

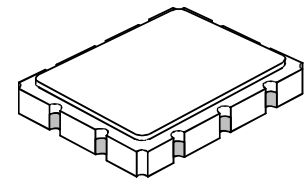


- **Designed for GSM BTS Receiver IF Applications**
- **Compatible with National Semiconductor Chip Set**
- **Very Flexible Impedance Matching**
- **Unbalanced or Balanced Input or Output**
- **9.1 x 7.1 mm Version of the SF1115A-1**
- **Complies with Directive 2002/95/EC (RoHS)**



# SF1115A

## 199 MHz SAW Filter



**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

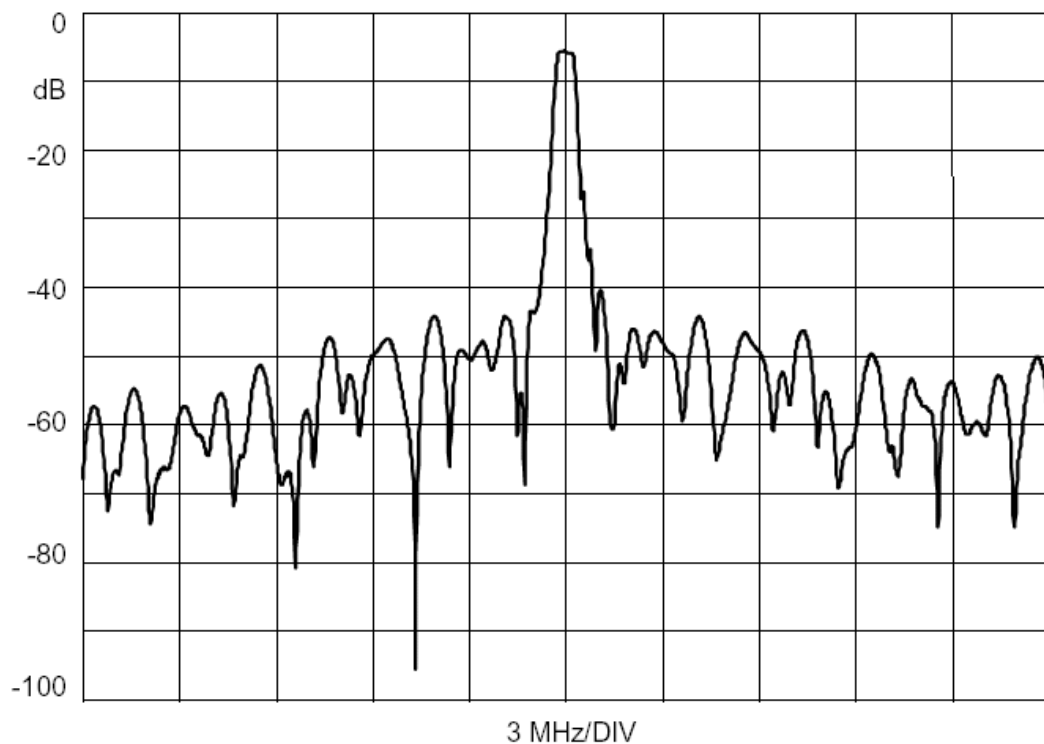
Characteristic	Sym	Notes	Min	Typ	Max	Units
Nominal Center Frequency	$f_c$	1		199.000		MHz
Passband Insertion Loss at $f_c$ 1 db Passband Amplitude Ripple over $f_c \pm 100$ kHz Group Delay Variation over $f_c \pm 100$ kHz	IL	1, 2			7.0	dB
	$BW_1$		$\pm 100$			kHz
					0.5	dB <sub>p-p</sub>
	GDV				500	ns <sub>p-p</sub>
Rejection	Room Temperature $f_c + 800$ to $f_c + 400$ kHz	1, 2, 3	10			dB
	Room Temperature $f_c - 800$ to $f_c - 400$ kHz		10			
	$f_c - 800$ to $f_c - 600$ and $f_c + 600$ to $f_c + 800$ kHz		20			
	$f_c - 30$ MHz to $f_c - 800$ kHz		30			
	$f_c + 800$ kHz to $f_c + 17$ MHz		30			
	$f_c - 80$ MHz to $f_c - 30$ MHz		35			
	$f_c + 17$ MHz to $f_c + 80$ MHz		35			
Operating Temperature Range	$T_A$	1	-35		+85	°C
Frequency Temperature Coefficient	FTC	1		0.032		ppm/°C <sup>2</sup>

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

### Notes:

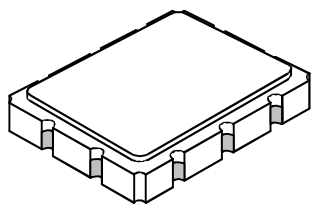
1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50 Ω and measured with 50 Ω network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced to the nominal center frequency,  $f_c$ .
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:  $f = f_O [1 - FTC(T_O - T_C)^2]$ .
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.
8. Electrostatic Sensitive Device. Observe precautions for handling.





## 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	
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 <sub>2</sub> O <sub>3</sub> 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

