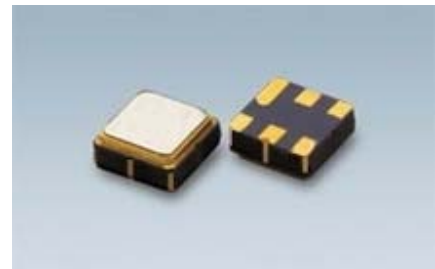


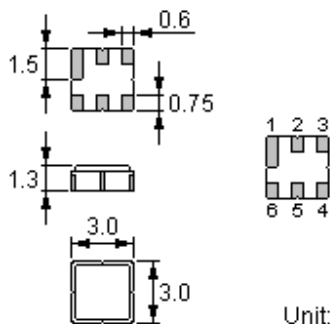
**Features**

- Low-loss RF Filter for CDMA450 – Block C (Tx)
- Single Ended Operation at 50Ω without Matching
- Ceramic Package for **Surface Mounted Technology (SMT)**
- Lead-free Production and **RoHS** Compliance



**Package Dimensions**

Ceramic Package: **DCC6C**



Unit: mm

**Pin Configuration**

2	Input
5	Output
1, 3, 4, 6	Case Ground
1, 3, 4, 6	To Be Grounded

**Marking**



Top View, Laser Marking

"ND": Manufacturer's mark "F": SAW filter

"4115": Part number ".": Terminal 1

"\*": Lot number (The code shown below varies in a 4-year cycle)

Code	1	2	3	4	5	6	7	8	9	10	11	12
2009	A	B	C	D	E	F	G	H	J	K	L	M
2010	N	P	Q	R	S	T	U	V	W	X	Y	Z
2011	a	b	c	d	e	f	g	h	i	j	k	m
2012	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)	$V_{DC}$	0	V
RF Power (in BW)	$P$	30 max.	dBm
ESD Voltage (HB)	$V_{ESD}$	250	V

