

SAW DUPLEXER FILTER

PART NO.: ACTFD001_836.5-881.5_2016

Product Type:	Customer:
SAW DUPLEXER	
Description:	Customer Part NO.:
836.5/881.5MHz, Band 5, Unbalanced output	Issued Date:04/02/2016

PREPARED BY	CHECKED BY	APPROVED BY

In line with our ongoing policy of product evolution and improvement, the above specification may subject to change without notice

ISO9001 Registered

For quotations or further information please contact us at:

3 The Business Centre, Molly Millars Lane, Wokingham, Berkshire, RG41 2EY, UK

<http://www.actcrystals.com>

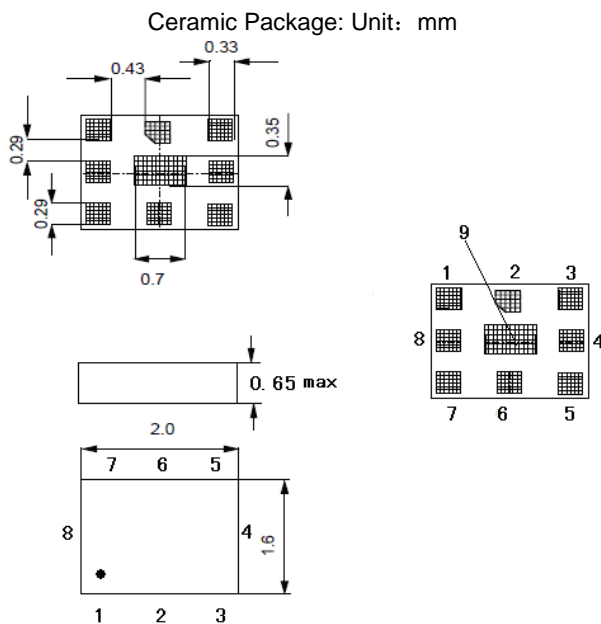
Application

- Low-loss SAW duplexer for mobile telephone Cellular/WCDMA band V systems
- Low amplitude ripple
- Low insertion attenuation

Features

- Ceramic Package for **Surface Mounted Technology (SMT)**
- **RoHS** compatible
- Package size 2.0*1.6
- Approx. weight 0.014g
- **Electrostatic Sensitive Device(ESD)**

Package Dimensions

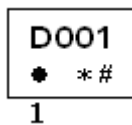


Pin Configuration

6	Antenna
3	TX Input
1	RX Output
2, 4, 5, 7, 8, 9	To Be Grounded

Marking

Top View, Laser Marking



"D001": Manufacturer's mark

"1": Terminal 1

"*": Month Code (The code shown below varies in a 4-year cycle)

"#": Week Code (showing as 1,2,3 or 4)

Code	1	2	3	4	5	6	7	8	9	10	11	12
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	J	K	L	M
2018	N	P	Q	R	S	T	U	V	W	X	Y	Z

Maximum Ratings

Rating		Value	Unit
Operating Temperature Range	T_A	-30 ~ +85	°C
Storage Temperature Range	T_{stg}	-40 ~ +85	°C
DC Voltage (between any Terminals)	V_{DC}	5	V
RF Power (in BW)	P	30 max	dBm
ESD Voltage (HB)	V_{ESD}	400	V

Electrical Characteristics TX-ANT:

