
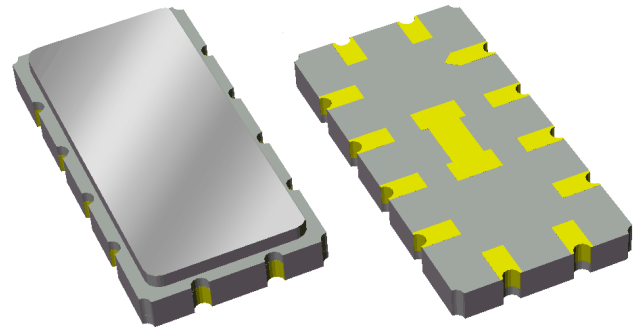


**Data Sheet**

**Features**

- For 3 Carrier WCDMA applications
- Usable bandwidth 15 MHz
- Low loss
- High attenuation
- Designed to minimize EVM
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free 

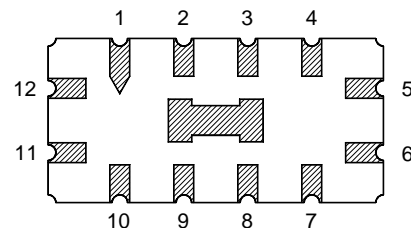
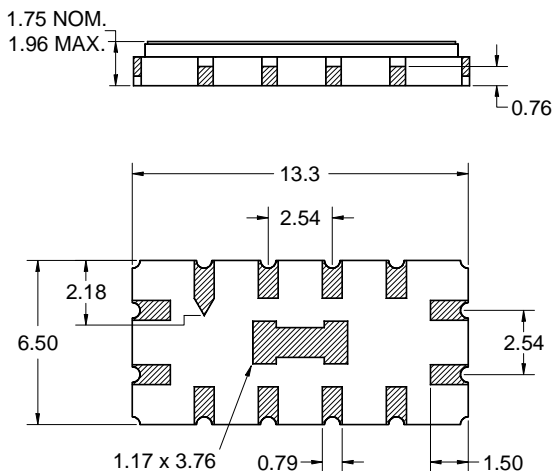


**Package**

Surface Mount 13.30 x 6.50 x 1.75 mm  
SMP-53A

**Pin Configuration**

Bottom View



Pin No.	Description
5	Output
11	Input
1,2,3,4,6	Case ground
7,8,9,10,12	Case ground

Dimensions shown are nominal in millimeters  
All tolerances are  $\pm 0.15$ mm except overall  
length and width  $\pm 0.10$ mm

Body:  $Al_2O_3$  ceramic  
Lid: Kovar, Ni plated  
Terminations: Au plating 0.5 - 1.0 $\mu$ m,  
over a 2 - 6 $\mu$ m Ni plating

