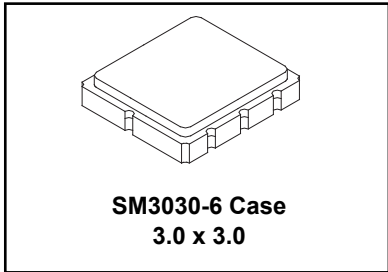


**RF3446E**

**433.92 MHz  
SAW Filter**



- **Ideal Front-End Filter for European Wireless Receivers**
- **Low-Loss, Coupled-Resonator Quartz Design**
- **Simple External Impedance Matching**

The RF3446E is a low-loss, compact, and economical surface-acoustic-wave (SAW) filter designed to provide front-end selectivity in 433.92 MHz receivers. Receiver designs using this filter include superhet with 10.7 MHz or 500 kHz IF, direct conversion and superregen. Typical applications of these receivers are wireless remote-control and security devices operating in Europe under ETSI I-ETS 300 220.

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency at 25°C Absolute Frequency	$f_c$	1, 2, 3		433.92		MHz
Passband Ripple 433.52 to 434.32 MHz				0.5	1.2	dB
Insertion Loss (433.760 - 434.080)	$IL_{MIN}$	1, 3		2.0	3.0	dB
3 dB Bandwidth	$BW_3$	1, 3	960	1080	1150	kHz
Rejection Attenuation: (relative to $IL_{min}$ )	10 - 418 MHz	1, 3	47	50		dB
	418 - 423.7 MHz		44	47		
	423.7 - 430 MHz		33	36		
	430 - 432.5 MHz		16	19		
	436 - 438.5 MHz		18	21		
	438.5 - 446 MHz		21	24		
	446 - 452 MHz		38	41		
	452 - 1000 MHz		45	48		
Turnover Temperature	$T_o$	3, 4	10	25	40	°C
Temperature Freq. Temp. Coefficient	FTC			0.032		ppm/°C <sup>2</sup>
Frequency Aging Absolute Value during the First Year	$ fA $	5		≤10		ppm/yr
Impedance @ $f_c$	Input $Z_{IN} = R_{IN}    C_{IN}$	1	$Z_{IN}$		130 Ω    2.5 pF	
	Output $Z_{OUT} = R_{OUT}    C_{OUT}$		$Z_{OUT}$		134.5 Ω    2.48 pF	
Lid Symbolization (Y=year WW=week S=shift)	776 // YWWS					
Standard Reel Quantity	Reel Size 7 Inch	9	500 Pieces/Reel			
	Reel Size 13 Inch		3000 Pieces/Reel			

