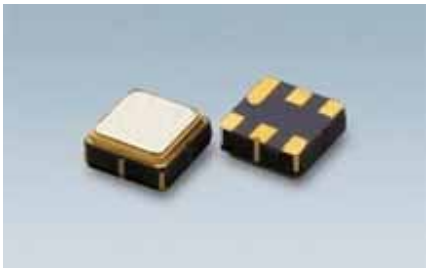
NDF9196

1SAW FILTER 1590MHz

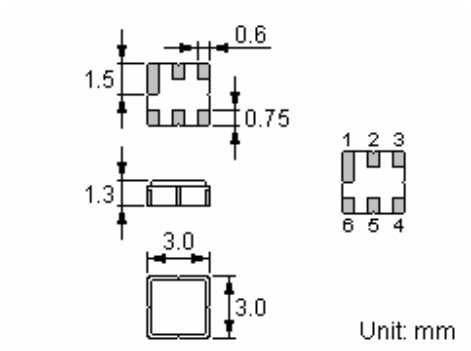
Features

- Low-loss RF filter for mobile systems
- Low amplitude ripple
- No matching network required for operation at 50Ω
- Ceramic package for **S**urface **M**ounted **T**echnology (**SMT**)
- Lead-free production and **RoHS** compliant



Package Dimensions

Ceramic Package: **DCC6C**



Pin Configuration

2	Input
5	Output
1, 3, 4, 6	Ground

Marking

Top View, Laser Marking

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

"**9196**": 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

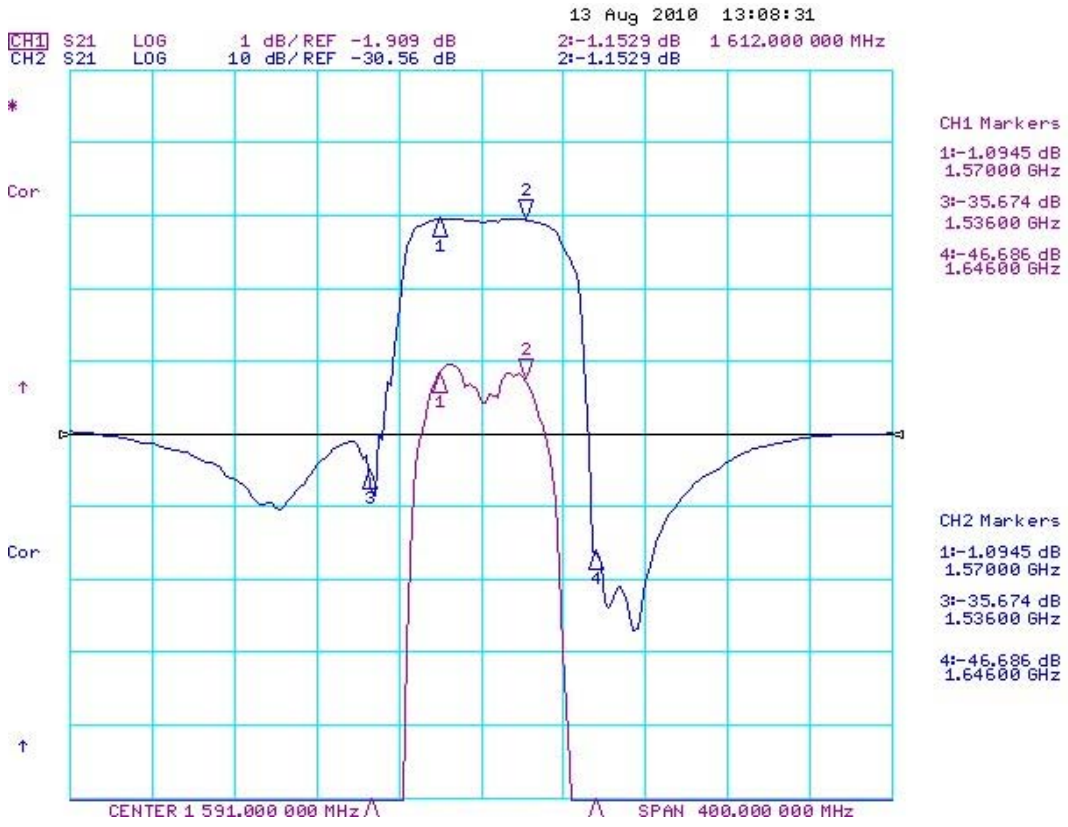
Rating		**Value**	**Unit**
Input Power Level	P	10	dBm
DC Voltage	V_{DC}	5	V
Operating Temperature Range	T_A	-40 ~ +85	°C
Storage Temperature Range	T_{stg}	-40 ~ +85	°C

