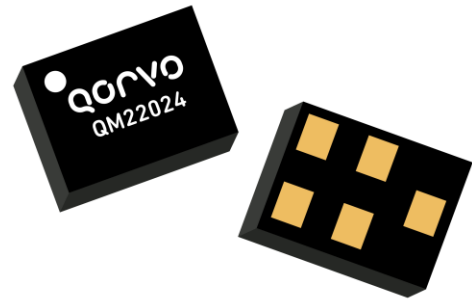


Product Description

QM22024 is a high-performance, high power Bulk Acoustic Wave (BAW) band-pass filter with extremely steep skirts, simultaneously exhibiting low loss in the WiFi band and high near-in rejection in the adjacent bands.

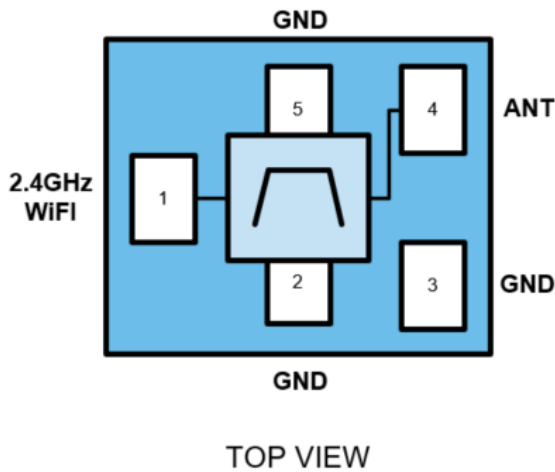
QM22024 is specifically designed to enable coexistence of WiFi and LTE signals within the same device or in close proximity to one another.

QM22024 uses common module packaging techniques to achieve the industry standard 1.1 x 0.9 x 0.6 mm footprint.



5 Pin 1.1 x 0.9 x 0.6 mm leadless SMT package

Functional Block Diagram



Feature Overview

- Low loss in WLAN band with extended upper corner for inclusion of Bluetooth
- High Rejection in B40/B7/B41/n41 bands
- Industry leading small size: 1.1 x 0.9 x 0.6mm
- Performance over -30 to +85 °C
- Single Ended operation
- RoHS Compliant, Pb-free module package

Applications

- WiFi bandpass filter that enables the coexistence of 4G LTE and 5G NR with WiFi signals
- Handsets
- Portable Hotspots
- Mobile Routers
- Smart Meters
- High-power WLAN Access Points
- Applicable reject bands: LTE B41, B7, B40 and 5G n41

Ordering Information

PART NUMBER	DESCRIPTION
QM22024EVB	Evaluation Board
QM22024SB	5pc sample bag
QM22024SR	100pcs on 7" reel
QM22024TR13	15,000pcs on 13" reel

Absolute Maximum Ratings

PARAMETER		RANGE/VALUE	UNITS
Operating Case Temperature (no damage)		-30 to +85	°C
Storage Temperature		-40 to +90	°C
RF Input Power (pin 1) +55 °C for 5K hours	CW	+26	dBm
	802.11ax, MCS0, 20MHz, 100% Duty Cycle, CH1~13	+28	dBm
	802.11ax, MCS0, 20MHz, 85% Duty Cycle, CH1~13	+29	dBm
	802.11ax, MCS0, 20MHz, 64% Duty Cycle, CH1~13	+30	dBm
Peak RF Input Power (pin 1) Max duration of 0.2 sec		+34	dBm

Operation of this device outside the parameter ranges given above may cause permanent damage.

Electrical Specifications⁽¹⁾

Unless otherwise noted: Operating Temp. = -30 °C to +85 °C.