**Data Sheet**

**Electrical Specifications <sup>(1)</sup>**

Operating Temperature Range <sup>(2)</sup> -40 to +85 °C

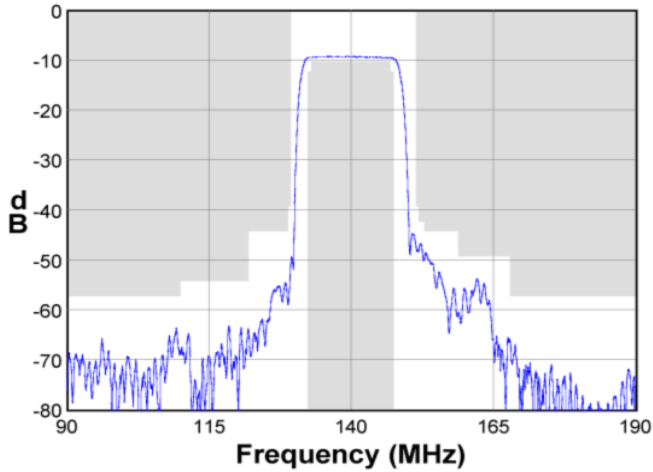
Parameter <sup>(3)</sup>	Minimum	Typical <sup>(4)</sup>	Maximum	Unit
<b>Center Frequency</b>	-	140	-	MHz
<b>Insertion Loss at 140 MHz</b>	-	9.1	10.5	dB
<b>Lower 1 dB Bandedge <sup>(5)</sup></b>	-	131.91	133	MHz
<b>Upper 1 dB Bandedge</b>	147	148.09	-	MHz
<b>Lower 3 dB Bandedge <sup>(5)</sup></b>	-	131.40	132.50	MHz
<b>Upper 3 dB Bandedge</b>	147.5	148.65	-	MHz
<b>Lower 30 dB Bandedge <sup>(5)</sup></b>	129.5	130.15	-	MHz
<b>Upper 30 dB Bandedge</b>	-	150.19	151.5	MHz
<b>Lower 35 dB Bandedge <sup>(5)</sup></b>	129	130.06	-	MHz
<b>Upper 35 dB Bandedge</b>	-	150.30	153	MHz
<b>35 dB Bandwidth</b>	-	20.26	22	MHz
<b>Amplitude Ripple <sup>(6)</sup></b> 135.5 – 144.5 MHz	-	0.24	0.7	dB p-p
<b>Absolute Group Delay</b> 133.0 – 147.0 MHz	-	0.89	1.1	µs
<b>Group Delay Variation</b> 133.0 – 147.0 MHz	-	44	90	ns
<b>Phase Linearity</b> 133.0 – 147.0 MHz	-	3.97	8.0	deg
<b>EVM (Error Vector Magnitude)</b> 133.0 – 147.0 MHz	-	1.69	-	%
<b>Input and Output VSWR</b> 133.0 – 147.0 MHz	-	1.61	2.5	dB
<b>Relative Attenuation <sup>(5)</sup></b> 40.0 – 110.0 MHz	48	55	-	dB
110.0 – 122.0 MHz	45	53	-	dB
122.0 – 129.0 MHz	35	45	-	dB
152.0 – 159.0 MHz	33	37	-	dB
159.0 – 168.0 MHz	40	44	-	dB
168.0 – 240.0 MHz	48	55	-	dB
<b>Source Impedance <sup>(7)</sup></b>	-	50 Ω	-	Ω
<b>Load Impedance <sup>(7)</sup></b>	-	50 Ω	-	Ω
<b>Power Handling</b>	-	-	+10	dBm

**Notes:**

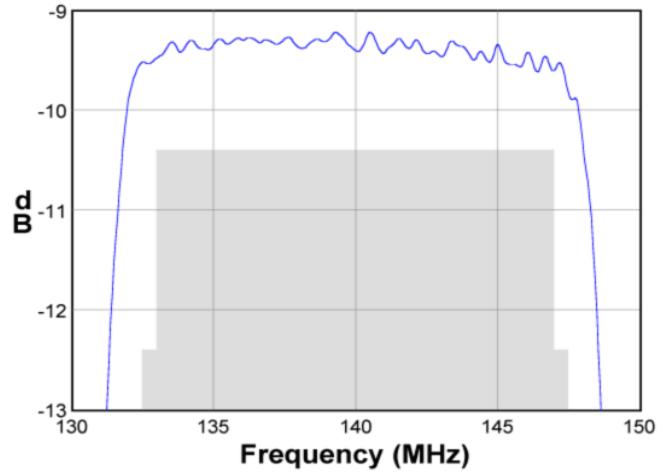
1. All specifications are based on TriQuint test circuit shown on page 4
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
3. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
4. Typical values are based on average measurements at room temperature
5. All Attenuation measurements are referenced to loss at Center Frequency
6. Amplitude Ripple is defined as the worse peak to adjacent valley within defined frequency points
7. This is the optimum impedance in order to achieve the performance shown