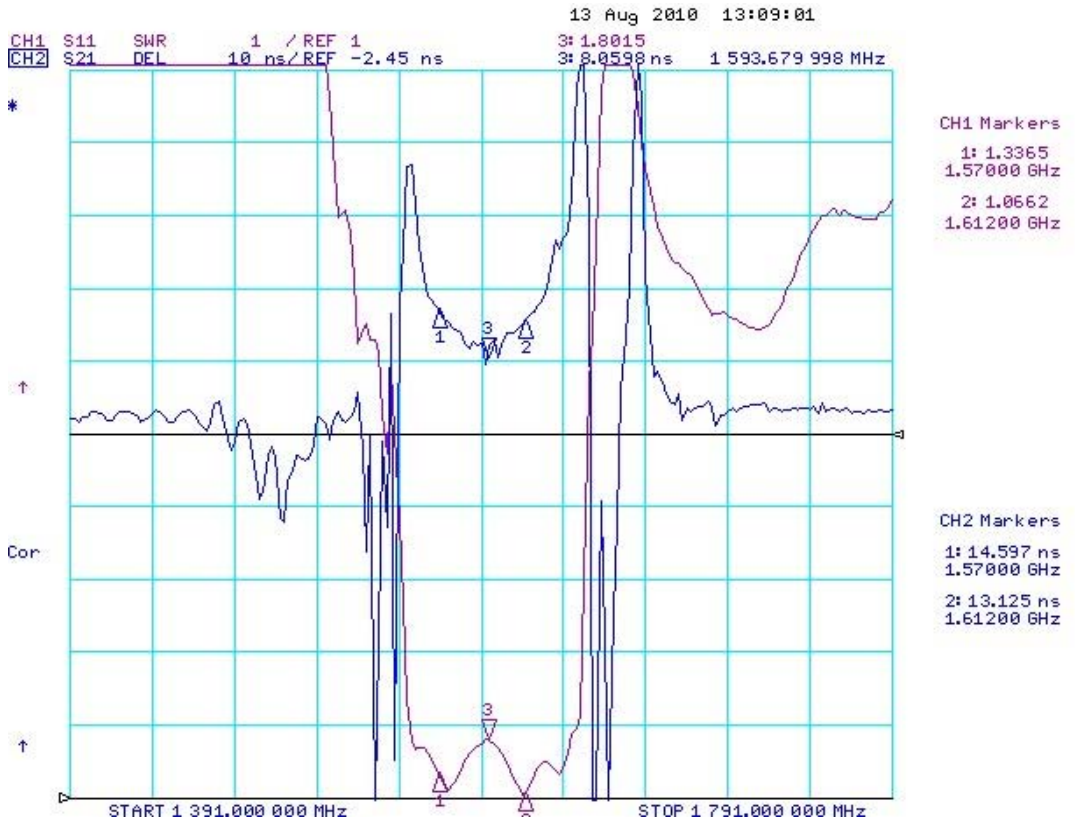
Electrical Characteristics

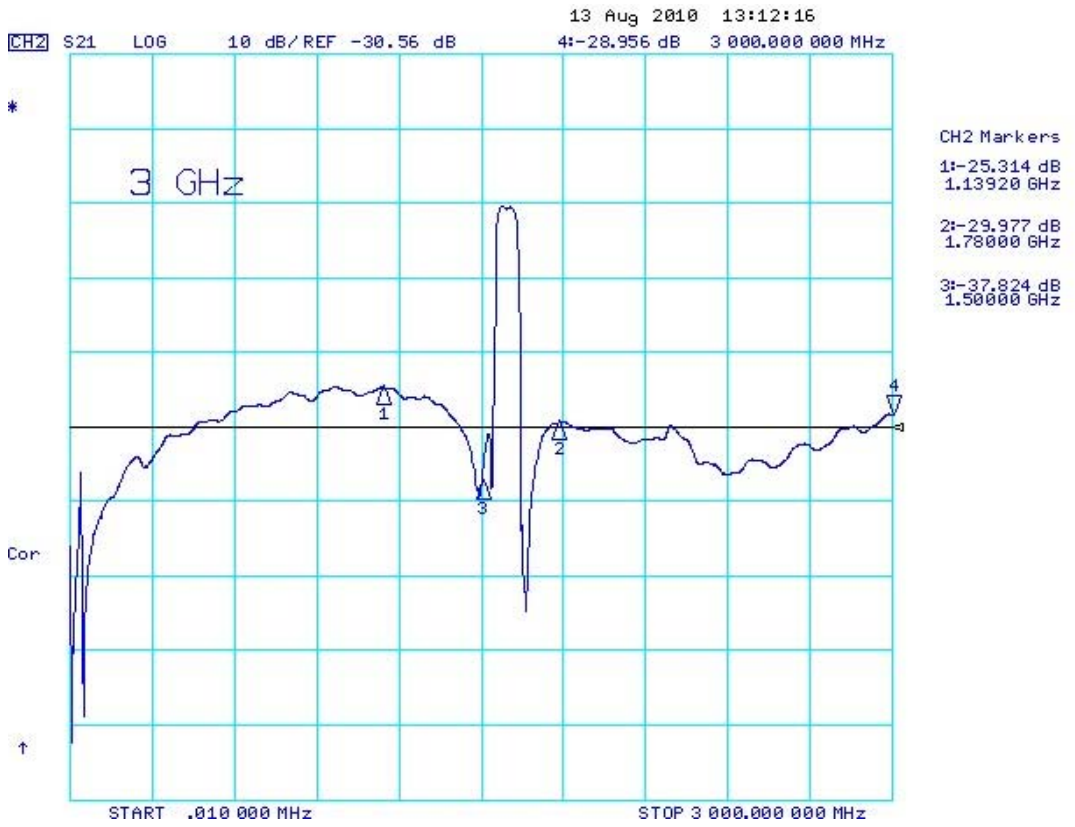
Item		Minimum	Typical	Maximum	Unit
Center Frequency	f_C		1591		MHz
Insertion Loss	*IL*				
1570.00 …. 1612.00 MHz		--	1.5	2.5	dB
Group Delay Ripple 1570.00 …. 1612.00 MHz			10	40	ns
Absolute Attenuation	*α*				
DC …. 1500.00 MHz		22	25		dB
1536 MHz		30			dB
1646 MHz		30			dB
1700.00 …. 1800.00 MHz		25	29		dB
1800.00 …. 3000.00 MHz		22	28		dB
Amplitude Ripple (p-p) 1570.00 …. 1612.00 MHz	*Δα*		0.5	1.0	dB
Intput VSWR 1570.00 …. 1612.00 MHz			1.8：1	2.0：1	
Output VSWR 1570.00 …. 1612.00 MHz z			1.8：1	2.0：1	
Input / Output Impedance (Nominal)			50		Ω

RoHS Compliant **Electrostatic Sensitive Device**

Typical Frequency Response




13 Aug 2010 13:09:01
CH1 S11 SWR 1 / REF 1
CH2 S21 DEL 10 ns/ REF -2.45 ns
3: 1.8015
3: 8.0598 ns
1 593.679 998 MHz
CH1 Markers
1: 1.3365
1.57000 GHz
2: 1.0662
1.61200 GHz
CH2 Markers
1: 14.597 ns
1.57000 GHz
2: 13.125 ns
1.61200 GHz
Cor
START 1 391.000 000 MHz
STOP 1 791.000 000 MHz


