MXDFG16A1

GPS + COMPASS + GLONASS SAW Filter

General Description

- Low-loss RF SAW filter
- High stability and reliability with good performance and no adjustment
- Ceramic Surface Mount Package
- Ni, gold-plated terminals
- RoHS compliant (2002/95/EC), Pb-free
- Small size

Features

- No matching required for operation at 50Ω
- Single-ended operation
- Package size 1.1 x 0.9 x mm
- Small, DFN (5-pin, 1.1mm x 0.9mm x 0.45mm) package，MSL3

Applications

- GPS, COMPASS and GLONASS bands

Package Dimension

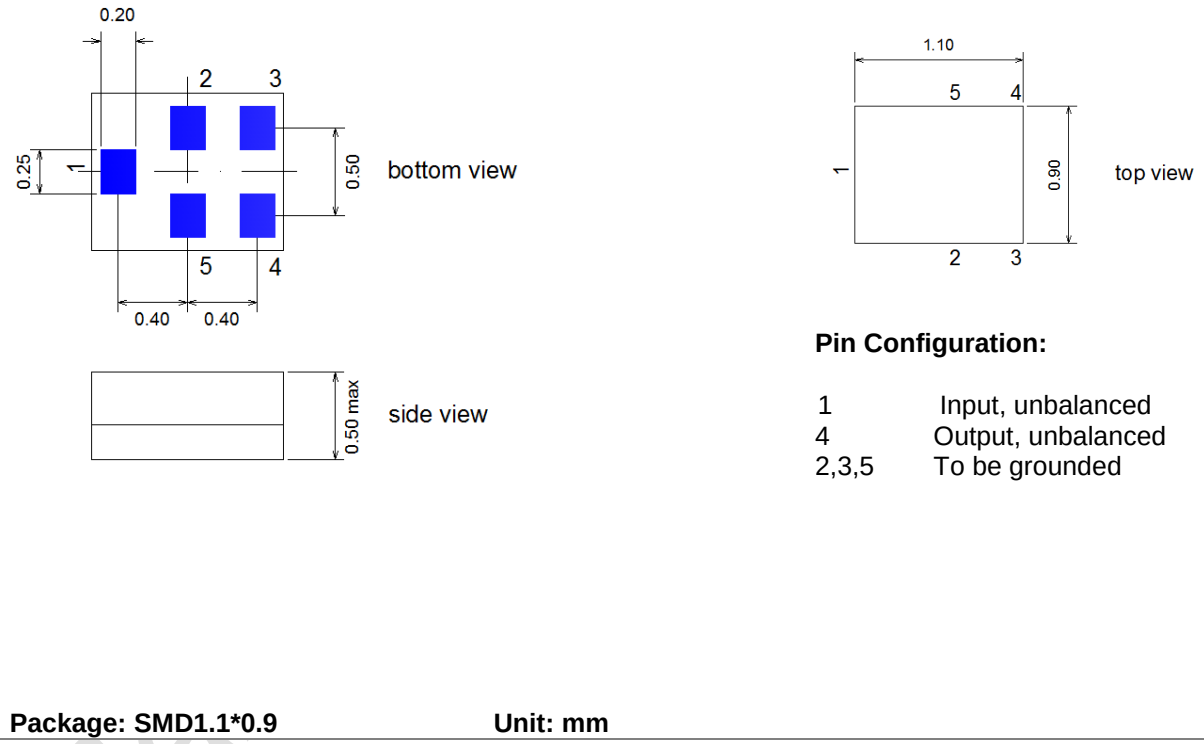


Figure 1. Package outline dimension

Matching Configuration

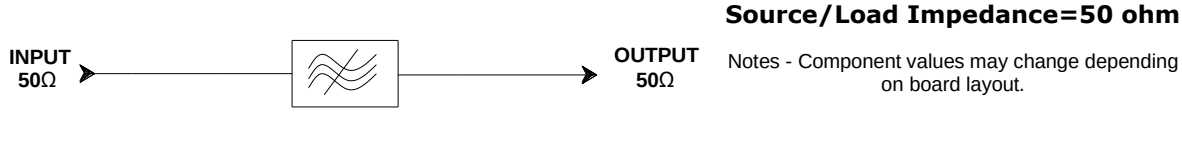


Figure 2. Matching Configuration

Absolute Maximum Ratings

Table 1 Maximum ratings

Parameters	Symbol	Minimum	Maximum	Units
DC Voltage (between any Terminals)	V_{DC}		5	V
RF Power (in *BW*) (5000h, 50°C)	P		10	dBm
Operating Temperature Range	T_A	-35	+90	°C
Storage Temperature Range	T_{stg}	-55	+150	°C
ESD voltage(Machine Model) Note1	V_{ESD}	50		V

Note: Exposure to maximum rating conditions for extended periods may reduce device reliability. There is no damage to device with only one parameter set at the limit and all other parameters set at or below their nominal value. Exceeding any of the limits listed here may result in permanent damage to the device.