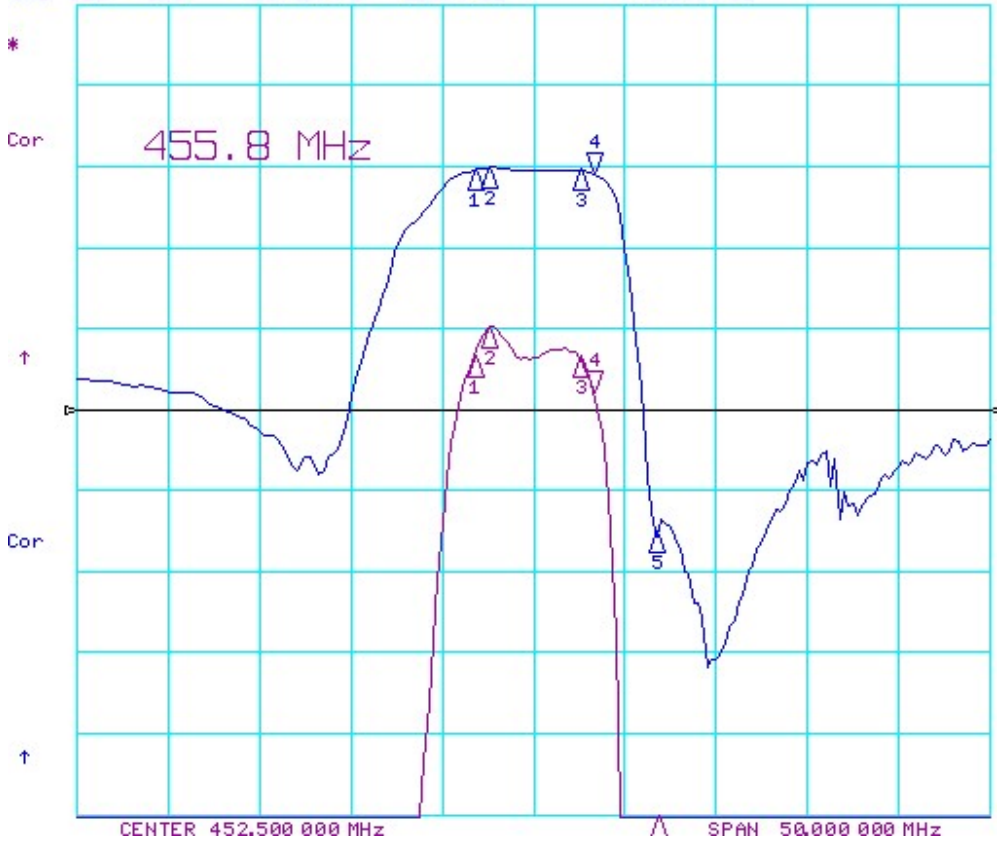
**Electrical Characteristics**

Item		Minimum	Typical	Maximum	Unit
Center Frequency	$f_c$	-	452.50	-	MHz
Maximum Insertion Loss in 450.0 MHz–455.0 MHz	$IL$	-	1.8	2.4	dB
Absolute Attenuation	$\alpha$				
0.50 ... 350.00 MHz		25	30	-	dB
350.00 ... 442.50 MHz		25	30	-	dB
460.00 ... 465.00 MHz		42	48	-	dB
465.00 ... 900.0 MHz		22	27	-	dB
900.0 ... 910.0 MHz		25	30	--	dB
910.0 ... 1500.0 MHz		20	25		dB
3620.00 MHz		14	17		dB
Amplitude Variation in 450.0 MHz–455.0 MHz	$\Delta\alpha$	-	0.5	1.0	dB
Input VSWR in 450.0 MHz–455.0 MHz		-	1.5:1	2.0:1	
Output VSWR in 450.0 MHz–455.0 MHz		-	1.5:1	2.0:1	
Group delay ripple 450.0 MHz–455.0 MHz			40	100	ns
Source / Load Impedance			50		$\Omega$

 **RoHS Compliant**
 **Electrostatic Sensitive Device**
**Typical Frequency Response**

26 Mar 2009 15:14:08

CH1 S21 LOG 1 dB/REF -2.2 dB 4:-2.0006 dB 455.800 000 MHz  
 CH2 S21 LOG 10 dB/REF -31.04 dB 4:-2.0006 dB