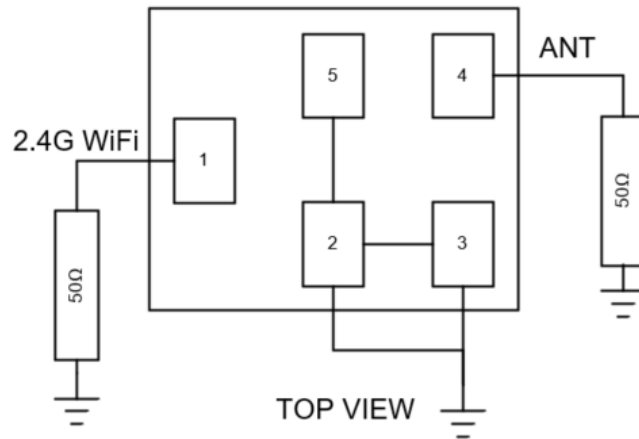
Parameter	Conditions	Min	Typ. ⁽²⁾	MAX.	Units
Insertion Loss ⁽³⁾	2403 MHz – 2421 MHz (CH 1)	-	1.2	1.6	dB
	2408 MHz – 2431 MHz (CH 2-3)	-	1.0	1.3	
	2418 MHz – 2461 MHz (CH 4-9)	-	0.8	1.3	
	2448 MHz – 2476 MHz (CH 10-12)	-	0.9	1.4	
	2463 MHz – 2481 MHz (CH 13)	-	1.1	1.8	
Insertion Loss ⁽⁴⁾	2401.5 MHz - 2409.5 MHz	-	1.6	2.1	dB
	2409.5 MHz - 2472.5 MHz	-	1.1	1.7	
	2472.5 MHz - 2480.5 MHz	-	1.5	3.2	
VSWR (TX)	2401.5 MHz – 2481 MHz	-	1.7	2.3	-
VSWR (ANT)	2401.5 MHz – 2481 MHz	-	1.7	2.2	
Attenuation	100 MHz - 960 MHz	45	48	-	dB
	699 MHz - 960 MHz	45	48	-	
	1166.22 MHz - 1254 MHz	40	48	-	
	1425MHz - 2170MHz	31	47	-	
	1559.052 MHz - 1605.89 MHz	40	51	-	
	1710 MHz - 1785 MHz	40	53	-	
	1805 MHz - 1880 MHz	35	53	-	
	1850 MHz - 1915 MHz	40	54	-	
	1880 MHz - 1920 MHz	40	53	-	
	1920 MHz - 1980 MHz	40	52	-	
	1930 MHz - 1995 MHz	35	52	-	
	2010 MHz - 2025 MHz	35	57	-	
	2110 MHz - 2200 MHz	35	64	-	
	2300 MHz - 2370 MHz ⁽⁵⁾	38	47	-	
	2370 MHz - 2380 MHz ⁽⁵⁾	18	43	-	
	2496 MHz - 2501 MHz ⁽⁵⁾⁽⁶⁾	20	30	-	
	2496 MHz - 2501 MHz ⁽⁵⁾⁽⁷⁾	3	30	-	
	2500 MHz - 2510 MHz ⁽⁵⁾⁽⁶⁾	38	63	-	
	2500 MHz - 2510 MHz ⁽⁵⁾⁽⁷⁾	15	63	-	
	2505 MHz - 2570 MHz ⁽⁵⁾	40	60	-	
2510 MHz - 2960 MHz ⁽⁵⁾	44	68	-		
2570 MHz - 2620 MHz ⁽⁵⁾	40	67	-		
2620 MHz - 2690 MHz ⁽⁵⁾	39	76	-		

Attenuation	3300 MHz - 3800 MHz	31	45	-	dB
	3800 MHz - 4200 MHz	29	42	-	
	4400 MHz - 5000 MHz	26	37	-	
	4900 MHz - 5805 MHz	23	36	-	
	5150 MHz - 5925 MHz	24	35	-	
	5925 MHz - 7125 MHz	20	32	-	
	7200 MHz - 7500 MHz	29	45	-	
	7209 MHz - 7443 MHz	28	44	-	

Notes:

