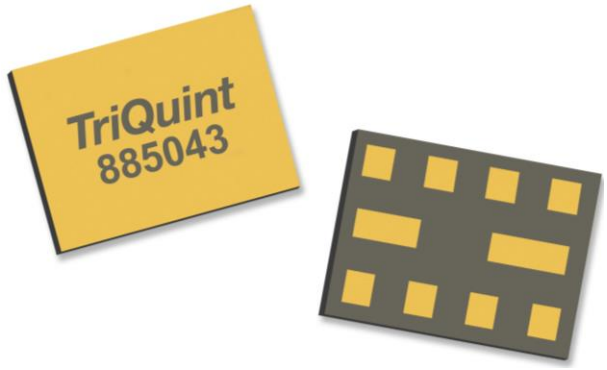
885043

B38/B40 Tx filters

Applications

- For Band 38 and Band 40 TD-LTE applications
- TD-LTE B38/B40 handset, datacards, mobile routers



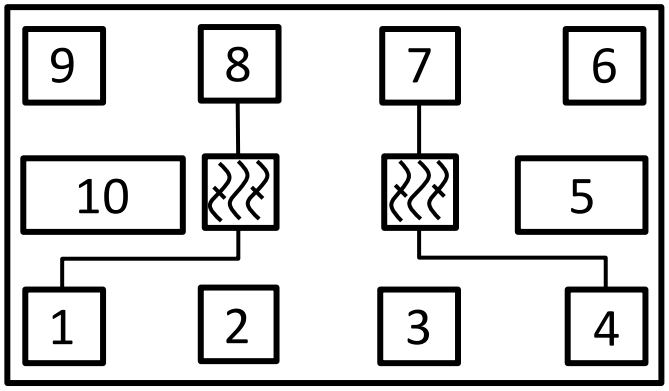
1.7 x 1.3 x 0.46 mm

Product Features

- Highly selective BAW filters achieving low insertion loss over full bandwidth and operating conditions
- Rejection in WLAN band of 40dB minimum
- Rejection in B7 Rx band of 20dB minimum
- Single antenna port, diplexing
- Performance -20 to +85 ºC
- RoHS compliant, Pb/halogen-free module package

Functional Block Diagram

Top view



General Description

The 885043 is a high-performance Bulk Acoustic Wave (BAW) Tx filter module designed to meet the strict TD-LTE rejection requirements for use in B38 and B40.

885043 is specifically designed to meet the high performance expectations of insertion loss and rejection for TD-LTE receive systems under all operating conditions.

The 885043 uses common module packaging techniques to achieve the industry standard 1.7 x 1.3 x 0.46 mm footprint.

Pin Configuration

Pin #	Description
1	B38 Tx
4	B40 Tx
7	B40 Antenna
8	B38 Antenna
2,3,5,6,9,10	Ground*

*Note, see application section for details on optimal grounding

Ordering Information

Part No.	Description
885043	Packaged part
885043-EVB	Evaluation board

Standard T/R size = 10,000 units/reel.

Specifications

Electrical Specifications [1]

(TEMP$_{OP}$ = -20 to +85°C, Characteristic Impedance [Z_O] = 50 Ω, Unless Otherwise Noted)

Parameter	Conditions	Min	Typ[2]	Max	Unit	Comment
B38 Tx						
Insertion Loss	2570–2615 MHz		2.3 2.3	2.7 3.0	dB dB	Ta=+25°C Ta=-20 to +85°C
	2615-2620 MHz		2.2	3.4	dB	Ta=-20 to +85°C
VSWR (In & Out)	2570–2620 MHz		2.0:1	2.1:1		
Absolute Attenuation	10-1574 MHz	35	37		dB	
	1559-1606 MHz	35	37		dB	
	1606-2300 MHz	35	37		dB	
	2400-2500 MHz	37	42		dB	
	2645-2670 MHz	12	16		dB	
	5140 –5240 MHz	30	38		dB	2nd Harmonic
	7710–7860 MHz	25	35		dB	3rd Harmonic
IMD2				-106	dBm	
IMD3				-120	dBm	
H2				-35	dBm	
B40 Tx						
Insertion Loss	2300–2395 MHz		2.4 2.4	2.6 3.3	dB dB	Ta=+25°C Ta=-20 to +85°C
	2395–2400 MHz		2.7	3.6	dB	
VSWR In & Out	2300–2400 MHz		1.8	2.1:1		
Attenuation	10–1574 MHz	30	33		dB	
	1574–1577 MHz	28	33		dB	
	1577–1680 MHz	27	31		dB	
	1845–1880 MHz	25	29		dB	
	2110–2170 MHz	25	28		dB	
	2400-2422 MHz[3]	-	16		dB	Integrated
	2422-2427 MHz	29	38		dB	
	2427–2460 MHz	45	50		dB	
	2460–2500 MHz	37	39		dB	
	4600–4800 MHz	28	39		dB	2nd Harmonic
	6900–7200 MHz	20	29			3rd Harmonic
IMD3				-120	dBm	
H2				-35	dBm	
Isolation						
Isolation B38 Tx port to B40 Tx port	2300 to 2400 MHz	40	44		dB	
	2570 to 2620 MHz	35	36		dB	