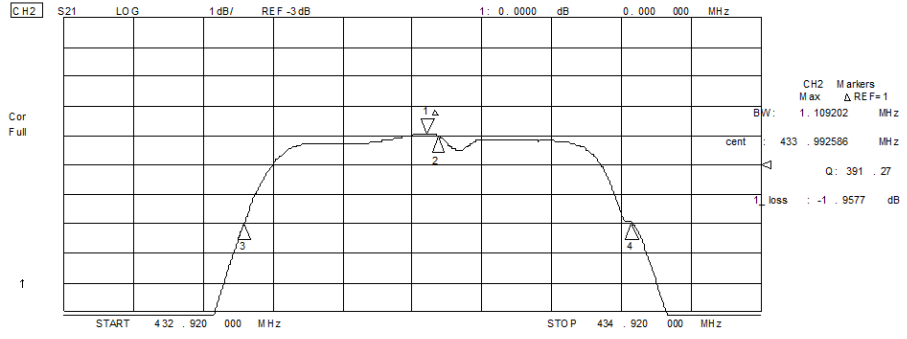
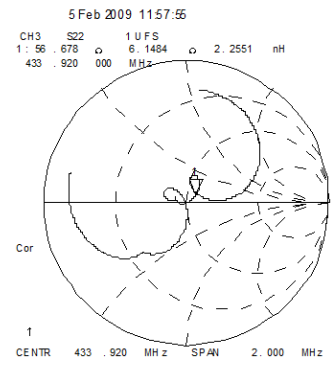
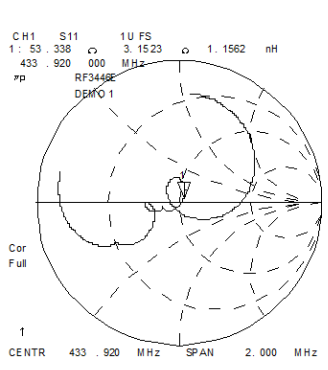
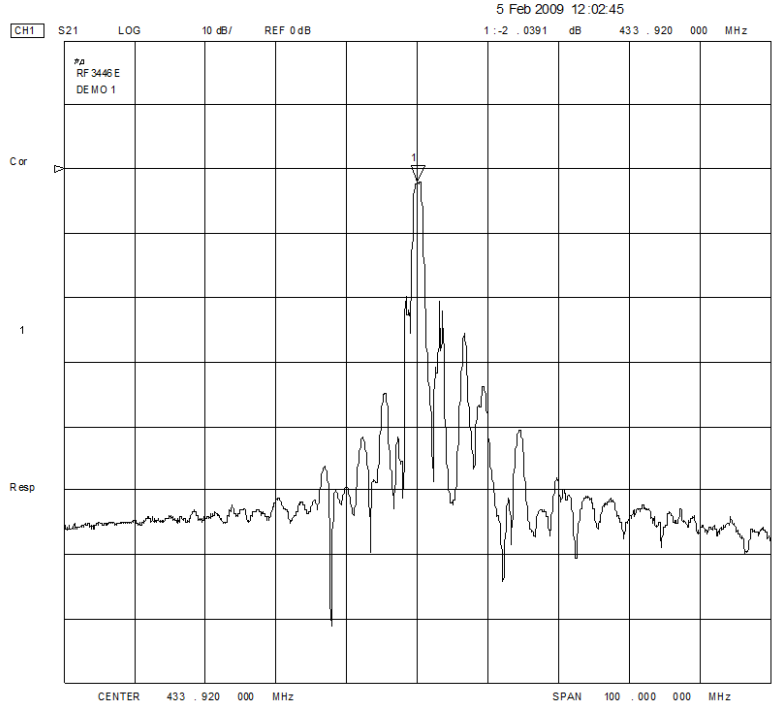


**CAUTION:** Electrostatic Sensitive Device. Observe precautions for handling.

**NOTES:**

1. Unless noted otherwise, all measurements are made with the filter installed in the specified test fixture which is connected to a 50 Ω test system with VSWR ≤ 1.2:1. The test fixture L and C are adjusted for minimum insertion loss at the filter center frequency,  $f_c$ . Note that insertion loss and bandwidth and passband shape are dependent on the impedance matching component values and quality.
2. The frequency  $f_c$  is defined as the midpoint between the 3dB frequencies.
3. Where noted specifications apply over the entire specified operating temperature range of -40°C to +90°C.
4. The turnover temperature,  $T_o$ , is the temperature of maximum (or turnover) frequency,  $f_o$ . The nominal frequency at any case temperature,  $T_c$ , may be calculated from:  
 $f = f_o [1 - FTC (T_o - T_c)^2]$ .
5. Frequency aging is the change in  $f_c$  with time and is specified at +65°C or less. Aging may exceed the specification for prolonged temperatures above +65°C. Typically, aging is greatest the first year after manufacture, decreasing significantly in subsequent years.
6. The design, manufacturing process, and specifications of this device are subject to change.
7. One or more of the following U.S. Patents apply: 4,54,488, 4,616,197, and others pending.
8. All equipment designs utilizing this product must be approved by the appropriate government agency prior to manufacture or sale.

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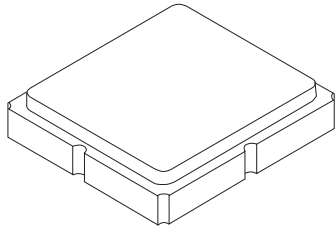


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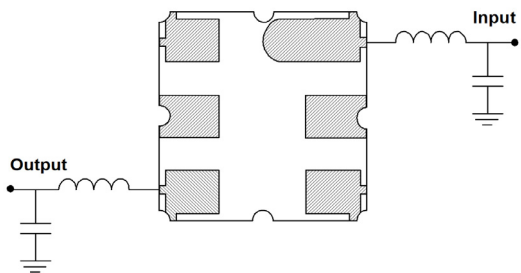
Rating		Units
Input Power Level	10	dBm
DC Voltage	12	VDC
Storage Temperature	-55 to +125	°C
Operable Temperature Range	-40 to +105	°C
Soldering Temperature (10 seconds/5 cycles Max..)	260	°C