Note1: According to JESD22-A115C

Specifications

Table 2 Electrical Specifications

Parameter	Unit	Minimum	Typical(@25°C)	Maximum
Center Frequency	MHz	-	1581.6	-
Maximum insertion				
1559.052～1563.144MHz	dB	-	1.2	1.4
1574.42～1576.42MHz	dB	-	0.9	1.2
1597.55～1605.89MHz	dB	-	1.6	1.8
VSWR Input				
1559.052～1563.144MHz	-	-	1.4	1.6
1574.42～1576.42MHz	-	-	1.3	1.5
1597.55～1605.89MHz	-	-	1.5	1.7
VSWR Output				
1559.052～1563.144MHz	-	-	1.4	1.6
1574.42～1576.42MHz	-	-	1.3	1.5
1597.55～1605.89MHz	-	-	1.5	1.7
Group delay ripple				
1597.55～1605.89MHz	ns	-	3	12
Absolute Attenuation				
10.0 ～ 960.0 MHz	dB	37	38	-
960.0 ～ 1400.0 MHz	dB	36	38	-
1400.0 ～ 1470.0 MHz	dB	40	43	-
1700.0 ～ 2100.0 MHz	dB	39	40	-
2100.0 ～ 2400.0 MHz	dB	35	36	-
2400.0 ～ 3000.0MHz	dB	40	44	-
3000.0 ～4000.0 MHz	dB	30	34	-
4000.0 ～5500.0 MHz	dB	23	26	-

Notes:
1. All specifications are based on the test circuit shown;
2. In production, all specifications are measured by Agilent Network analyzer and full 2 port calibration at room temperature;
3. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances;
4. This is the optimum impedance in order to achieve the performance show.