**Typical Performance (at room temperature)**

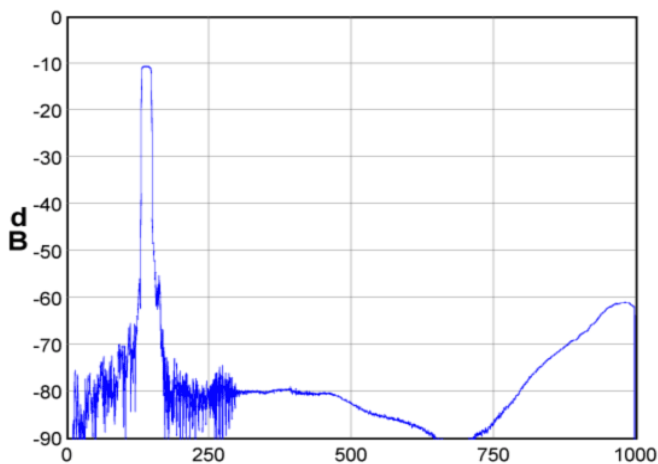
**Frequency Response**



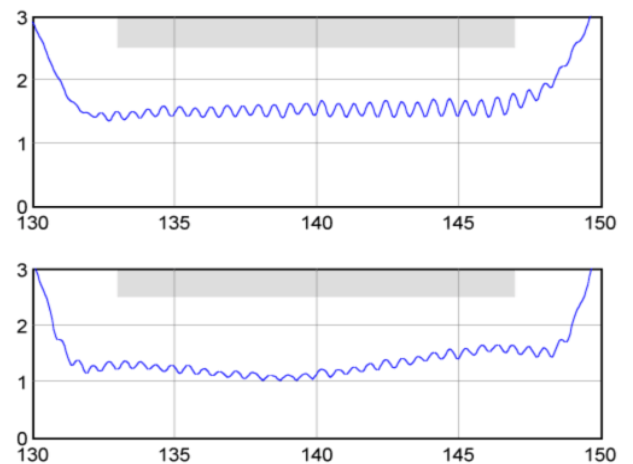
**Passband Response**



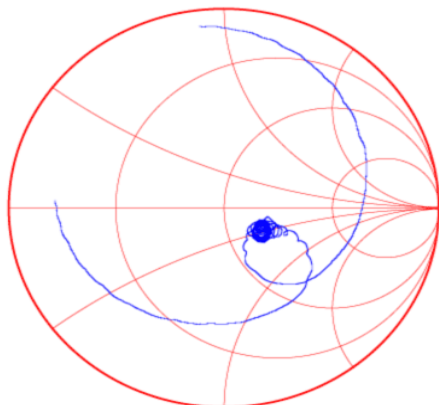
**Wideband Response**



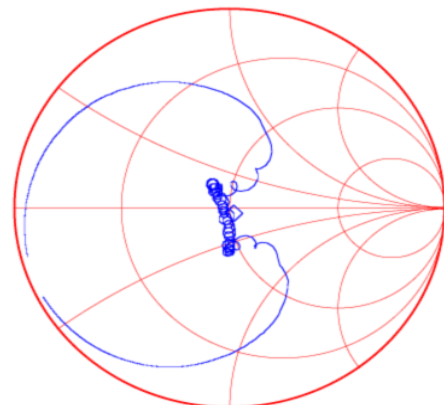
**Input/Output VSWR**



**Input Smith Chart**

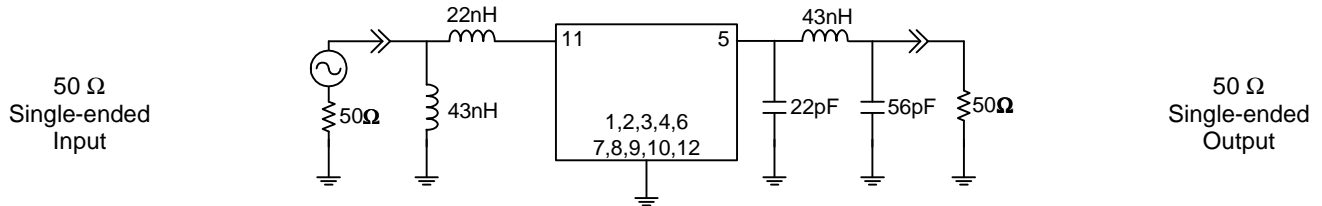


**Output Smith Chart**

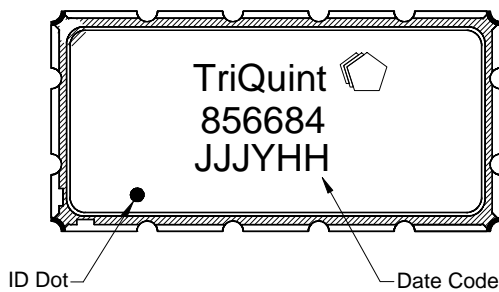


**Matching Schematics**

Actual matching values may vary due to PCB layout and parasitics

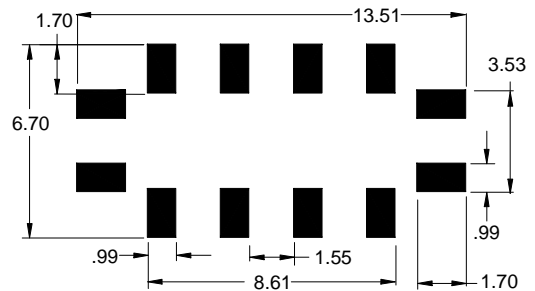


**Marking**



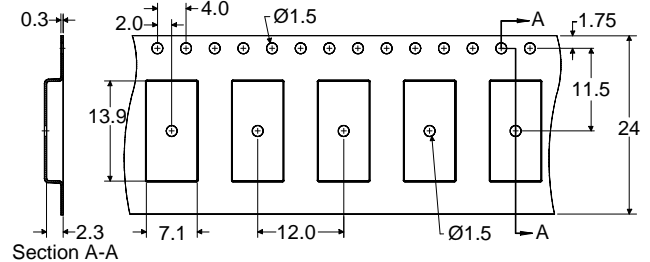
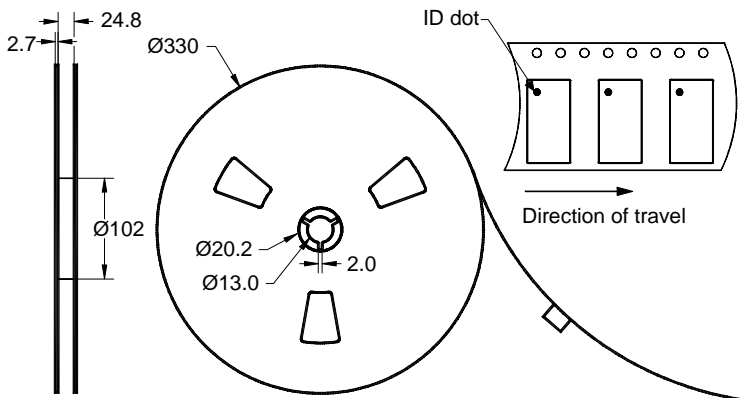
The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (2 digits)

**PCB Footprint**



This footprint represents a recommendation only  
Dimensions shown are nominal in millimeters

**Tape and Reel**



Dimensions shown are nominal in millimeters  
Packaging quantity: 2000 units/reel


**Data Sheet**

**Maximum Ratings**


Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-40	+85	°C
Storage Temperature Range	T <sub>stg</sub>	-40	+85	°C

**Important Notes**

**Warnings**

- Electrostatic Sensitive Device (ESD) 
- Avoid ultrasonic exposure

**RoHS Compliance**

- This product complies with EU directive 2002/95/EC (RoHS) 

**Solderability**

- Compatible with JESD22-B102, Pb-free process, 260C peak reflow temperature ([see soldering profile](#))

**Links to Additional Technical Information**

[PCB Layout Tips](#)

[Qualification Flowchart](#)

[Soldering Profile](#)

[S-Parameters](#)

[RoHS Information](#)

[Other Technical Information](#)

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