1. All specifications are based on the QM22024 Applications Circuit
2. Typical specified as average at room temperature
3. Data is the integrated value of the linear s-parameter over any 18 MHz channel
4. Data is the integrated value of the linear s-parameter over any 1 MHz channel
5. Data is the integrated value of the linear s-parameter over any 5 MHz bandwidth
6. +25C to +85C
7. -30C to +25C

QM22024 Applications Circuit

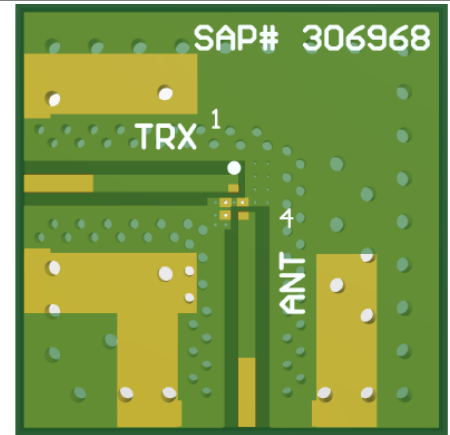


QM22024-EVB PCB Information

Evaluation Board Layer Description/Stackup

Layer	Name	Material	Thickness	Constant	Board Layer Stack
	Top Overlay				
	Top Solder	Solder Resist	0.40mil	3.5	
1	Top Layer		0.70mil		
	Dielectric1	TACONIC TLY-5A	7.50mil	2.17	
2	Signal Layer 1		0.70mil		
	Dielectric 2	FR4	51.00mil	4.2	
3	Bottom Layer		0.70mil		
	Bottom Solder	Solder Resist	0.40mil	3.5	
	Bottom Overlay				

Total Thickness: 62mils +/- 4mils

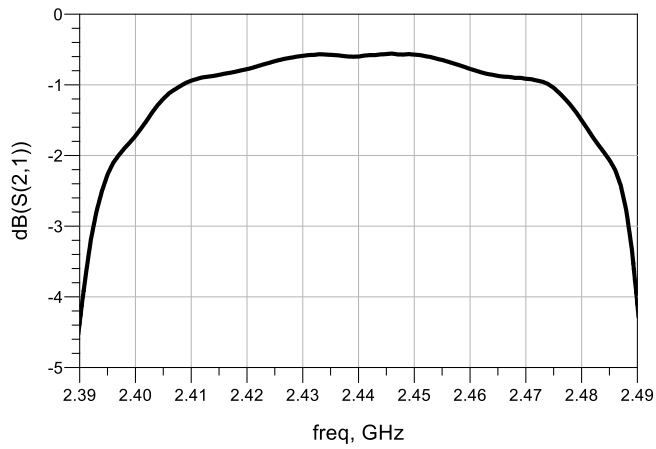


QM22024-EVB Bill of Material

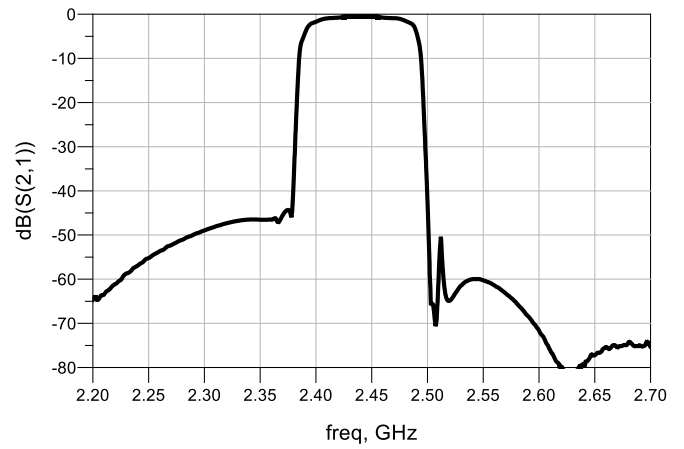
REF. DES.	VALUE	DESCRIPTION	MANUF.	PART NUMBER
PCB	N/A	3-layer printed Circuit Board	Multiple	QM22024 EVB
U1	N/A	2.4GHz WLAN/BT LTE Co-Existence Filter	Qorvo	QM22024

