

TMX IT04

SAW Filter for BEIDOU, GPS & GLONASS
Preliminary Specification (Rev 1)

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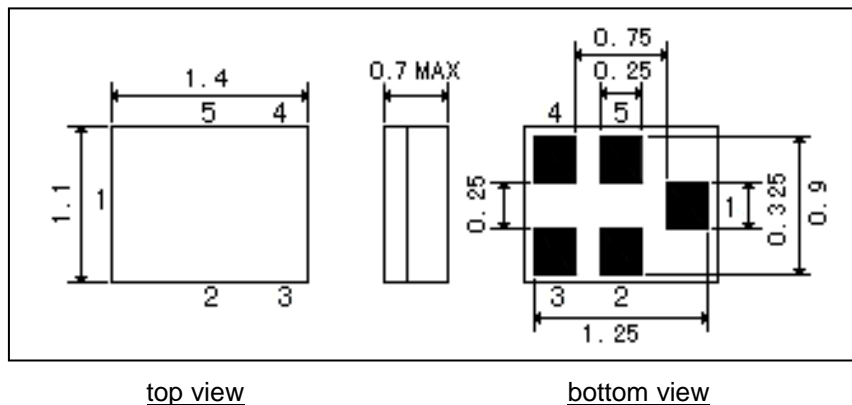
May 03rd, 2016

Features

- ❑ SAW Filter for BEIDOU, GPS & GLONASS
- ❑ 1580 MHz Center Frequency
- ❑ High stability and reliability with good performances
- ❑ Low Insertion Loss (typically 1.3dB) within PassBand 1574.42MHz to 1576.42MHz
- ❑ Narrow and sharp PassBand characteristics
- ❑ No matching network required for operation at 50Ω
- ❑ Miniature Ceramic package (1.4x1.1) for Surface Mounted Technology
- ❑ Lead-free and RoHS compliance

Package drawing & Pin out

The product is in conformance with the European RoHS Recast Directive (100/65/EU).



top view

bottom view

unit : mm

Pin configuration	
1	Input
4	Output
2, 3, 5	To Be Grounded

Marking		
Line 1	I4	Rakon designation (TMX IT04)
Line 2	DC	Date Code. See table

Marking is made by Laser

Date Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2015	a	b	c	d	e	f	g	h	i	j	k	m
2016	n	p	q	r	s	t	u	v	w	X	y	z
2017	A	B	C	D	E	F	G	H	I	K	L	M
2018	N	P	Q	R	S	T	U	V	W	X	Y	Z

Date Code varies in a 4-year cycle.

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Technical characteristics

(Reference Temperature : +25°C)

Electrical Parameters	Unit	Minimum	Typical ⁽¹⁾	Maximum
Center Frequency Fo	MHz		1580	
Insertion Loss IL				
1559.09 ~ 1563.09 MHz	dB	-	1.8	2.1
1574.42 ~ 1576.42 MHz	dB	-	1.3	1.6
1597.55 ~ 1605.89 MHz	dB	-	1.8	2.1
Passband Ripple				
1559.09 ~ 1563.09 MHz	dB	-	0.2	0.5
1574.42 ~ 1576.42 MHz	dB	-	0.2	0.4
1597.55 ~ 1605.89 MHz	dB	-	0.3	0.6
Absolute Attenuation				
D.C ~ 925.00 MHz	dB	45	50	-
925.00 ~ 960.00 MHz	dB	43	50	-
1427.00 ~ 1453.00 MHz	dB	41	47	-
1453.00 ~ 1470.00 MHz		40	45	-
1470.00 ~ 1530.00 MHz	dB	30	35	-
1530.00 ~ 1541.00 MHz	dB	7	13	-
1626.00 ~ 1635.00 MHz	dB	10	17	-
1635.00 ~ 1700.00 MHz	dB	33	37	-
1710.00 ~ 1785.00 MHz	dB	45	50	-
1850.00 ~ 1910.00 MHz	dB	43	48	-
1920.00 ~ 1980.00 MHz	dB	42	48	-
2110.00 ~ 2170.00 MHz	dB	40	45	-
2300.00 ~ 2400.00 MHz	dB	40	44	-
2400.00 ~ 2500.00 MHz	dB	39	43	-
2500.00 ~ 2570.00 MHz	dB	38	42	-
2570.00 ~ 3000.00 MHz	dB	33	39	-
VSWR				
1559.09 ~ 1563.09 MHz		-	1.6	1.9
1574.42 ~ 1576.42 MHz		-	1.2	1.6
1597.55 ~ 1605.89 MHz		-	1.3	1.8
Group delay Ripple				
1559.09 ~ 1563.09 MHz	ns	-	2	7
1574.42 ~ 1576.42 MHz	ns	-	2	7
1597.55 ~ 1605.89 MHz	ns	-	2	8
Input / Output Impedance (Nominal)	Ohms	50		