13 Aug 2010 13:12:16
CH2 S21 LOG 10 dB/ REF -30.56 dB
4:-28.956 dB
3 000.000 000 MHz
3 GHz
CH2 Markers
1:-25.314 dB
1.13920 GHz
2:-29.977 dB
1.78000 GHz
3:-37.824 dB
1.50000 GHz
Cor
START .010 000 MHz
STOP 3 000.000 000 MHz

Stability Characteristics

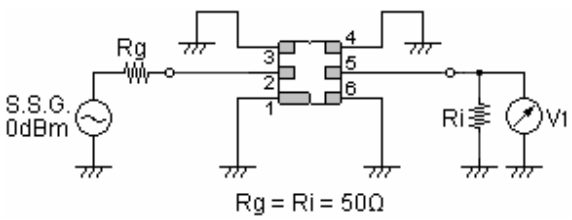
	Test item	Condition of test
1	Mechanical shock	(a) Drops: 3 times on concrete floor (b) Height: 1.0 m
2	Vibration resistance	(a) Frequency of vibration: 10~55Hz (b) Amplitude: 1.5 mm (c) Directions: X,Y and Z (d) Duration: 2 hours
3	Moisture resistance	(a) Condition: 40°C, 90~95% R.H. (b) Duration: 96 hours (c) Wait 4 hours before measurement
4	Climatic sequence	(a) +70°C for 16 hours (b) +55°C for 24 hours, 90~95% R.H. (c) -25°C for 2 hours (d) +40°C for 24 hours, 90~95% R.H. (e) Wait 4 hours before measurement
5	High temperature exposure	(a) Temperature: 70°C (b) Duration: 250 hours (c) Wait 4 hours before measurement
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 filer shall remain within the electrical specifications after tests.