Notes:
1. All specifications are based on the TriQuint schematic for the main reference design shown on page 4.
2. Typical values are based on average measurements at room temperature.

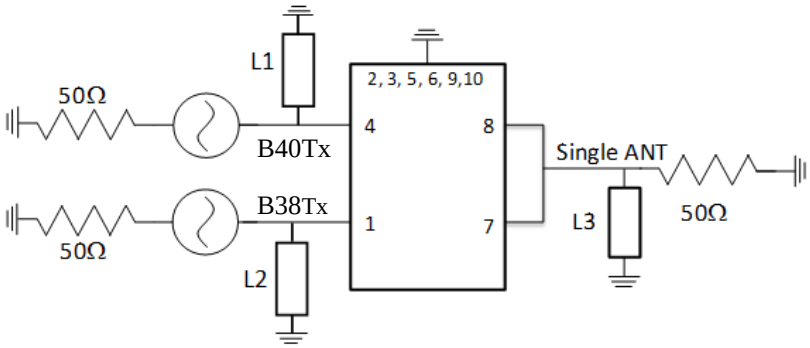
Absolute Maximum Ratings

Parameter	Rating
Operating Temperature[3]	-20 to +85 °C
Storage Temperature	-55 to +150 °C
Input Power, operating (In band, CW signal)	+28 dBm[4]

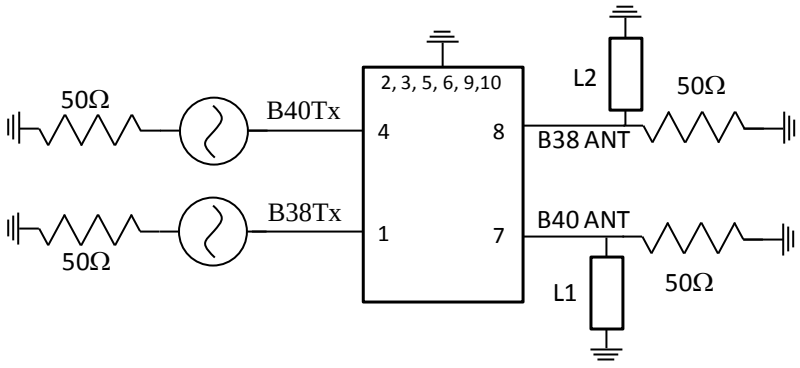
Notes:
[3] The diplexer will function over the recommended range without degradation in reliability or permanent change in performance, but is not guaranteed to meet electrical specifications.
[4] Input Power with applied CW signal at 55°C for 5000 hours