Note : (1)Typical values are nominal performances at room temperature

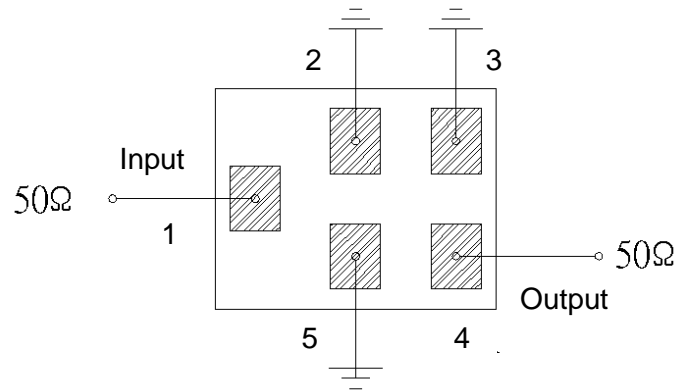
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Measurement circuit



Frequency characteristics

TYPICAL S21 RESPONSE



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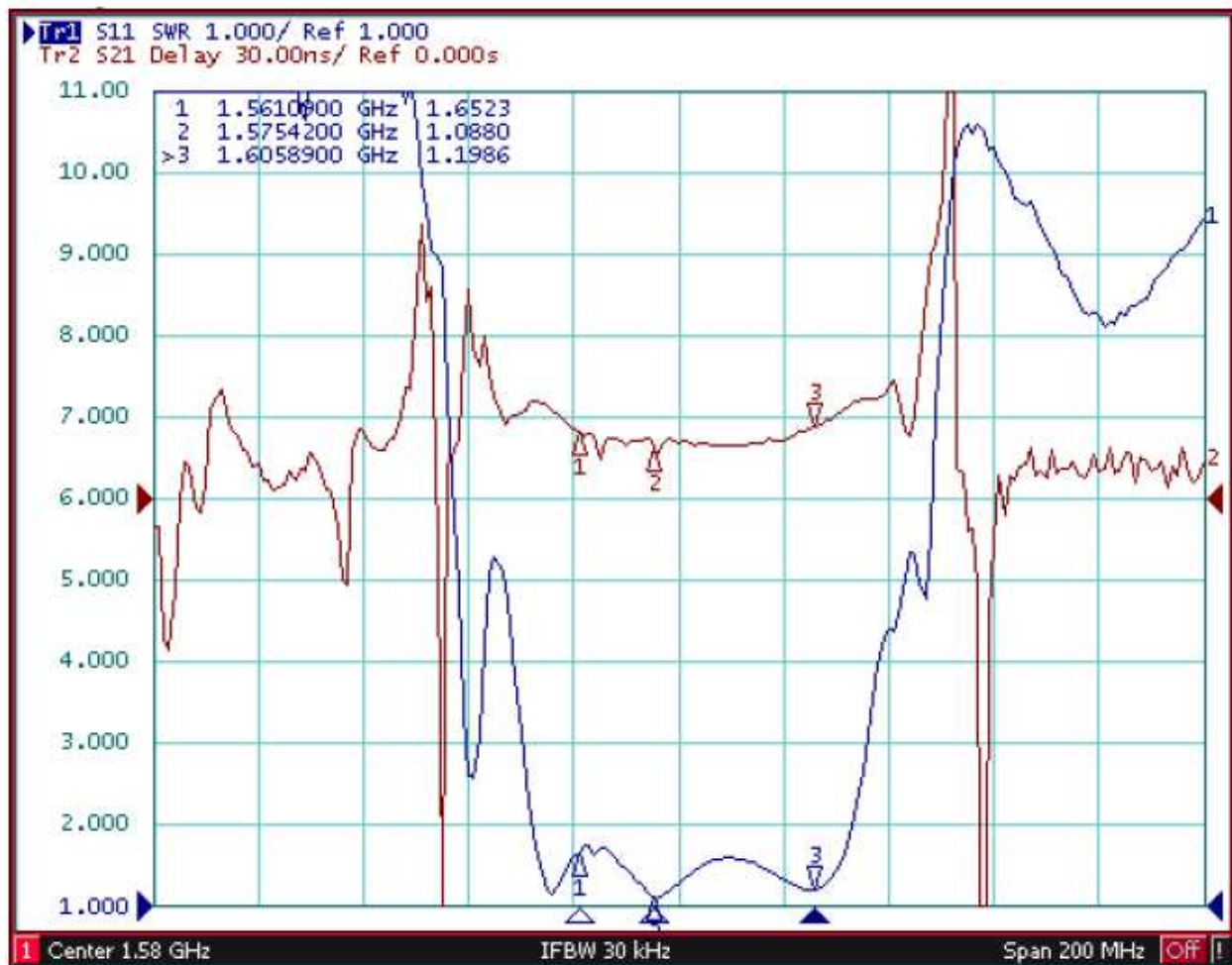
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Frequency characteristics