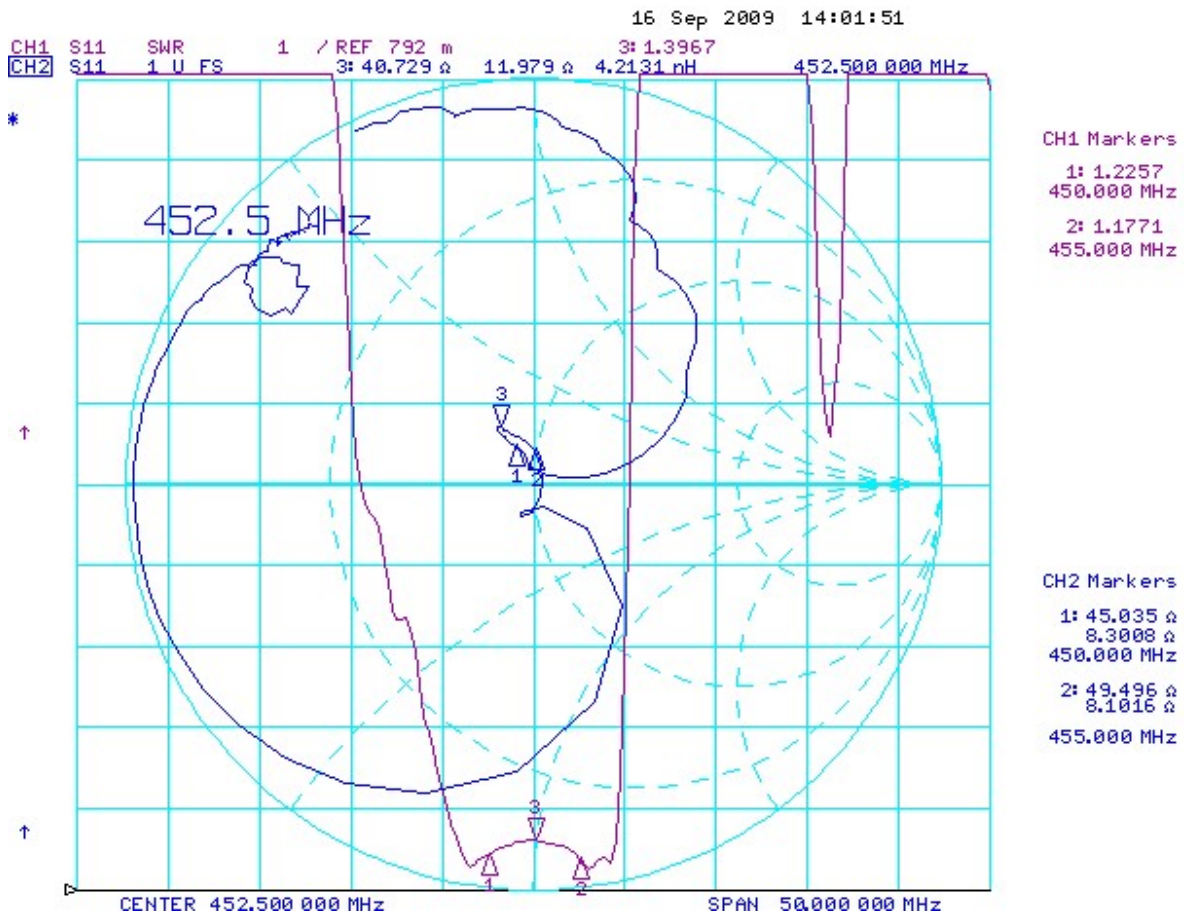


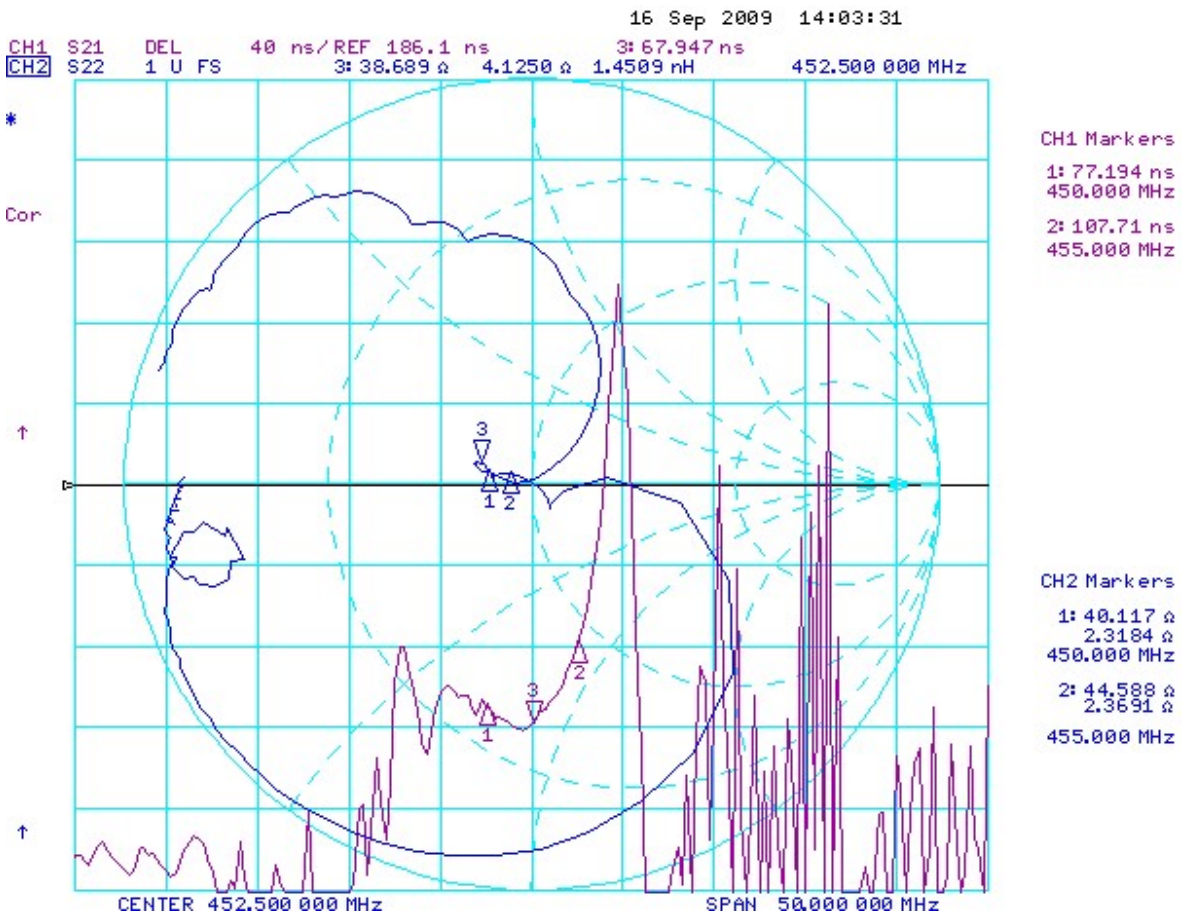
CH1 Markers

- 1:-1.5647 dB  
449.200 MHz
- 2:-1.1913 dB  
450.000 MHz
- 3:-1.5651 dB  
455.000 MHz
- 5:-46.375 dB  
459.200 MHz