Reference Design – Tx - 50Ω SE Inputs, Antenna - 50Ω SE Output

Schematic 1: 2 Inputs, one diplex Antenna



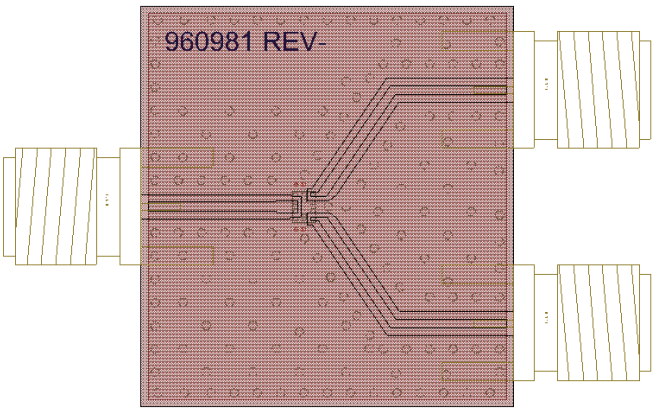
Schematic 2: 2 Inputs, 2 Antenna

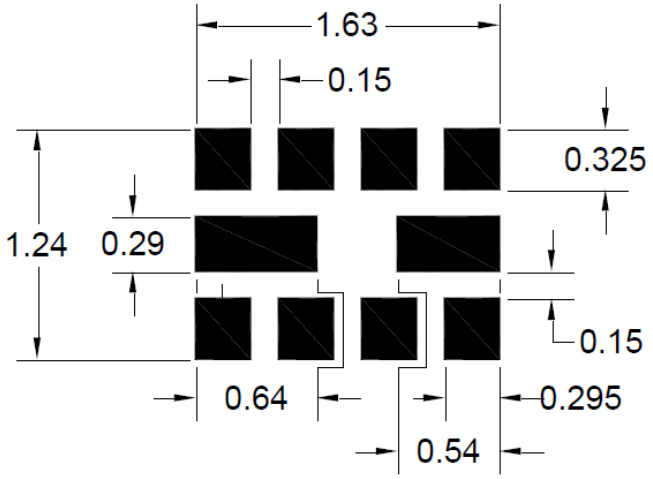


Notes:
1. Actual matching may vary due to PCB layout and parasitic

PC Board

PCB routing detail (Top view)





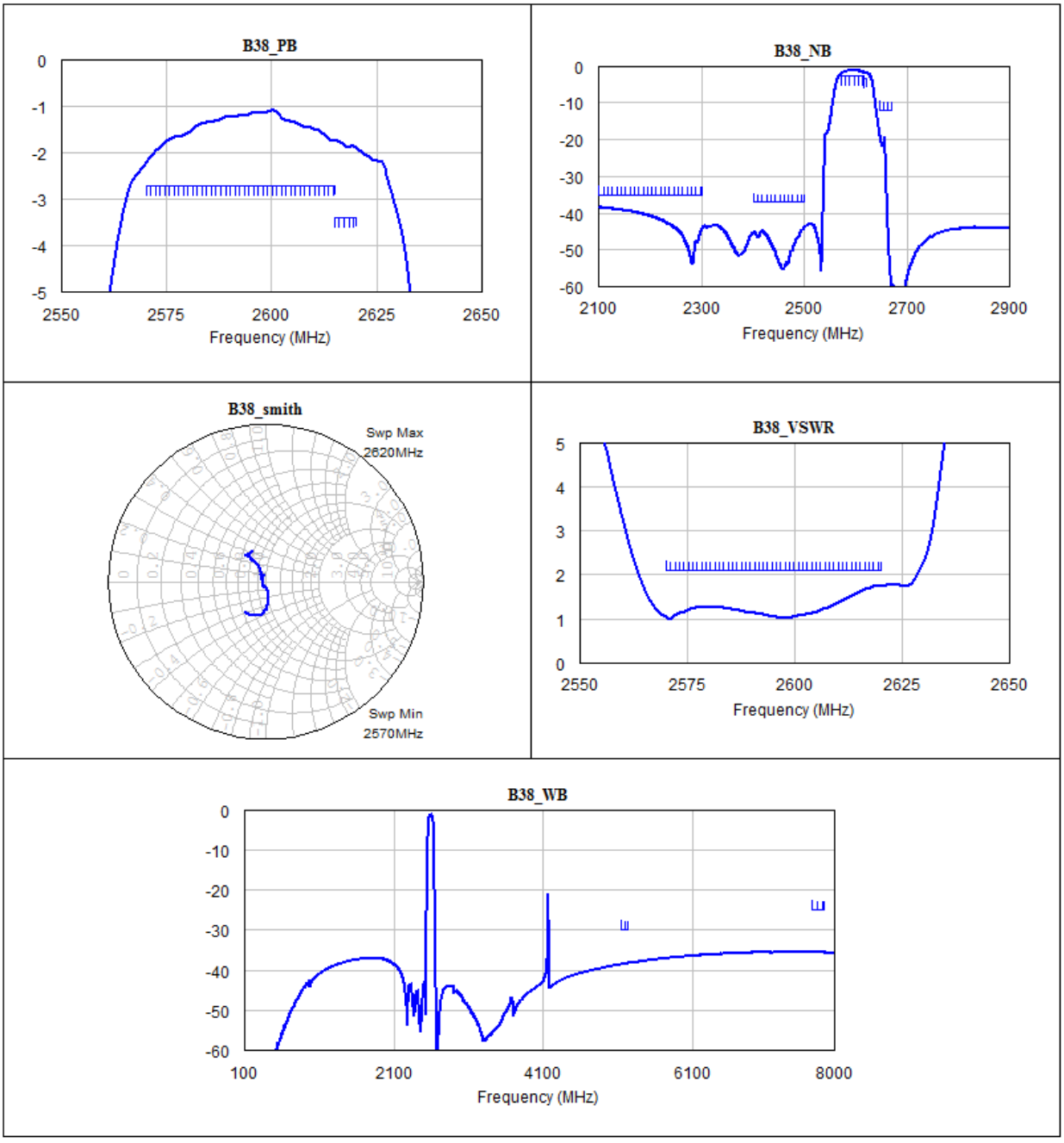
Notes:
1. Construction: 1/2oz. Cu Top Layer, .0075 Taconic TLY-5A Dielectric, 1/2oz. Cu Middle layer,
   a. FR4 Dielectric, 1/2oz. Cu Bottom Layer
   b. Finished Board Thickness to be .062%%p.004
2. Finish plating:
   a. Nickel type: ASTM B733-97, Class 1, 3-8µm thick, 7-9% Phosphorus
   b. Gold type: Immersion Gold .03-.2um
3. Hole plating: Copper min. .0008µm thick

