

# Preliminary



**SF2143B**

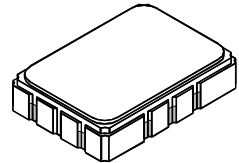
**72.54 / 80.46 MHz  
SAW Diplexer**

- Designed for SDARS IF
- SAW Diplexer 72.54 MHz / 80.46 MHz
- 5.0 X 7.0 mm Surface-Mount Case
- Complies with Directive 2002/95/EC (RoHS)



## Absolute Maximum Ratings

Rating	Value	Units
Maximum Incident Power in Passband	+10	dBm
Maximum DC Voltage Between any Two Terminals	0	VDC
Operating Temperature Range	-40 to +105	°C



**SMP-03**

## Electrical Characteristics TDM1 Filter

Characteristic	Sym	Notes	Min	Typ	Max	Units	
Nominal Center Frequency	$f_C$	1		72.54		MHz	
Passband Width	1 dB		$BW_1$		4.4		MHz
	15 dB		$BW_{15}$		6.4		MHz
	30 dB		$BW_{30}$		7.3		MHz
Passband Minimum Insertion Loss (including matching network) at $f_C$	$IL_{MIN}$			14.6		dB	
Amplitude Ripple, $f_C \pm 1.85$ MHz				1.0		dB <sub>P-P</sub>	
Attenuation Relative to Minimum Insertion Loss				46		dB	
	50.00 to 66.48 MHz			40		dB	
	66.48 to 68.08 MHz			41		dB	
	77.30 to 78.60 MHz			43		dB	
	78.60 to 86.50 MHz			53		dB	
				63		dB	
Group Delay Ripple				90		nSp-p	
Source Impedance, Differential				27 ohms or 200 ohms			
Load Impedance, Differential				1K ohms or 1.5K ohms			

Characteristic	Sym	Notes	Min	Typ	Max	Units	
Nominal Center Frequency	$f_C$	1		80.46		MHz	
Passband Width	1 dB		$BW_1$		4.5		MHz
	15 dB		$BW_{15}$		6.5		MHz
	30 dB		$BW_{30}$		7.2		MHz
Passband Minimum Insertion Loss (including the matching network) at $f_C$	$IL_{MIN}$			15.6		dB	
Amplitude Ripple, $f_C \pm 1.85$ MHz				1.9		dB <sub>P-P</sub>	
Attenuation Relative to Minimum Insertion Loss				44		dB	
	50.00 to 74.39 MHz			34		dB	
	74.39 to 75.99 MHz			44		dB	
	85.21 to 86.50 MHz			46		dB	
	86.50 to 91.50 MHz			57		dB	
				92		nSp-p	
Group Delay Ripple				92		nSp-p	
Source Impedance, Differential				27 ohms or 200 ohms			
Load Impedance, Differential				1K ohms or 1.5K ohms			

Case Style		6	SMP-03 7 x 5 mm Nominal Footprint			
Lid Symbolization (YY=year, WW=week, S=shift) See note 4			RFM SF2143B YYWWS			



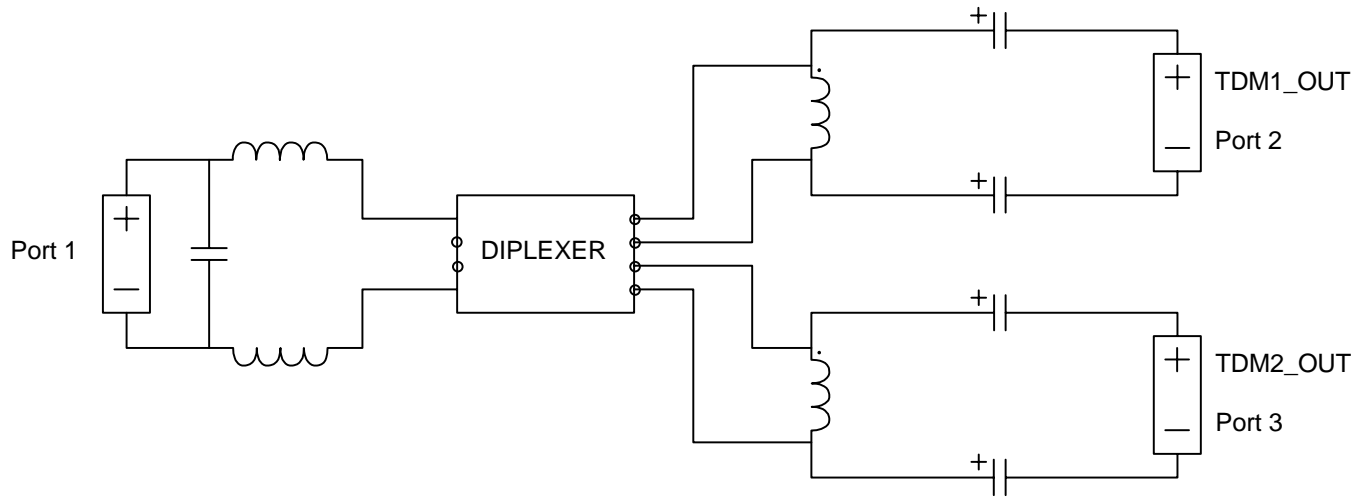
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

