muRata
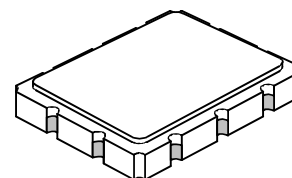## INNOVATOR IN ELECTRONICS

SF1115A

**199 MHz
SAW Filter**

- *Designed for GSM BTS Receiver IF Applications*
- *Compatible with National Semiconductor Chip Set*
- *Very Flexible Impedance Matching*
- *Unbalanced or Balanced Input or Output*
- *9.1 x 7.1 mm Version of the SF1115A-1*
- *Complies with Directive 2002/95/EC (RoHS)*

(Pb)

SM9171-10

Absolute Maximum Ratings

Rating	Value	Units
Maximum Incident Power in Passband	+15	dBm
Max. DC voltage between any 2 terminals	30	VDC
Storage Temperature Range	–40 to +85	°C
Suitable for lead-free soldering - Max. Soldering Profile	260°C for 30 s	

Electrical Characteristics

| Characteristic		Sym	Notes	Min	Typ	Max	Units
Nominal Center Frequency		f_C	1		199.000		MHz
Passband	Insertion Loss at fc	IL				7.0	dB
	1 db Passband	BW_1		±100			kHz
	Amplitude Ripple over fc±100 kHz		1, 2			0.5	dB_{P-P}
	Group Delay Variation over fc ±100 kHz	GDV				500	ns_{P-P}
Rejection	Room Temperature fc+800 to fc+400 kHz			10			
	Room Temperature fc-800 to fc-400 kHz			10			
	fc-800 to fc-600 and fc+600 to fc+800 kHz			20			
	fc-30 MHz to fc-800 kHz		1, 2, 3	30			dB
	fc+800 kHz to fc+17 MHz			30			
	fc-80 MHz to fc-30 MHz			35			
	fc+17 Mhz to fc+80 MHz			35			
Operating Temperature Range		T_A	1	-35		+85	°C
Frequency Temperature Coefficient		FTC	1		0.032		$ppm/°C^2$

Impedance Matching to 50Ω Unbalanced	External L-C
Impedance Matching to 200Ω Balanced	External L-C
Impedance Matching to 50Ω Input / 400Ω Output	External L-C
Case Style	SMP9171-10 9.1 x 7.1 mm Nominal Footprint
Lid Symbolization (YY = year, WW = week)	RFM SF1115A YYWW

CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

NOTES:
1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50 Ω and measured with 50 Ω network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced to the nominal center frequency, fc.
3. Rejection is measured as attenuation below the minimum IL point in the passband. Rejection in final user application is dependent on PCB layout and external impedance matching design. See Application Note No. 42 for details.
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: $f=f_0[1-FTC(T_O-T_c)^2]$.
5. The design, manufacturing process, and specifications of this filter are subject to change.
6. Either Port 1 or Port 2 may be used for either input or output in the design. However, impedances and impedance matching may vary between Port 1 and Port 2, so that the filter must always be installed in one direction per the circuit design.
7. US and international patents may apply.

3 MHz/DIV

200 kHz/DIV

100 ns/DIV

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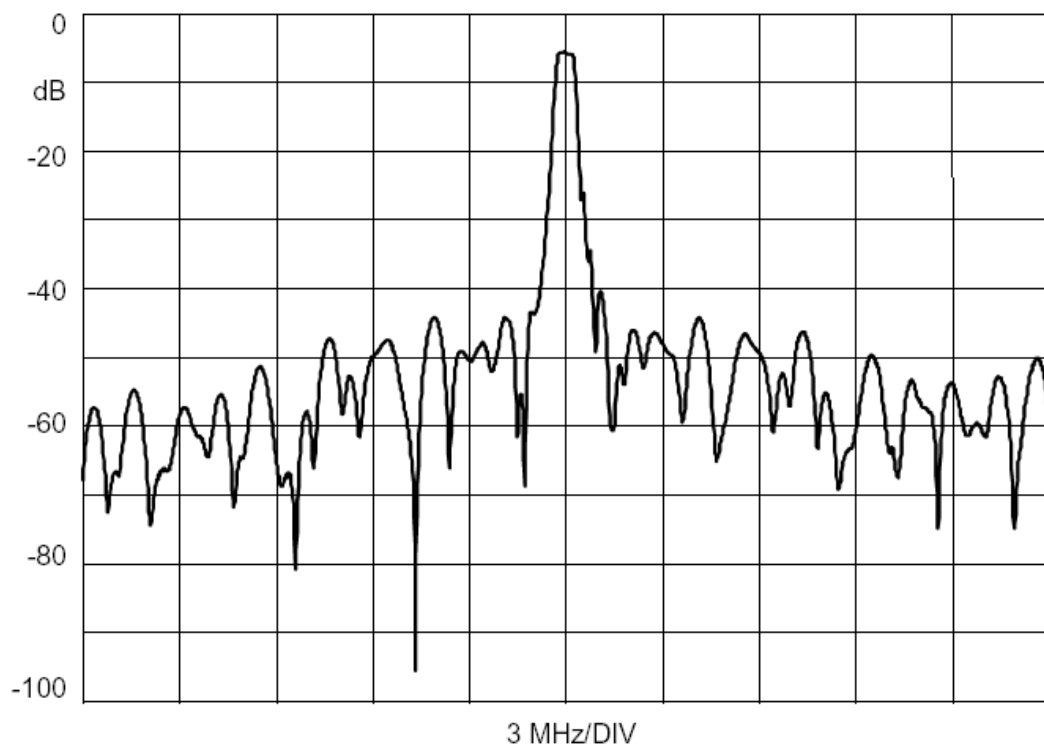
SM9171-10 Case

10-Terminal Ceramic Surface-Mount Case

9.1 x 7.1 mm Nominal Footprint
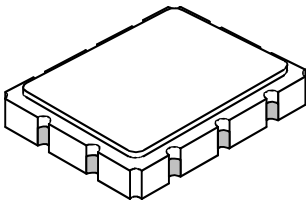
Case Dimensions

Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	8.86	9.09	9.40	0.349	0.358	0.370
B	6.88	7.11	7.40	0.271	0.280	0.291
C		1.91	2.00		0.075	0.079
D		0.99			0.039	
E		0.79			0.031	
H		1.0			0.039	
P		2.54			0.100	

Materials

Materials	
Solder Pad Termination	Au plating 30 - 60 µinches (76.2-152 µm) over 80-200 µinches (203-508 µm) Ni.
Lid	Fe-Ni-Co Alloy Electroless Nickel Plate (8-11% Phosphorus) 100-200 µinches Thick
Body	Al_2O_3 Ceramic
Pb Free	

Electrical Connections

Connection		Terminals
Port 1	Input or Return	6
	Return or Input	5
Port 2	Output or Return	1
	Return or Output	10
Ground		All others
Single Ended Operation		**Return is ground**
Differential Operation		**Return is hot**