Notes:
1. Dark indicates pad areas
2. This footprint represents a recommendation only
3. For solder pad recommendation see mechanical information

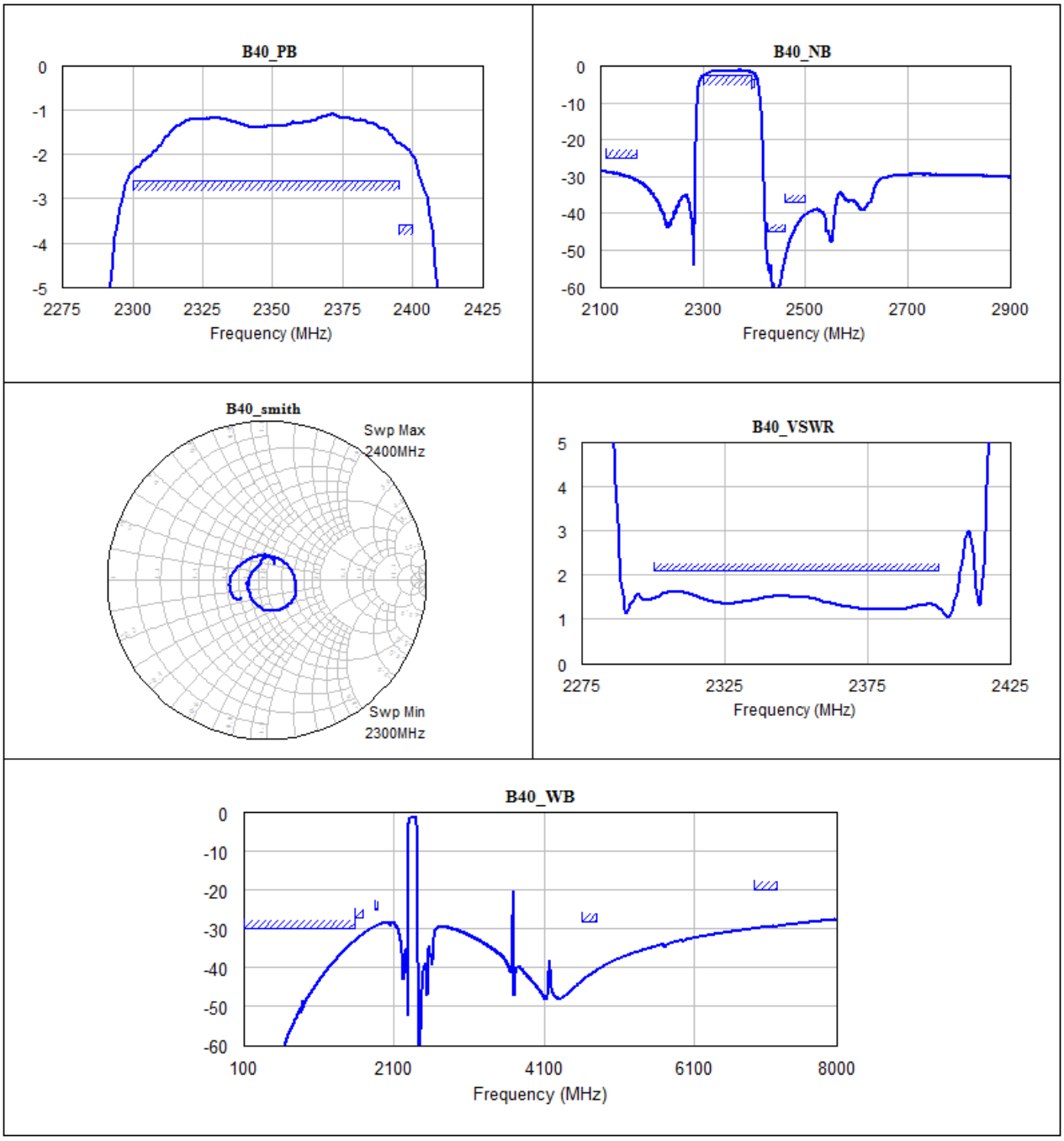
Bill of Materials

Reference Design	Value	Description	Manufacturer	Part Number
L1	5.1nH	Coil Wire-wound, 01005, y% Polarity TBD	Murata/TDK	LQP02TN5N1S02
L2	7.5nH	Coil Wire-wound, 01005, y% Polarity TBD	Murata/TDK	LQP02TN7N5J02