Antenna terminating impedance: $Z_{ANT}=50\ \Omega \parallel 6.8nH$

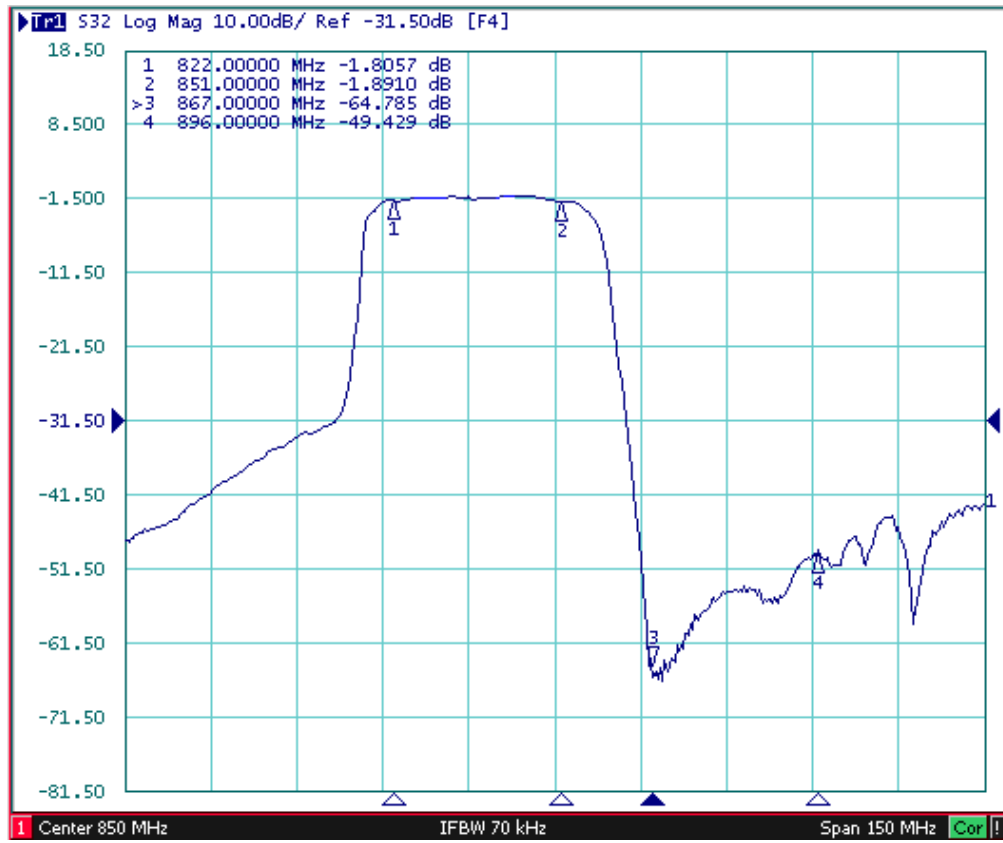
RX terminating impedance: $Z_{RX}=50\ \Omega$

TX terminating impedance: $Z_{TX}=50\ \Omega$

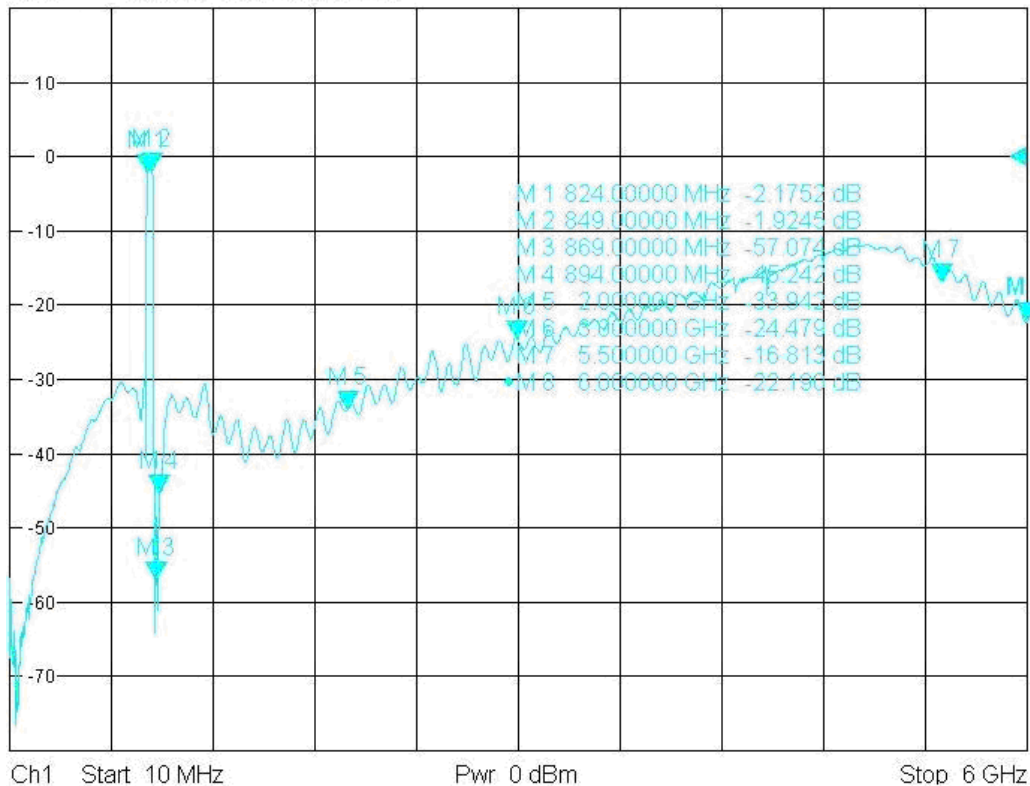
Item		Minimum	Typical	Maximum	Unit
Center Frequency	f_C	-	836.5	-	MHz
Maximum Insertion Loss in 824.0 MHz–849.0MHz	IL	-	1.8	2.3	dB
Amplitude Variation in 824.0 MHz–849.0MHz			0.6	1.0	dB
Absolute Attenuation	α				
0.30 ... 779.0MHz		25	33	-	dB
779.0 ... 804.0 MHz		27	29	-	dB
869.0 ... 894.0 MHz		45	49	-	dB
1573.0 ... 1578.0MHz		36	43	-	dB
1648.0 ... 1698.0 MHz		35	39	--	dB
2472.0 ... 2547.0 MHz		23	26	--	dB
3296.0 ... 3396.0 MHz		10	18	--	dB
Input VSWR(TX port) in 824.0 MHz–849.0MHz		-	1.9:1	2.1:1	
Output VSWR(ANT port) in 824.0 MHz–849.0MHz		-	1.6:1	2.0:1	