### 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  $\Omega$  and measured with 50  $\Omega$  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. "LRIP" or "L" after the part number indicates "low rate initial production" and "ENG" or "E" indicates "engineering prototypes."
5. The design, manufacturing process, and specifications of this filter are subject to change.
6. Tape and Reel Standard ANSI / EIA 481.
7. 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.
8. US and international patents may apply.
9. RFM, stylized RFM logo, and RF Monolithics, Inc. are registered trademarks of RF Monolithics, Inc.

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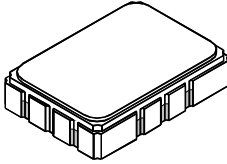
## Matching Circuit:



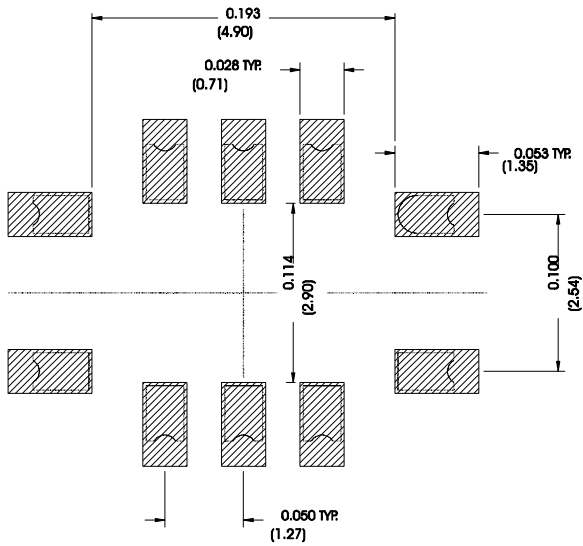
# SMP-03 Case

## 10-Terminal Ceramic Surface-Mount Case

### 7 x 5 mm Nominal Footprint



Recommended PCB Footprint



Case Dimensions

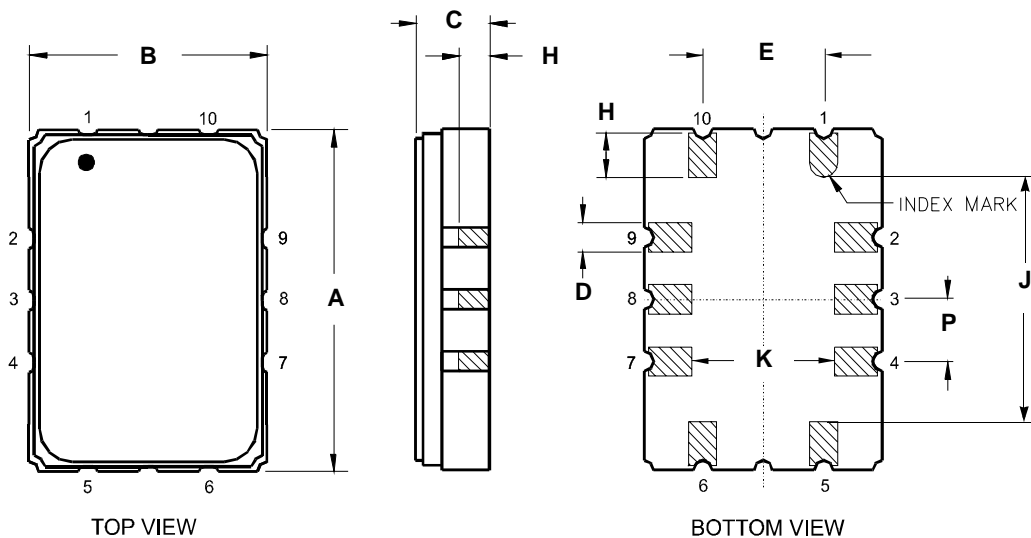
Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	6.80	7.00	7.20	0.268	0.276	0.283
B	4.80	5.00	5.20	0.189	0.197	0.205
C		1.65	2.00		0.065	0.079
D	.47	0.60	.73	0.019	0.024	0.029
E	2.41	2.54	2.67	0.095	0.100	0.105
H	0.87	1.0	1.13	0.034	0.039	0.044
J	4.87	5.00	5.13	0.192	0.197	0.202
K	2.87	3.00	3.13	0.113	0.118	0.123
P	1.14	1.27	1.40	0.045	0.050	0.055

Electrical Connections

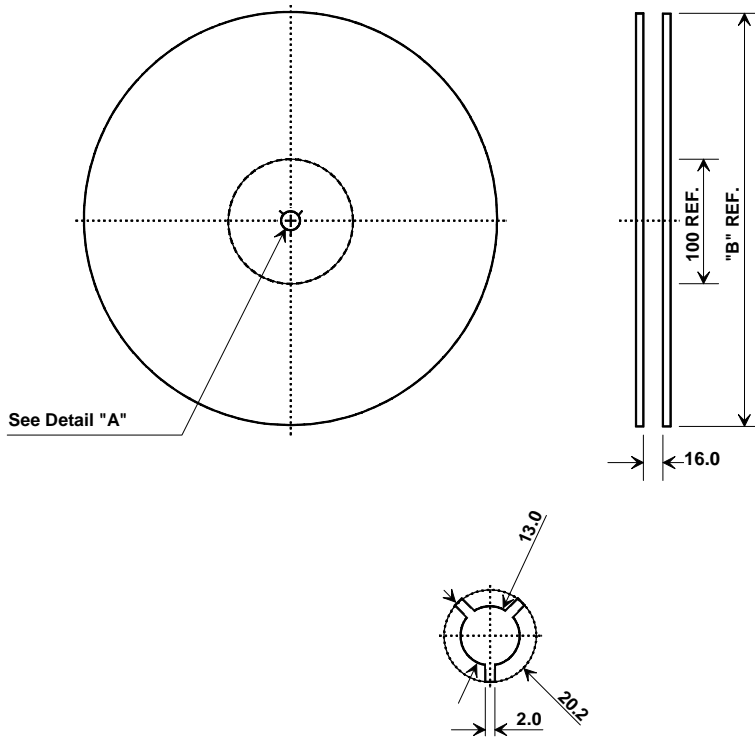
Connection		Terminals
Port 1	Input	1
	Input	10
Port 2	Output TDM1	6
	Output TDM1	7
Port 3	Output TDM2	4
	Output TDM2	5
Ground		All others

Materials

Solder Pad Plating	0.3 to 1.0 $\mu\text{m}$ Gold over 1.27 to 8.89 $\mu\text{m}$ Nickel
Lid Plating	2.0 to 3.0 $\mu\text{m}$ Nickel
Body	$\text{Al}_2\text{O}_3$ Ceramic
Pb Free	



## Tape and Reel Specifications



"B"		Quantity Per Reel
Inches	millimeters	
7	178	500
13	330	2000

## COMPONENT ORIENTATION and DIMENSIONS

Carrier Tape Dimensions	
<b>Ao</b>	5.5 mm
<b>Bo</b>	7.5 mm
<b>Ko</b>	2.0 mm
<b>Pitch</b>	8.0 mm
<b>W</b>	16.0 mm