L3	2.9nH	Coil Wire-wound, 0201, y% Polarity TBD	Murata/TDK	LQP03TN2N9B02
SMA	N/A	SMA Connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	Multiple	

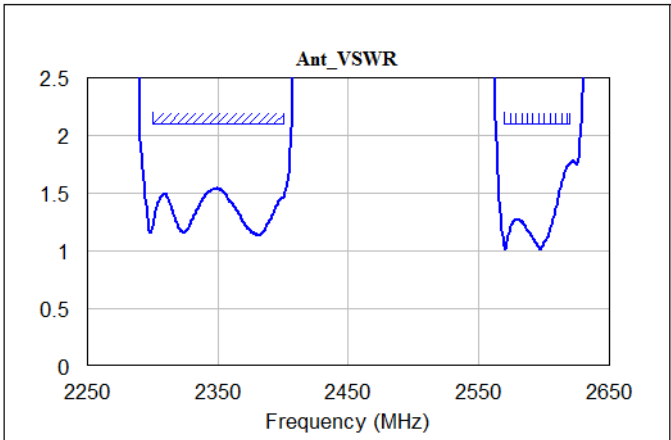
Band 38 Tx Measured Performance (at room temperature)

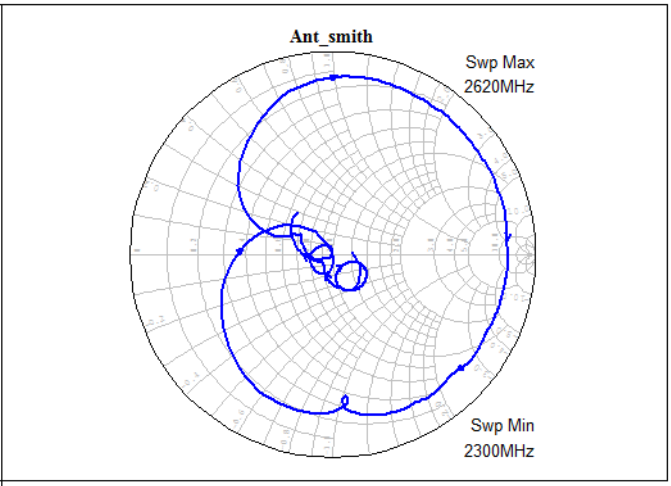


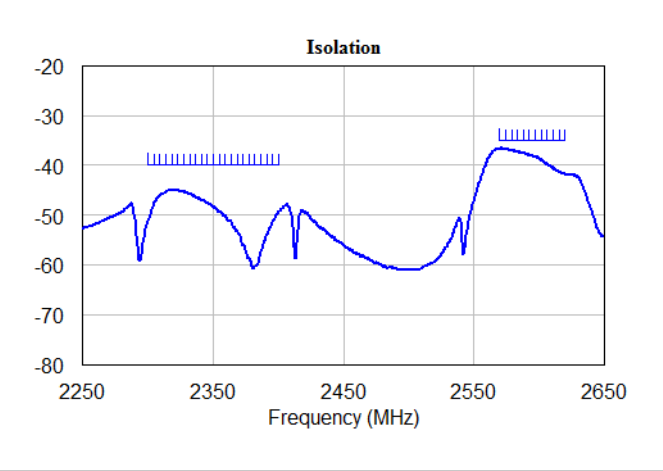
Band 40 Tx Measured Performance (at room temperature)



Band 38/40 Tx Measured Performance (at room temperature)