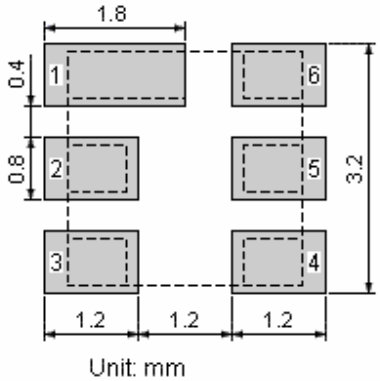
Remarks

- 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

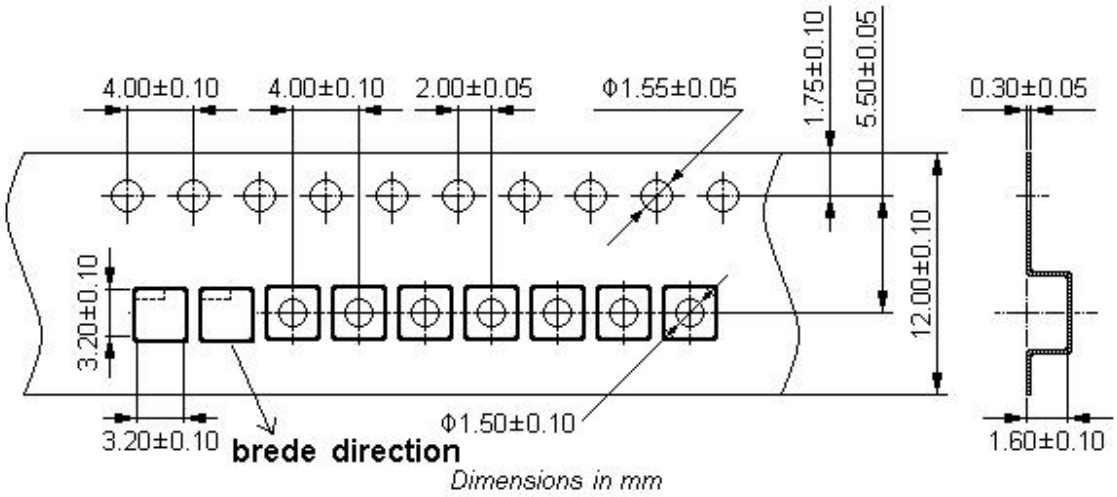


Recommended Land Pattern

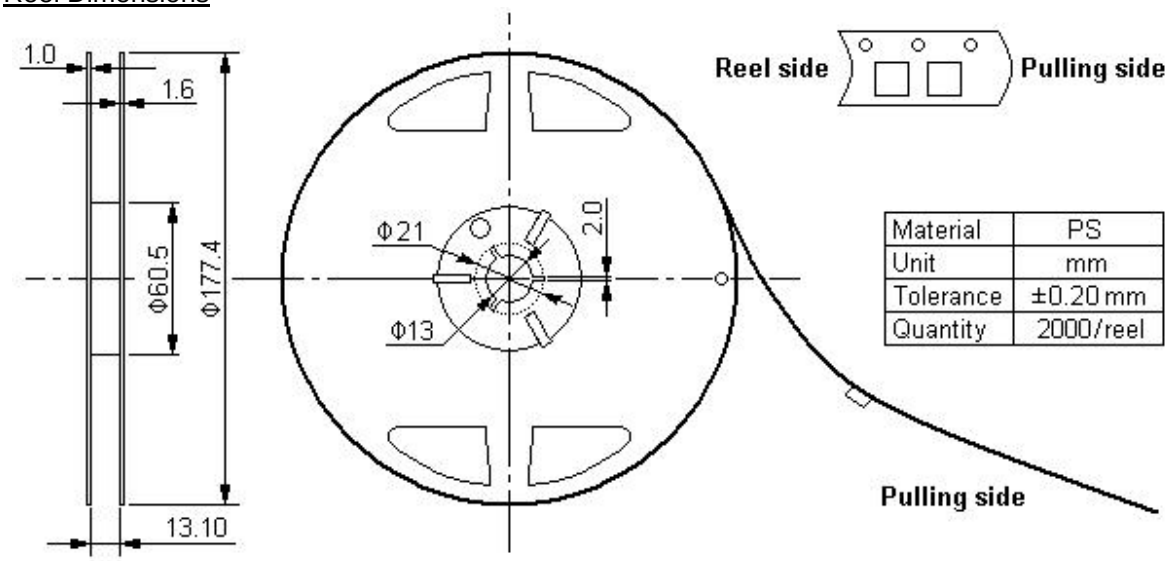


Packing Information

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 5 bags / box (10000 pcs) 10 bags / box (20000 pcs)	0.85
Carton Box Ⅱ	20000	190×190×190		1.80

Unit: mm Unit: kg

Recommended Soldering Profile