### Case and PCB Footprint Dimensions

Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	2.87	3.00	3.13	0.113	0.118	0.123
B	2.87	3.00	3.13	0.113	0.118	0.123
C	1.12	1.25	1.38	0.044	0.049	0.054
D	0.77	0.90	1.03	0.030	0.035	0.040
E	2.67	2.80	2.93	0.105	0.110	0.115
F	1.47	1.60	1.73	0.058	0.063	0.068
G	0.72	0.85	0.98	0.028	0.033	0.038
H	1.37	1.50	1.63	0.054	0.059	0.064
I	0.47	0.60	0.73	0.019	0.024	0.029
J	1.17	1.30	1.43	0.046	0.051	0.056
K		3.20			0.126	
L		1.70			0.067	
M		1.05			0.041	
N		0.81			0.032	
O		0.38			0.015	



### Electrical Connections

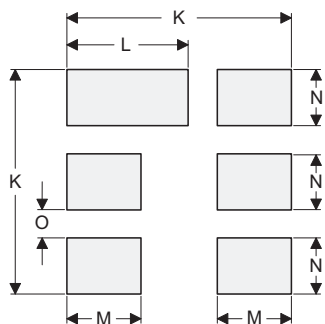


Pin	Connection
1	Input
2	Input Return
3	Ground
4	Output
5	Output Return
6	Ground

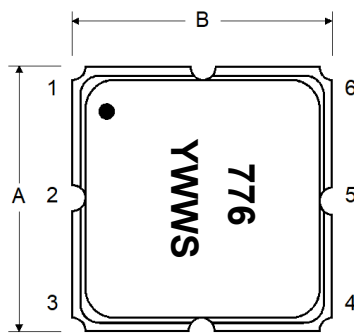
### Case Materials

Materials	
Solder Pad Plating	0.3 to 1.0 μm Gold over 1.27 to 8.89 μm Nickel
Lid Plating	2.0 to 3.0 μm Nickel
Body	Al <sub>2</sub> O <sub>3</sub> Ceramic
	Pb Free

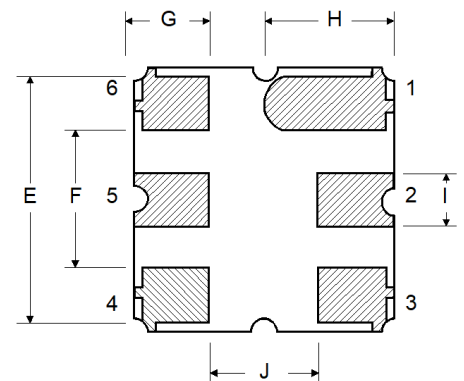
### PCB Footprint Top View



### TOP VIEW

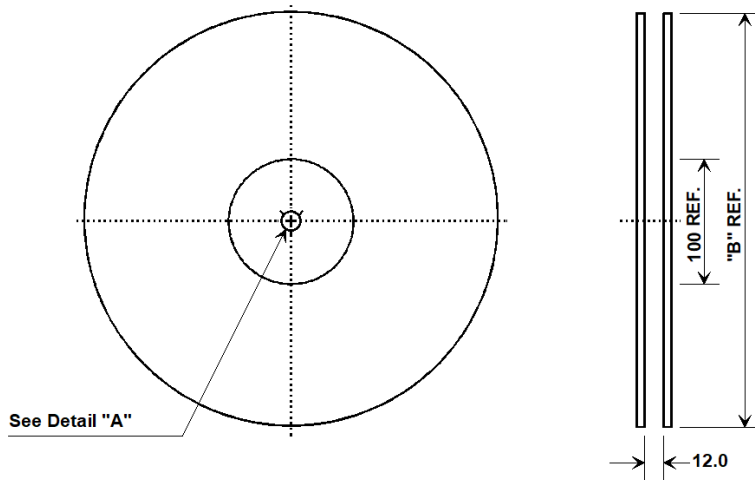


### BOTTOM VIEW

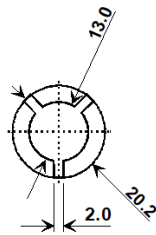


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## Tape and Reel Specifications



"B"		Quantity Per Reel
Inches	millimeters	
7	178	500
13	330	3000



## COMPONENT ORIENTATION and DIMENSIONS

Carrier Tape Dimensions	
Ao	3.35 mm
Bo	3.35 mm
Ko	1.40 mm
Pitch	8.0 mm
W	12.0 mm