Performance Plots – Insertion Loss and Attenuation

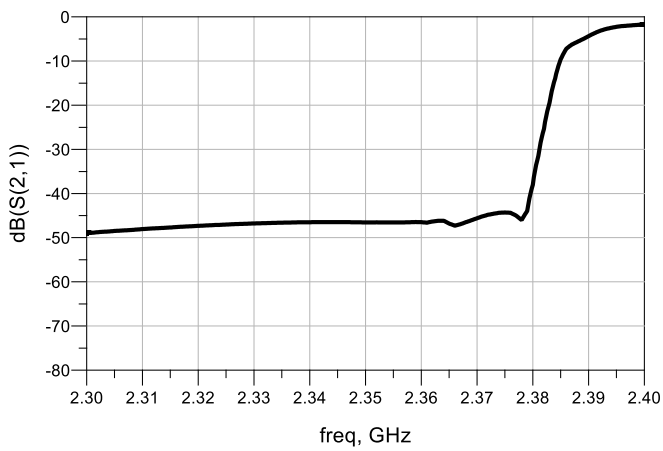
2.4GHz WiFi Pass Band



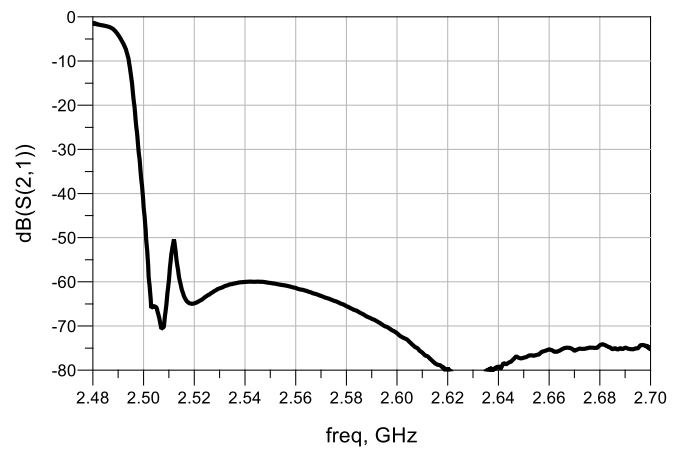
2.4GHz WiFi Narrow Band



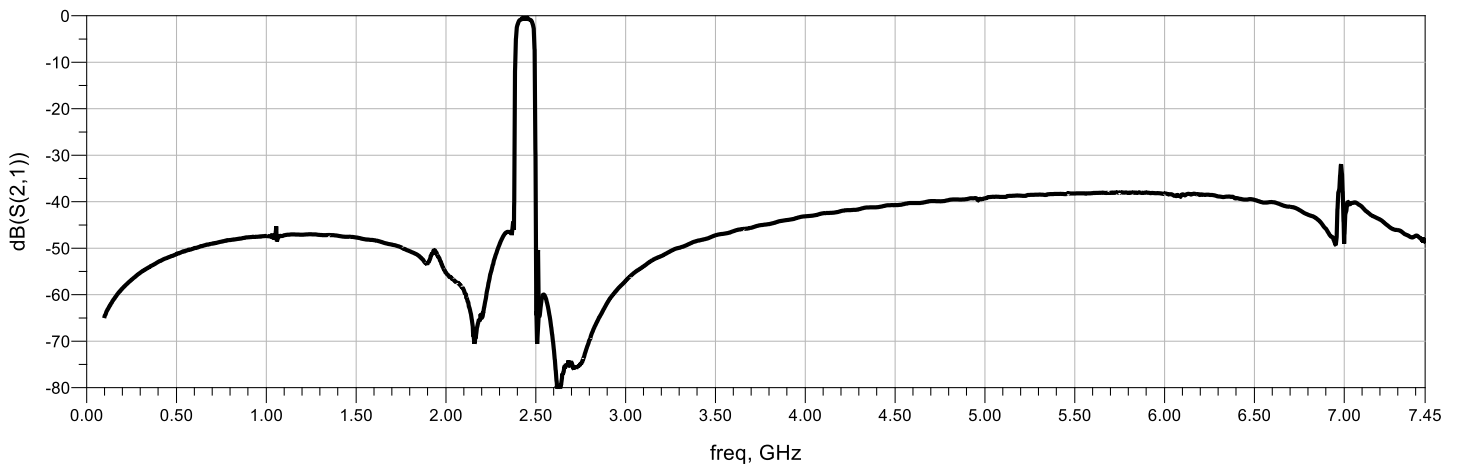