CH2 Markers

- 1:-1.5647 dB  
449.200 MHz
- 2:-1.1913 dB  
450.000 MHz
- 3:-1.5651 dB  
455.000 MHz
- 5:-46.375 dB  
459.200 MHz





ability Characteristics

Sta

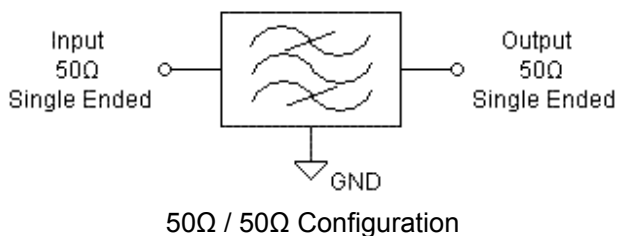
	Test item	Condition of test
1	Mechanical shock	(a) Drops: 3 times on concrete floor (b) Height: 1.0 m
2	Vibration resistance	(a) Frequency of vibration: 10~55Hz (c) Directions: X,Y and Z (b) Amplitude: 1.5 mm (d) Duration: 2 hours
3	Moisture resistance	(a) Condition: 40°C, 90~95% R.H. (c) Wait 4 hours before measurement (b) Duration: 96 hours
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: 70°C (c) Wait 4 hours before measurement (b) Duration: 250 hours
6	Thermal impact	(a) +70°C for 30 minutes ⇒ -25°C for 30 minutes repeated 3 times (b) Wait 4 hours before measurement