S11 GROUP DELAY



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Frequency characteristics

FAR SIDE



Maximum ratings

Storage Temperature Range	°C	[-40°C ; +85°C]
Operating temperature	°C	[-40°C ; +85°C]
DC Voltage (between any Terminals)	V _{DC}	10
RF Power (in Band Width)	dBm	13

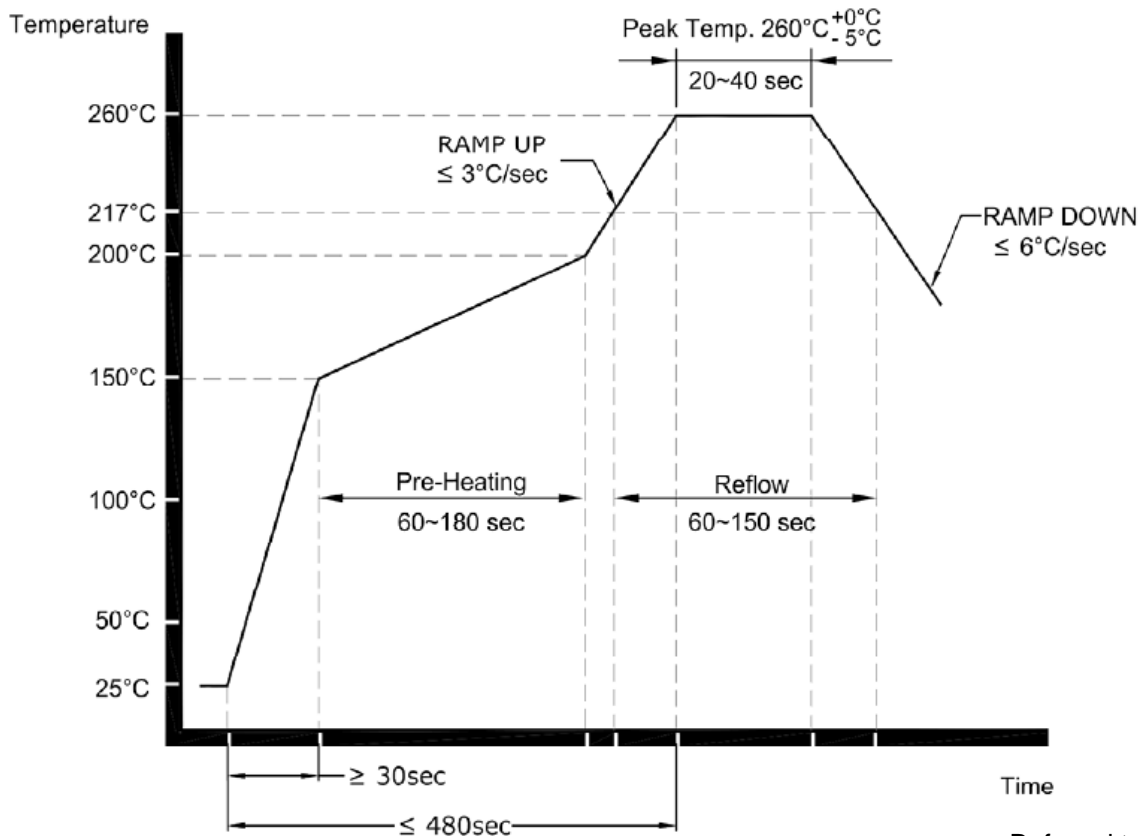
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Recommended reflow soldering profile



Referred to JEDEC J-STD-020C.

Remarks:

- SAW devices should not be used in any type of fluid such as water, oil, organic solvent, etc.
- Be certain not to apply voltage exceeding the rated voltage of components.
- Be careful of soldering temperature and duration of components when soldering.
- Do not place soldering iron on the body of components.
- Be careful not to subject the terminals or leads of components to excessive force.
- SAW devices are electrostatic sensitive. Please avoid static voltage during operation and storage.
- Ultrasonic cleaning shall be avoided. Ultrasonic vibration may cause destruction of components.