Typical Performance

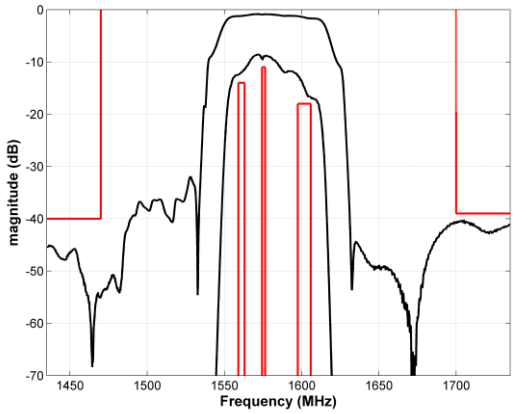
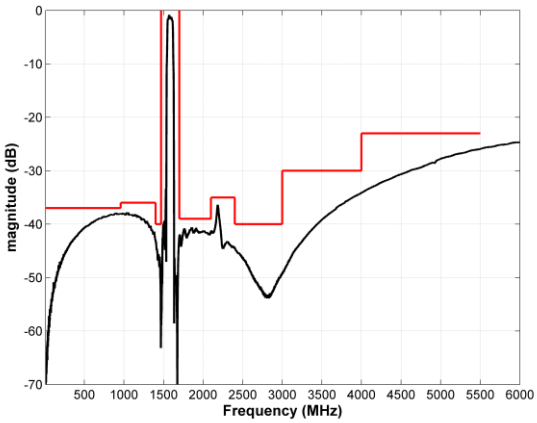
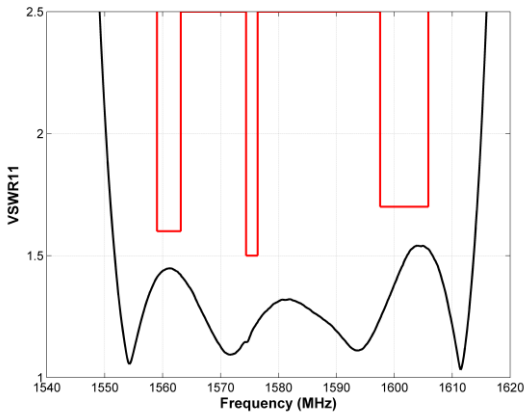
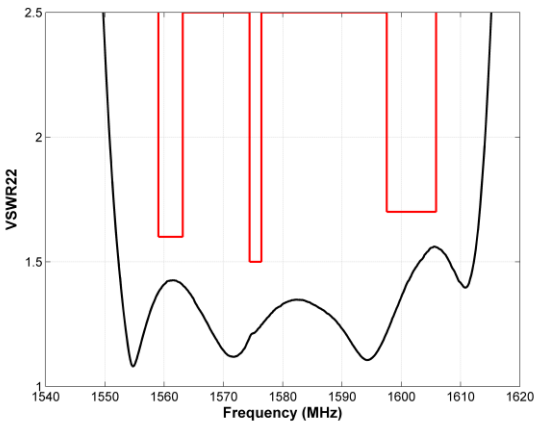
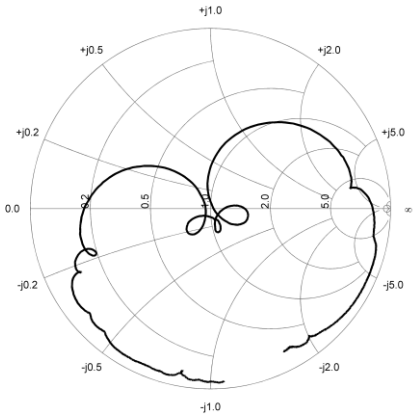
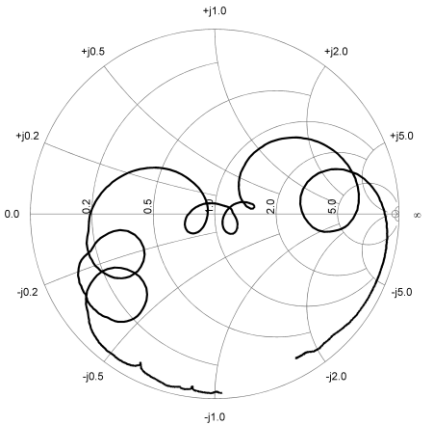
Frequency Response	Wideband Response
 Vertical: 10dB/Div	 Vertical: 10dB/Div
VSWR11（1540～1620MHz）	**VSWR22（1540～1620MHz）**
 Vertical: 0.5/Div	 Vertical: 0.5/Div
S11 smith chart	**S22 smith chart**
	