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

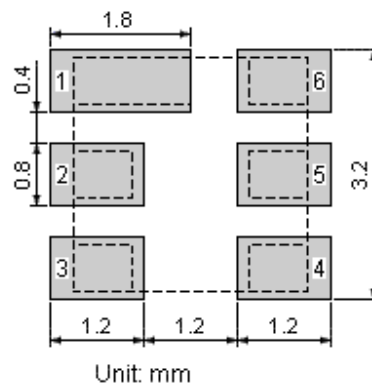
**Remarks**

- 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**

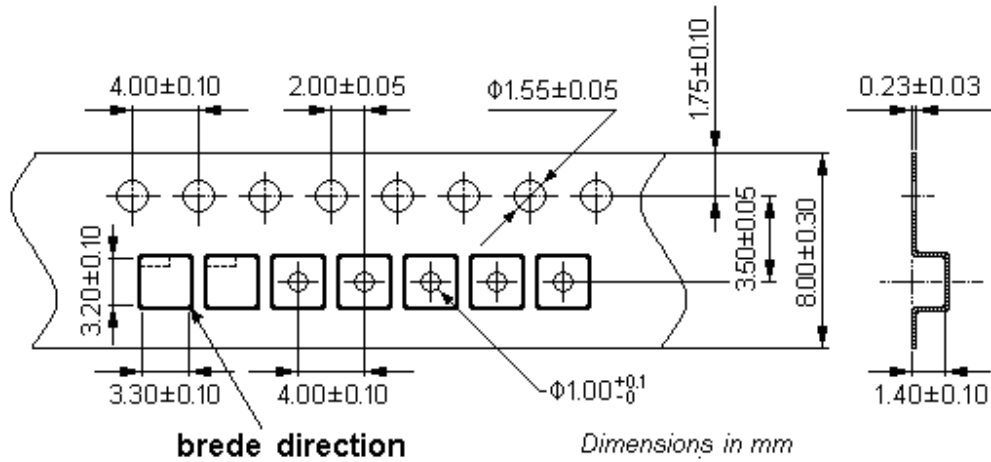


**Recommended Land Pattern**

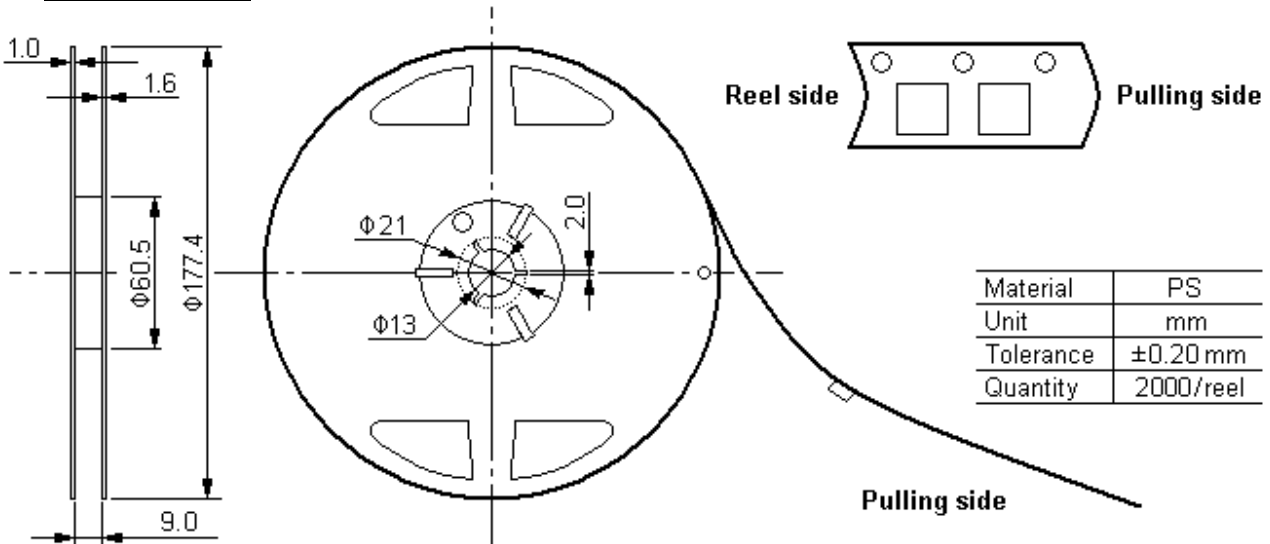


**Packing Information**

Carrier Tape



Reel Dimensions



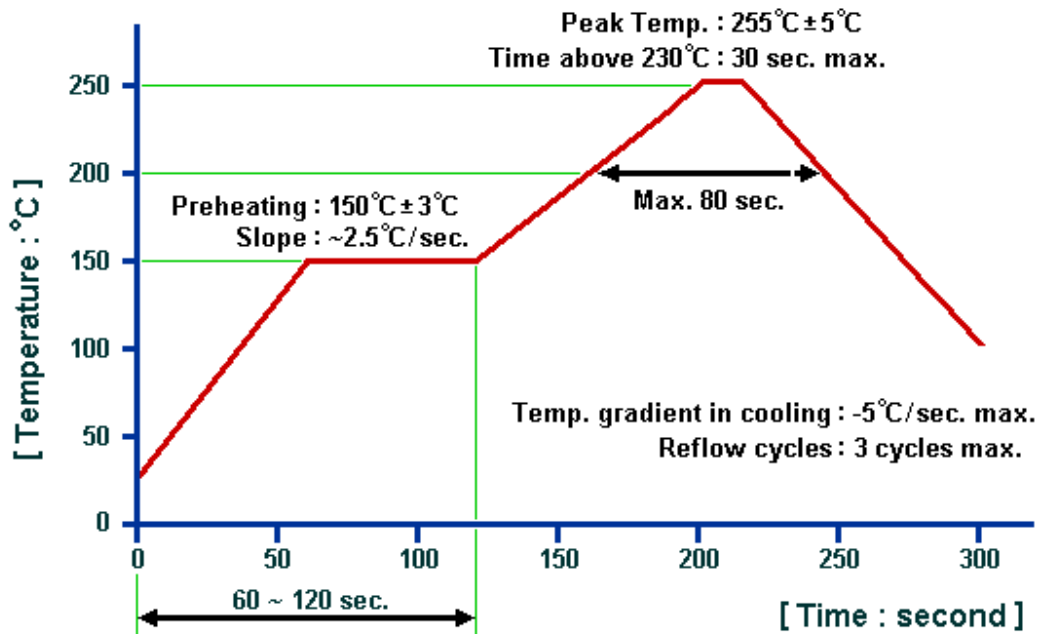
Outer Packing

Type	Quantity	Dimension	Description	Weight
Carton Box I	10000	190×190×95	anti-static plastic bag & carton box 1 reel / bag	0.85
Carton Box II	20000	190×190×190	5 bags / box (10000 pcs) 10 bags / box (20000 pcs)	1.70

Unit: mm

Unit: kg

**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.
4. For questions on technology, prices and delivery, please contact our sales offices or e-mail [winnsky@winnsky.com](mailto:winnsky@winnsky.com)