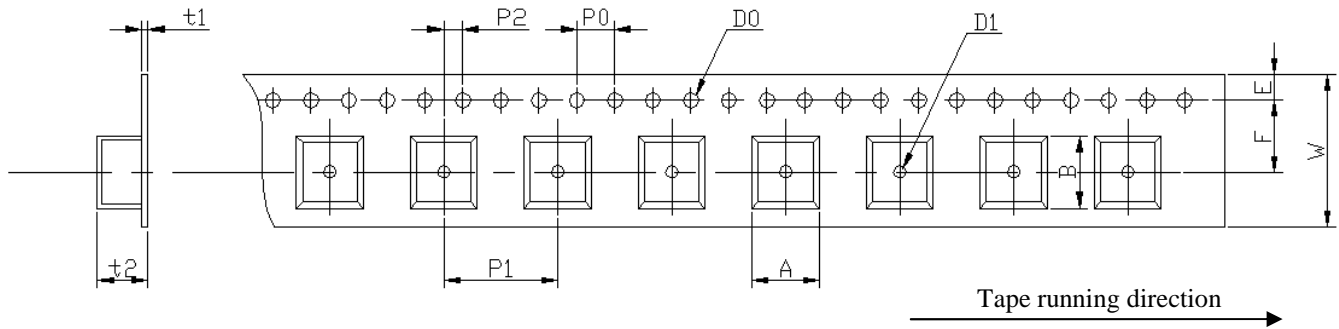
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Tape Specifications

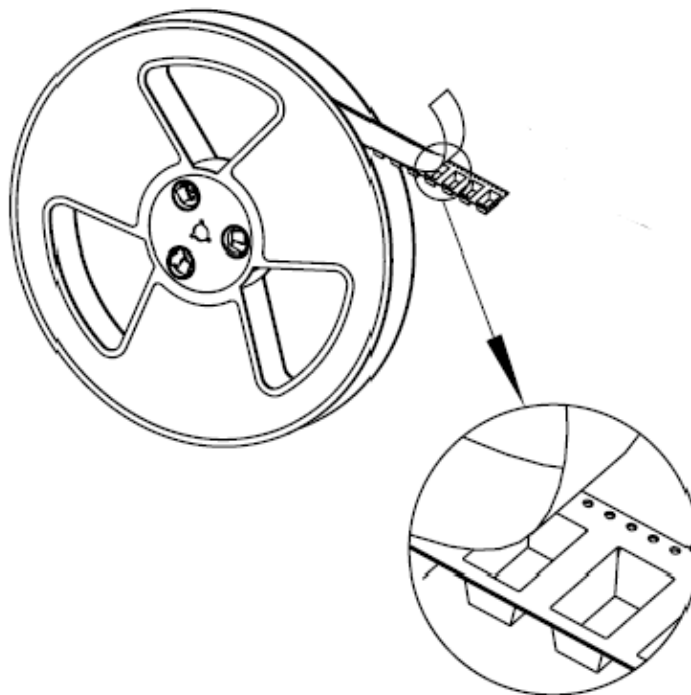


W	F	E	P0	P1	P2	D0	D1	t1	t2	A	B
8.0 ±0.1	3.5 ±0.05	1.75 ±0.1	4.0 ±0.1	4.0 ±0.1	2.0 ±0.05	Ø1.5 ±0.1	Ø0.5 ±0.1	0.25 max	1.0 max	1.4 max	1.7 max

unit : mm

Packaging

TMX IT04 is packaged in T&R by 3Kpcs/reel



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Reliability Tests

	Test item	Condition of test
1	Mechanical shock	(a) Drops: 3 times on concrete floor (b) Height: 1.0 m
2	Vibration resistance	(a) Frequency of vibration: 10~55Hz (b) Amplitude: 1.5 mm (c) Directions: X,Y and Z (d) Duration: 2 hours
3	Moisture resistance	(a) Condition: 40°C±2°C, 93+2 -3% RH. (b) Duration: 96 hours (c) Wait 4 hours before measurement
4	Climatic sequence	(a) +70°C for 16 hours (b) +55°C for 24 hours, 90~95% RH (c) -25°C for 2 hours (d) +40°C for 24 hours, 90~95% RH (e) Wait 4 hours before measurement
5	High temperature exposure	(a) Temperature: 85°C (b) Duration: 250 hours (c) Wait 4 hours before measurement
6	Temperature cycling	(a) +85°C for 30 minutes ⇒ -40°C for 30 minutes repeated 120 times (b) Wait 4 hours before measurement

Note: As a result of the particularity of inner structure of SAW products, the components can easily be breakdown by electrostatic shock; so it's mandatory to pay attention to ESD protect during the tests.