Figure 3. Typical performance

Marking Specification

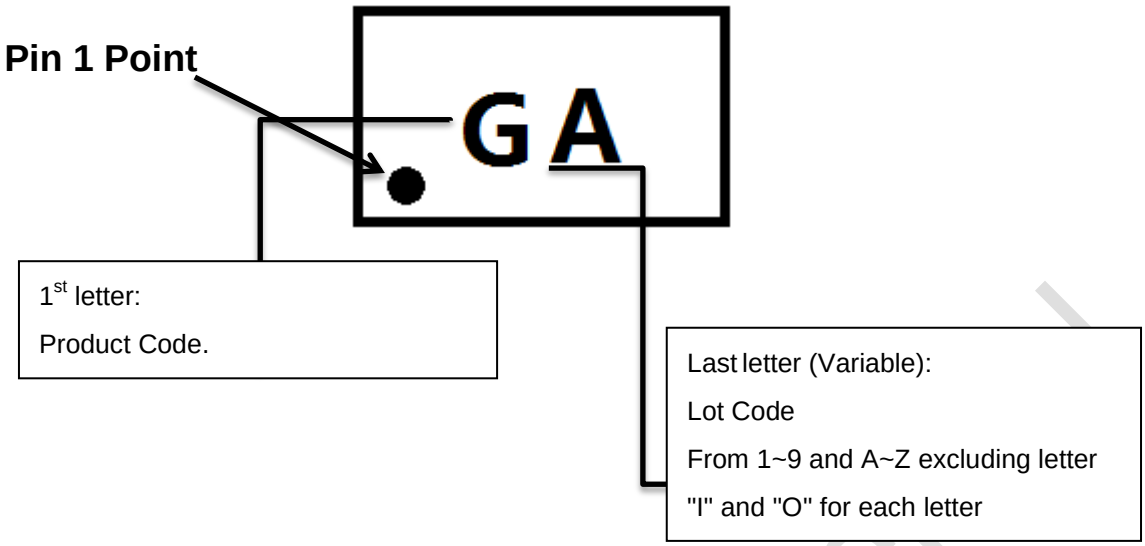
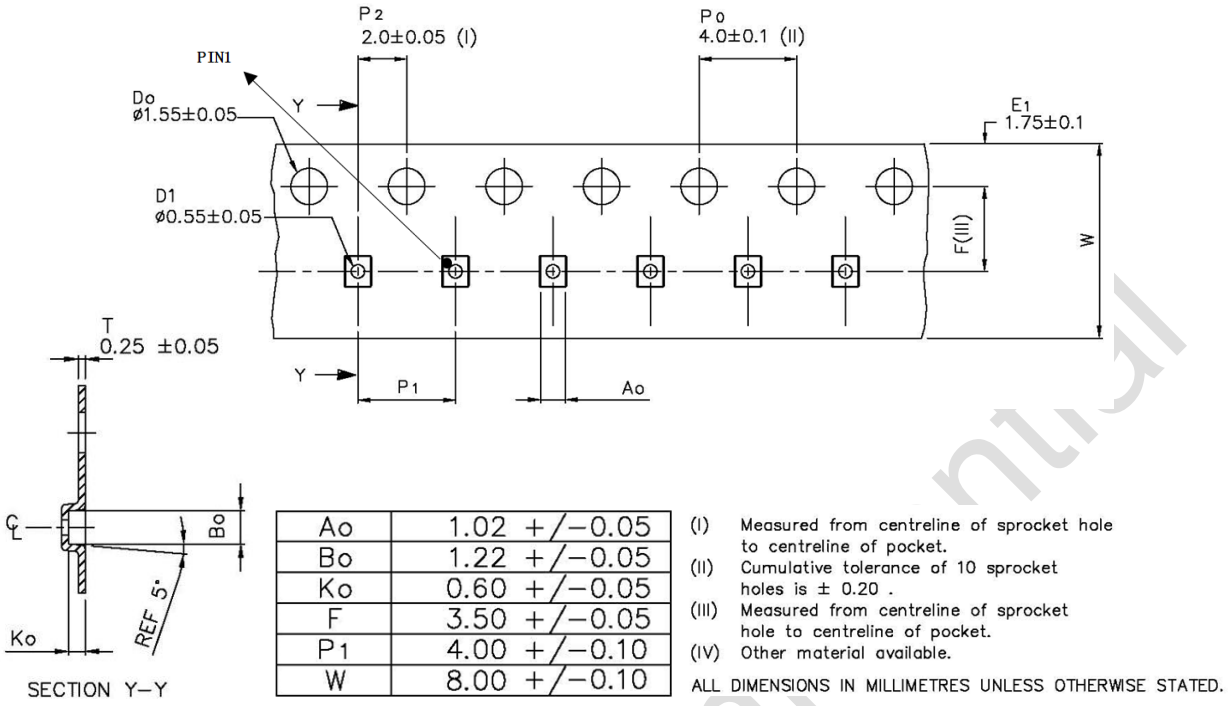


Figure 4. Marking specification (Top View)

Tape and Reel Dimensions



Ao	1.02 +/−0.05
Bo	1.22 +/−0.05
Ko	0.60 +/−0.05
F	3.50 +/−0.05
P1	4.00 +/−0.10
W	8.00 +/−0.10

(I) Measured from centreline of sprocket hole to centreline of pocket.
(II) Cumulative tolerance of 10 sprocket holes is ± 0.20 .
(III) Measured from centreline of sprocket hole to centreline of pocket.
(IV) Other material available.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.