Typical Frequency Response TX-ANT



Trc2 dB Mag 10 dB / Ref 0 dB



Electrical Characteristics ANT- RX-:

Antenna terminating impedance: $Z_{ANT}=50\ \Omega$ || 6.8nH

RX terminating impedance: $Z_{RX}=50\ \Omega$

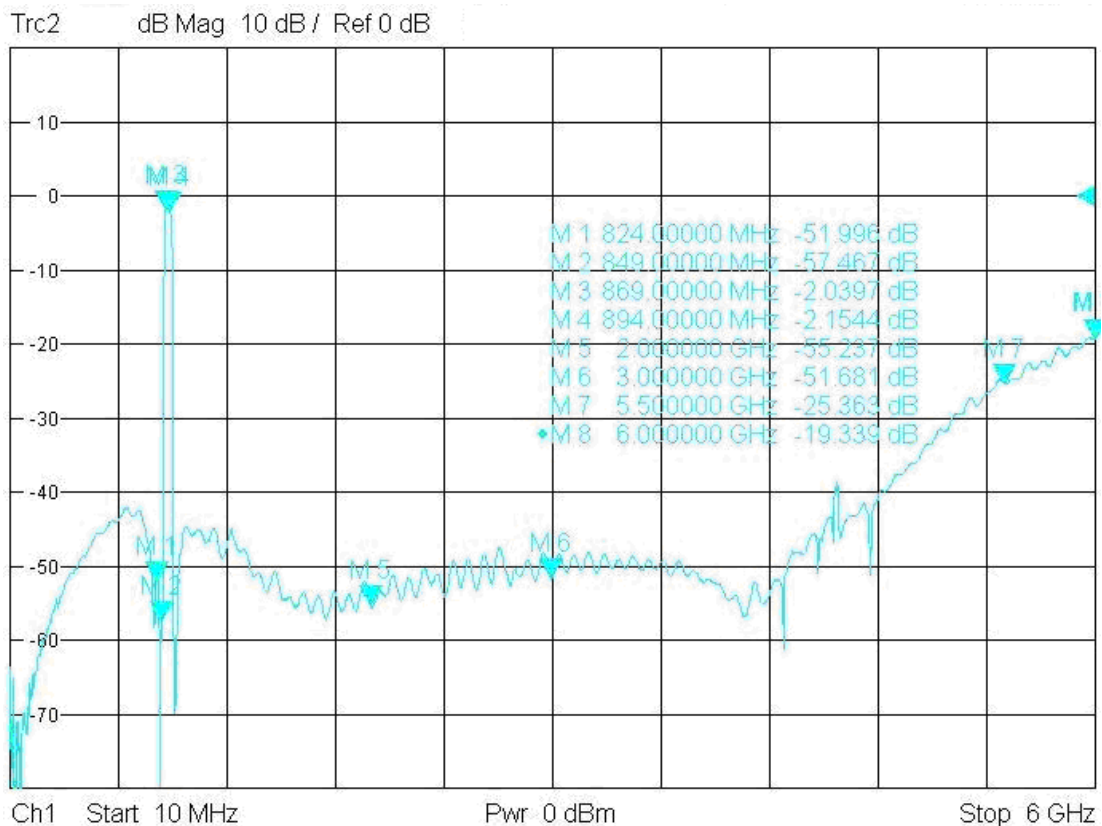
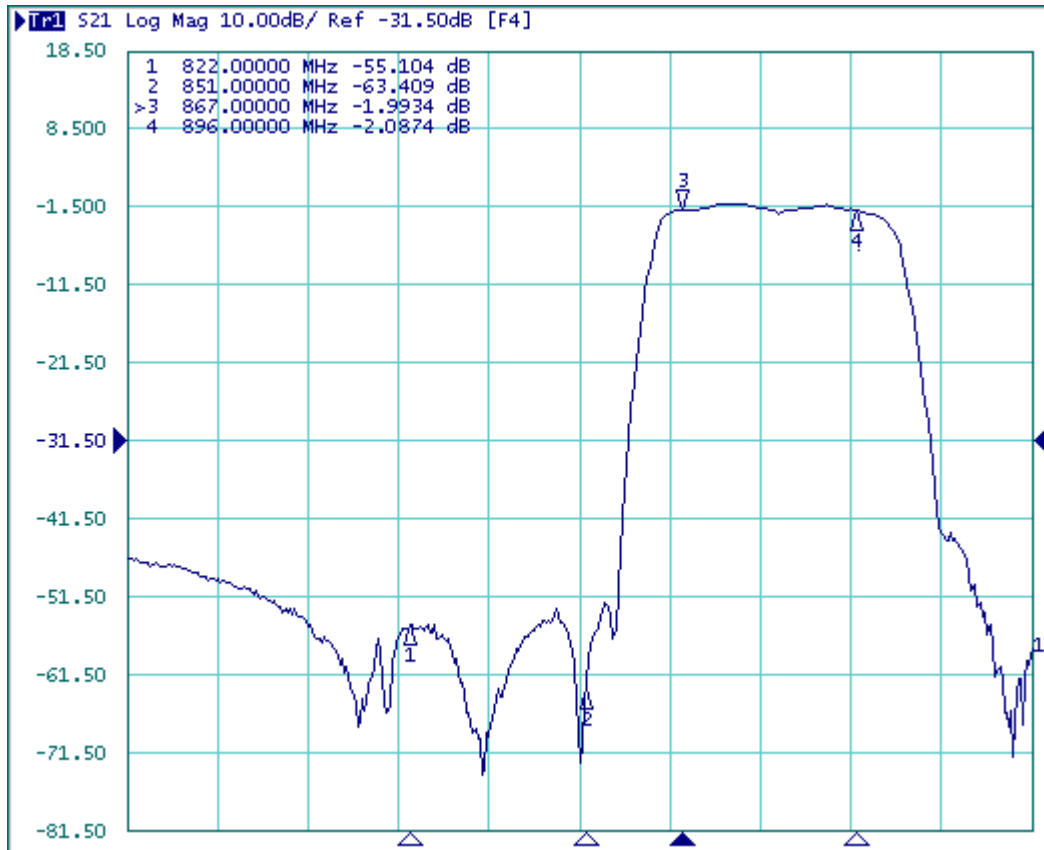
TX terminating impedance: $Z_{TX}=50\ \Omega$