2.4GHz WiFi B40 Atten



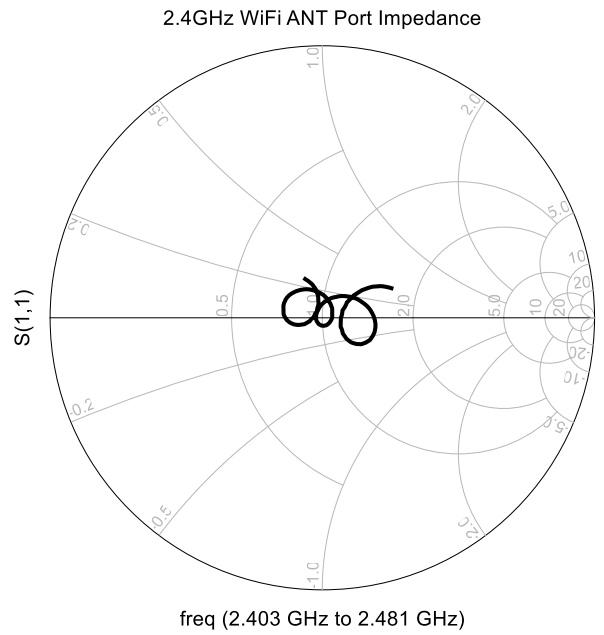
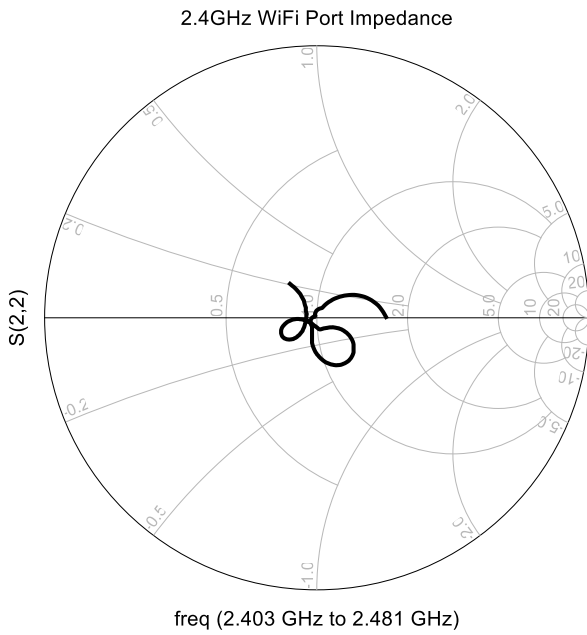
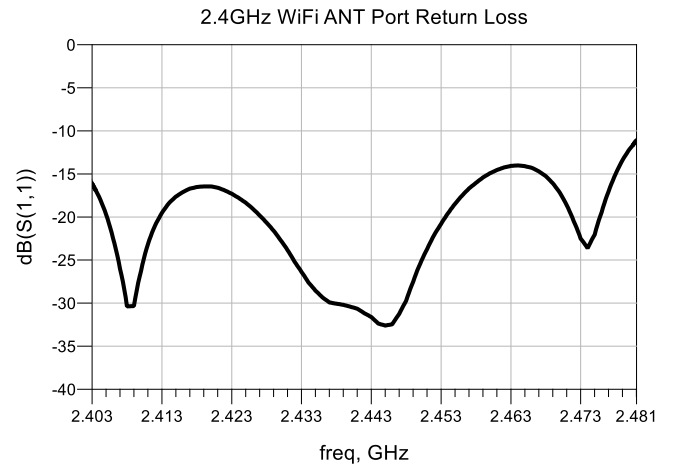
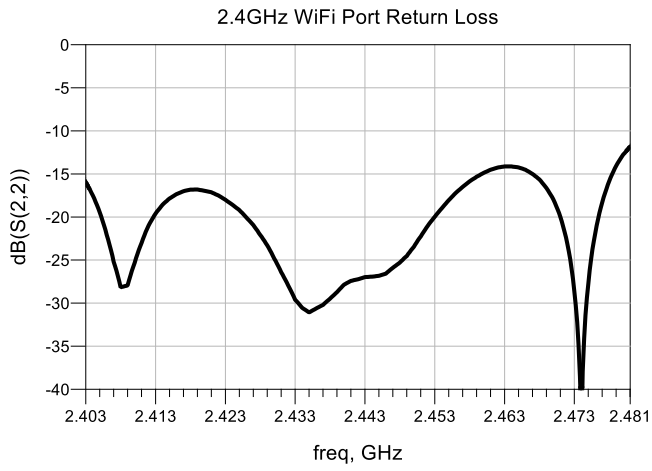
2.4GHz WiFi B41 Atten