Figure 5. Tape and reel dimensions

Reflow Chart

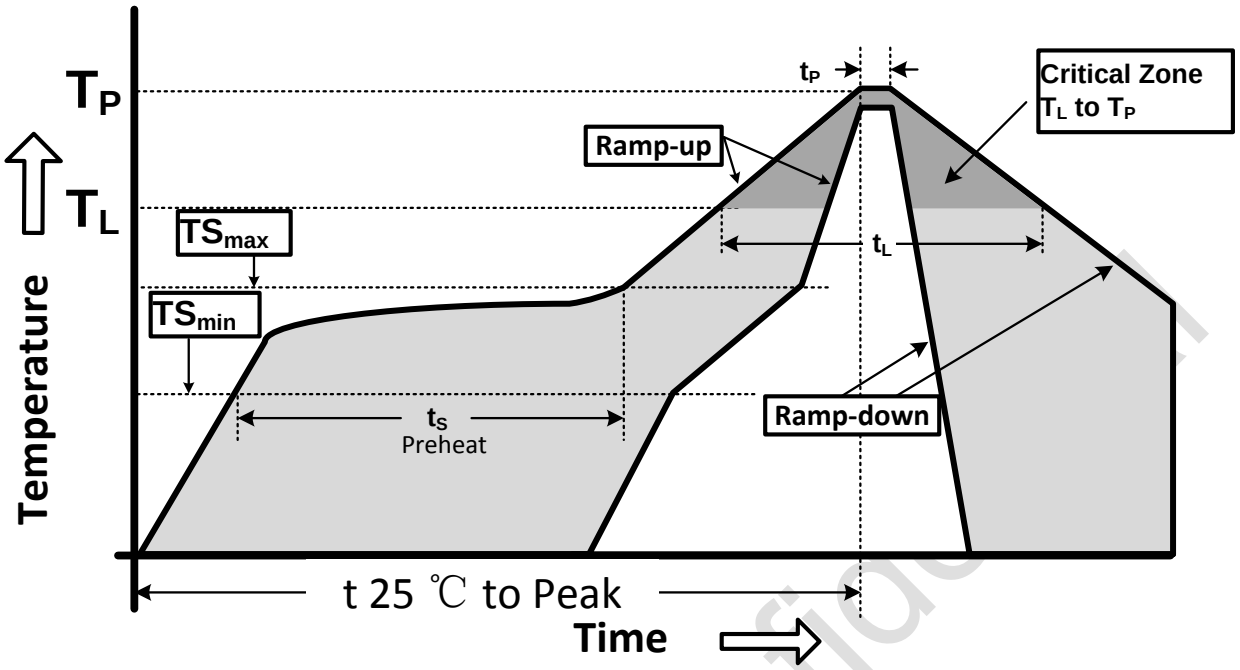


Figure 6. Recommended Lead-Free Reflow Profile

Table 6 Reflow condition

Profile Parameter	Lead-Free Assembly, Convection, IR/Convection
Ramp-up rate（TS_{max} to T_p）	3℃/second max.
Preheat temperature（TS_{min} to TS_{max}）	150℃ to 200℃
Preheat time（t_s）	60 - 180 seconds
Time above TL , 217℃（t_L）	60 - 150 seconds
Peak temperature（T_p）	260℃
Time within 5℃ of peak temperature(t_p)	20 - 40 seconds
Ramp-down rate	6℃/second max.
Time 25℃ to peak temperature	8 minutes max.

ESD Sensitivity

Integrated circuits are ESD sensitive and can be damaged by static electric charge. Proper ESD protection techniques should be used when handling these devices.

RoHS Compliant

This product does not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE), and are considered RoHS compliant.