Item	Minimum	Typical	Maximum	Unit
Center Frequency f_c	-	881.5	-	MHz
Maximum Insertion Loss in 869.0 MHz–894.0MHz IL	-	2.0	2.8	dB
Amplitude Variation in 869.0 MHz–894.0MHz		1.0	1.5	dB
Absolute Attenuation α				
0.30 ... 779.0MHz	35	47	-	dB
779.0 ... 804.0 MHz	38	52	-	dB
824.0 ... 849.0 MHz	50	54	-	dB
1738.0 ... 1788.0MHz	40	57	-	dB
2400.0 ... 2500.0 MHz	40	56	--	dB
2607.0 ... 2682.0 MHz	35	45	--	dB
3476.0 ... 3576.0 MHz	30	42	--	dB
Input VSWR(ANT port) in 869.0 MHz–894.0MHz	-	1.6:1	2.0:1	
Output VSWR(RX port) in 869.0 MHz–894.0MHz	-	1.7:1	2.0:1	

 **RoHS Compliant**

 **Electrostatic Sensitive Device**

Typical Frequency Response ANT- RX



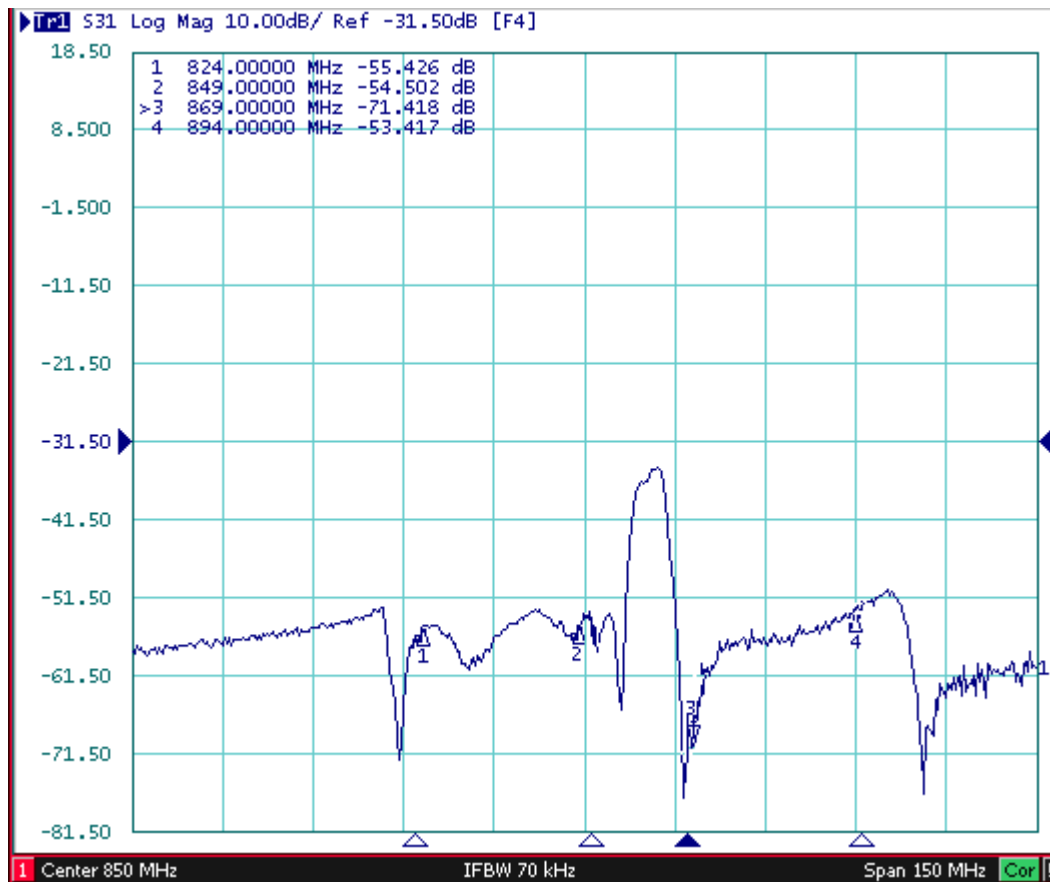
Electrical Characteristics TX-RX:

Item		Minimum	Typical	Maximum	Unit
Isolation		-		-	
	824.0 MHz–849.0MHz	<i>IL</i> 51	54		dB
	869.0 MHz–894.0MHz	50	53		dB