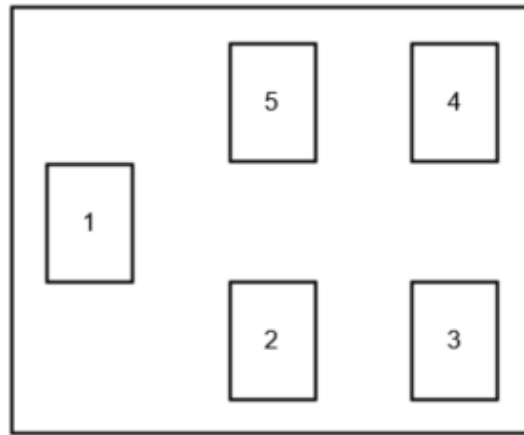
2.4GHz WiFi Wide Band



Performance Plots – Return Loss and Impedance



Pin Configuration and Description

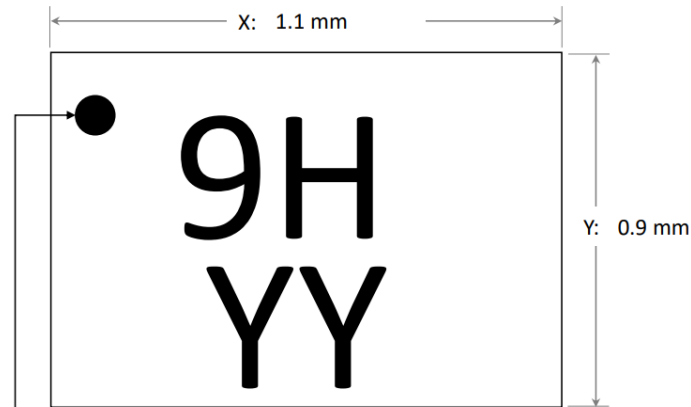


TOP VIEW

PIN NUMBER	LABEL	DESCRIPTION
1	2.4GHz	Transmit Port
4	ANT	Antenna Port
2,3 and 5	GND	Ground

