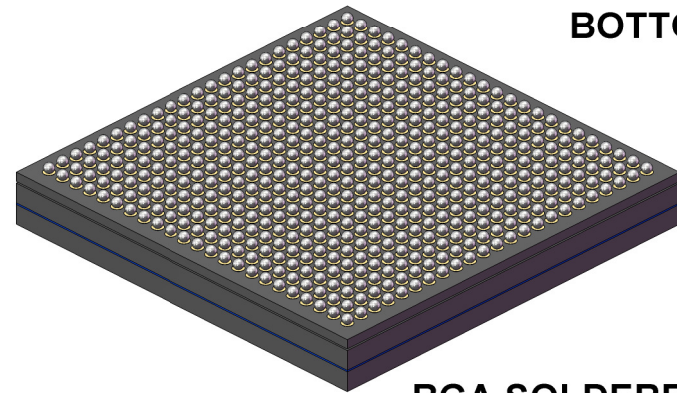
BOTTOM

**STYLE FL
LGA PADS**



BOTTOM

**STYLE FA
ADHESIVE
(GLUE)**



BOTTOM

**BGA SOLDERBALL
STYLE FB = SAC305 RoHS
STYLE FP = SnPb**

TopLine®

TITLE EL-SQ31- X
PID VIBRATION DAMPER

SCALE 2:1	SIZE A	DRAWING NO. 703124	REV A
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DO NOT SCALE DRAWING

SHEET 2 OF 3

PART NUMBER SYSTEM

<u>F</u>	<u>A</u>	<u>9.0</u>	<u>SQ</u>	<u>31x</u>	<u>5.0</u>	<u>A</u>
Series	Mounting on PCB	Tungsten Payload Grams (Mins.)	Shape	X/Y Size	Height	Version/Option
<p>Filled F = FR4 Case A = Al Case</p> <p>Empty E = FR4 Case L = Al Case</p>	<p>Mounting Style A = Adhesive L = LGA NiAu Solderable Bottom Terminal</p> <p>B = BGA SAC Solder Ball</p> <p>P = BGA SnPb Solder Ball</p> <p>S = Screw Fastener</p>	<p>Code • Grams 6.5 = 6.5gm 8.0 = 8.0gm 9.0 = 9.0gm 10 = 10.0gm</p> <p>Other Mass Available</p>	<p>Code • Shape SQ = Square R = Rectangle C = Cylindrical T = Toroid Z = Custom</p>	<p>Code Size 31x = 31mm SQ</p> <p>Other Sizes Available</p>	<p>Code Height 4.0 = 4.0mm 4.5 = 4.5mm 5.0 = 5.0mm 7.5 = 7.5mm</p> <p>Other Sizes Available</p>	<p>Code Version A Standard</p> <p>Other Version Available</p>

ORDER NUMBER

<u>1</u>	<u>1</u>	<u>990</u>	<u>1</u>
DESCRIPTION	Mount syle	Mass (gram) 9 = Decimal	Option Code
<p><u>Code • Description</u></p> <p>1 = Filled PID 5 = Eng Dev Kit 7 = Empty Pkg</p>	<p><u>Code • Description</u></p> <p>1 = LGA 2 = Screw 3 = Adhesive 4 = BGA SAC305 5 = BGA Sn63/Pb37 9 = Custom 0 = Master DWG</p>	<p><u>Code • Grams</u></p> <p>695 = 6.5gm 890 = 8.0gm 990 = 9.0gm 010 = 10.0gm</p>	<p>Code Mil</p> <p>1 Version A 2 Version B 3 Version C ... 9 Version J</p>

TopLine®			
TITLE EL-SQ31-X PID VIBRATION DAMPER			
SCALE NONE	SIZE A	DRAWING NO. 703124	REV A
DO NOT SCALE DRAWING		SHEET 3 OF 3	