RoHS Compliant

Electrostatic Sensitive Device

Typical Frequency Response TX-RX



Stability Characteristics

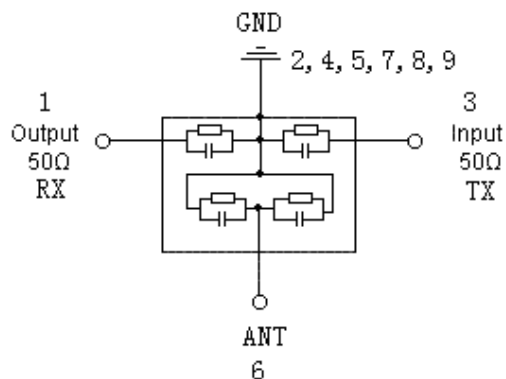
	Test item	Condition of test
1	Mechanical shock	(a) Drops: 3 times on concrete floor (b) Height: 1.0 m
2	Vibration resistance	(a) Frequency of vibration: 10~55Hz (c) Directions: X,Y and Z (b) Amplitude: 1.5 mm (d) Duration: 2 hours
3	Moisture resistance	(a) Condition: 40°C ± 2°C , 93+2 -3% RH. (b) Duration: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

Requirements: The SAW filter shall remain within the electrical specifications after tests.

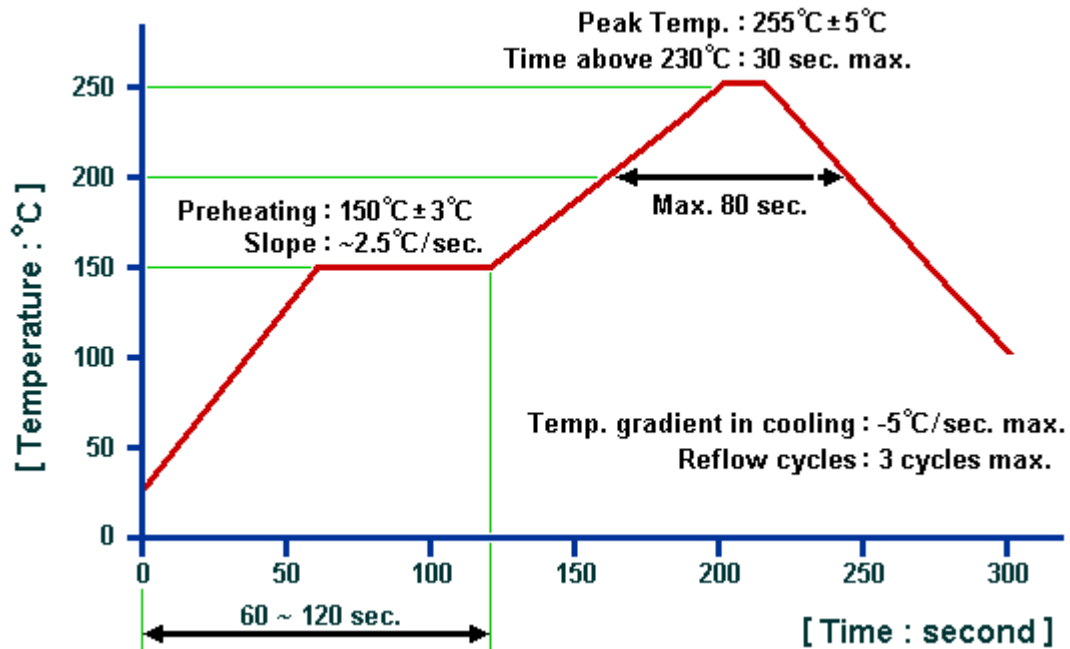
Remarks

- 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.
- Do not operate outside the recommended operating temperature range of components.
- Sudden change of temperature shall be avoided, deterioration of the characteristics can occur.
- 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.

Test Circuit



Recommended Soldering Profile



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1. The specifications of this device are subject to change or obsolescence without notice.
2. Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
3. Our liability is only assumed for the Surface Acoustic Wave (SAW) component(s) per se, not for applications, processes and circuits implemented within components or assemblies.