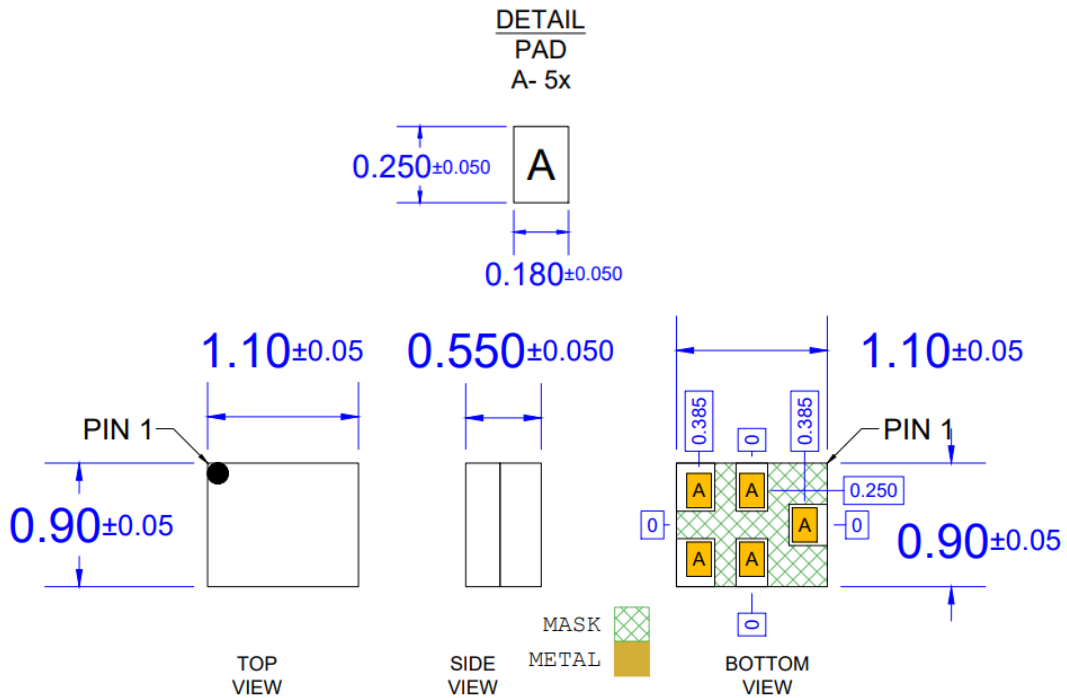
Package Marking and Dimensions

Part Marking Diagram – Top View



Pin 1 Indicator
 Trace Code to be assigned by SubCon
 Product Code: 9H
 2-Digit Lot Serialization: YY

Package Outline Dimension Drawing

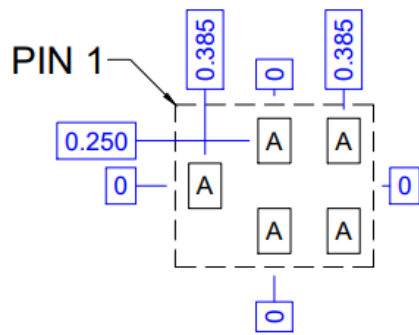
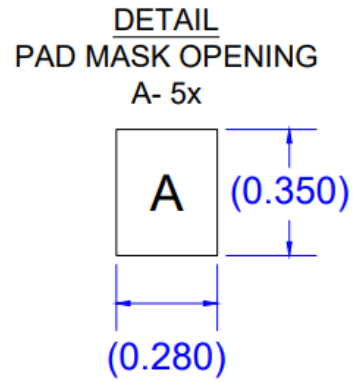
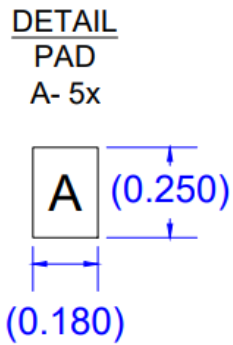


Notes:

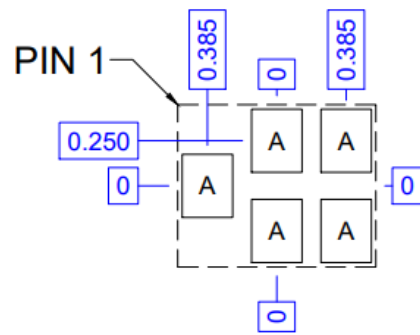
1. All dimensions are in millimeters. Angles are in degrees.
2. Dimension and tolerance formats conform to ASME Y14.4M-1994.
3. The terminal #1 identifier and terminal numbering conform to JESD 95-1 SPP-012