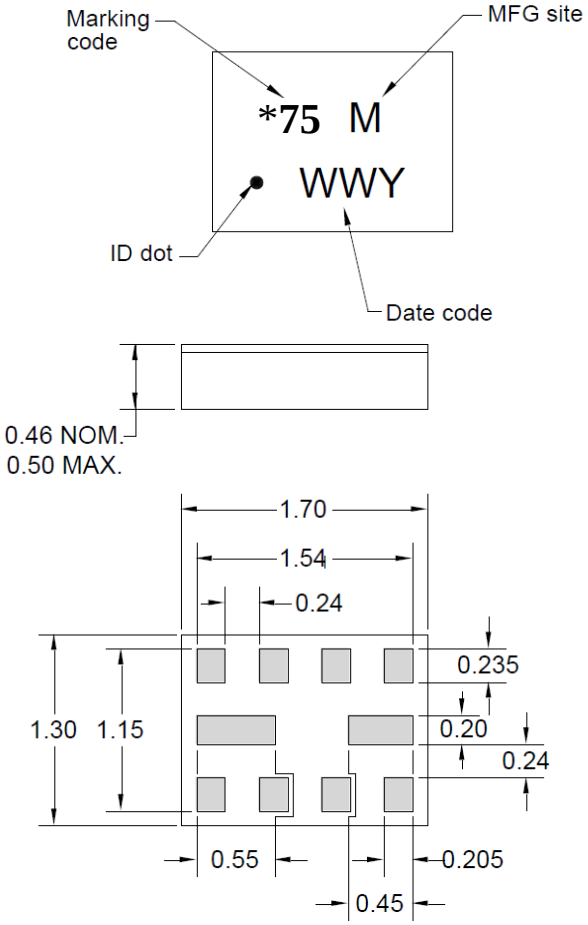






Mechanical Information

Package Information, Dimensions and Marking



Package Style: CSP-1713
Dimensions: 1.7 x 1.3 x 0.46 mm

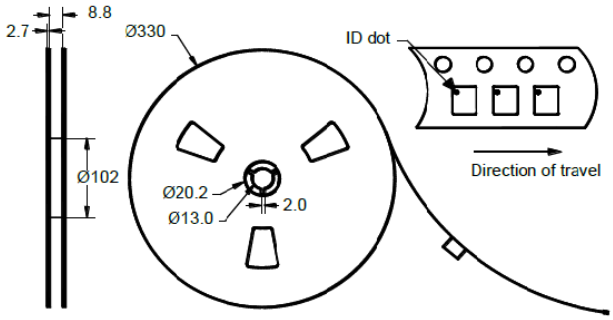
Body: Al_2O_3 ceramic
Lid: *Kovar or Alloy 42, Au over Ni* plated
Terminations: *Au* plating 0.5 - 1.0µm, over a 2-6µm *Ni* plating

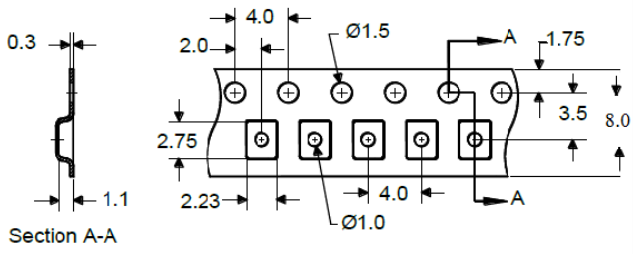
All dimensions shown are nominal in millimeters
All tolerances are ±0.05mm except for length and width ±0.10mm

The date code consists of:
WW = 2 digit week,
Y = Last digit of year,
M = Manufacturing site code

Tape and Reel Information

Standard T/R size = 10,000 units/reel. All dimensions are in millimeters





Product Compliance Information

ESD Information

Caution! ESD-Sensitive Device

ESD Rating: 3A
Value: TBD.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: C
Value: TBD
Test: Machine Model (MM)
Standard: JEDEC Standard JESD22-A115

MSL Rating

Devices are Hermetic, therefore MSL is not applicable

Solderability

Compatible with the latest version of J-STD-020, lead free solder, 260°C

Refer to **Soldering Profile** for recommended guidelines.

This part is compliant with EU 2002/95/EC RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment).

This product also has the following attributes:

- Halogen Free (Chlorine, Bromine)
- Antimony Free
- TBBP-A ($C_{15}H_{12}Br_4O_2$) Free
- PFOS Free
- SVHC Free

Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations, and information about TriQuint:

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