Land Pattern Dimensions

Recommended Land Pattern and Land Pattern Mask



**RECOMMENDED
LAND PATTERN**

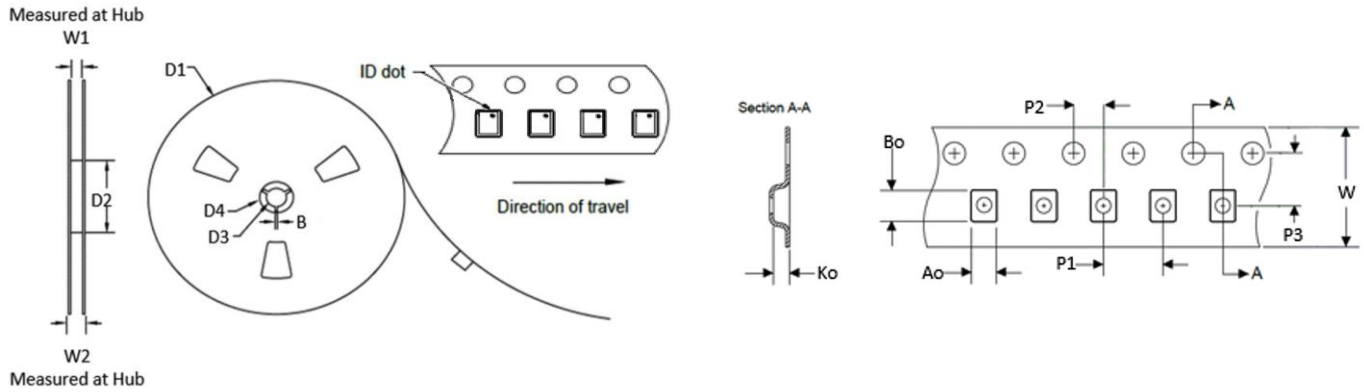


**RECOMMENDED
LAND PATTERN MASK**

Notes:

1. All dimensions are in millimeters. Angles are in degrees.
2. Dimension and tolerance formats conform to ASME Y14.4M-1994.

Tape and Reel Information




Feature	Measure	Symbol	Size (mm)
Flange	Diameter	D1	330.0
	Thickness	W2	14.2
	Space Between Flange	W1	8.8
Hub	Outer Diameter	D2	102.0
	Arbor Hole Diameter	D3	13.0
	Key Slit Width	B	2.0
	Key Slit Diameter	D4	20.0

Feature	Measure	Symbol	Size (mm)
Cavity	Length	Ao	1.10
	Width	Bo	1.30
	Depth	Ko	0.72
	Pitch	P1	4.0
Centerline Distance	Cavity to Perforation (Length)	P2	2.0
	Cavity to Perforation (Width)	P3	3.5
Carrier Tape	Width	W	8.0

(Unless otherwise specified, all dimension tolerances per EIA-481)

Handling Precautions

PARAMETER	RATING	STANDARD		Caution! ESD sensitive device
ESD – Human Body Model (HBM)	Class 1B	ESDA/JEDEC JS-001		
ESD – Charged Device Model (CDM)	Class 3	ESDA/JEDEC JS-002		
MSL – Moisture Sensitivity Level	MSL3	IPC/JEDEC J-STD-020		

Solderability

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

RoHS Compliance

This part is compliant with the 2011/65/EU RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment), as amended by Directive 2015/863/EU.

This product also has the following attributes:

- Lead Free
- Halogen Free (Chlorine, Bromine)
- Antimony Free
- SVHC Free
- PFOS Free

Contact Information

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

Web: www.qorvo.com

Tel: 1-844-890-8163

Email: customer.support@qorvo.com

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