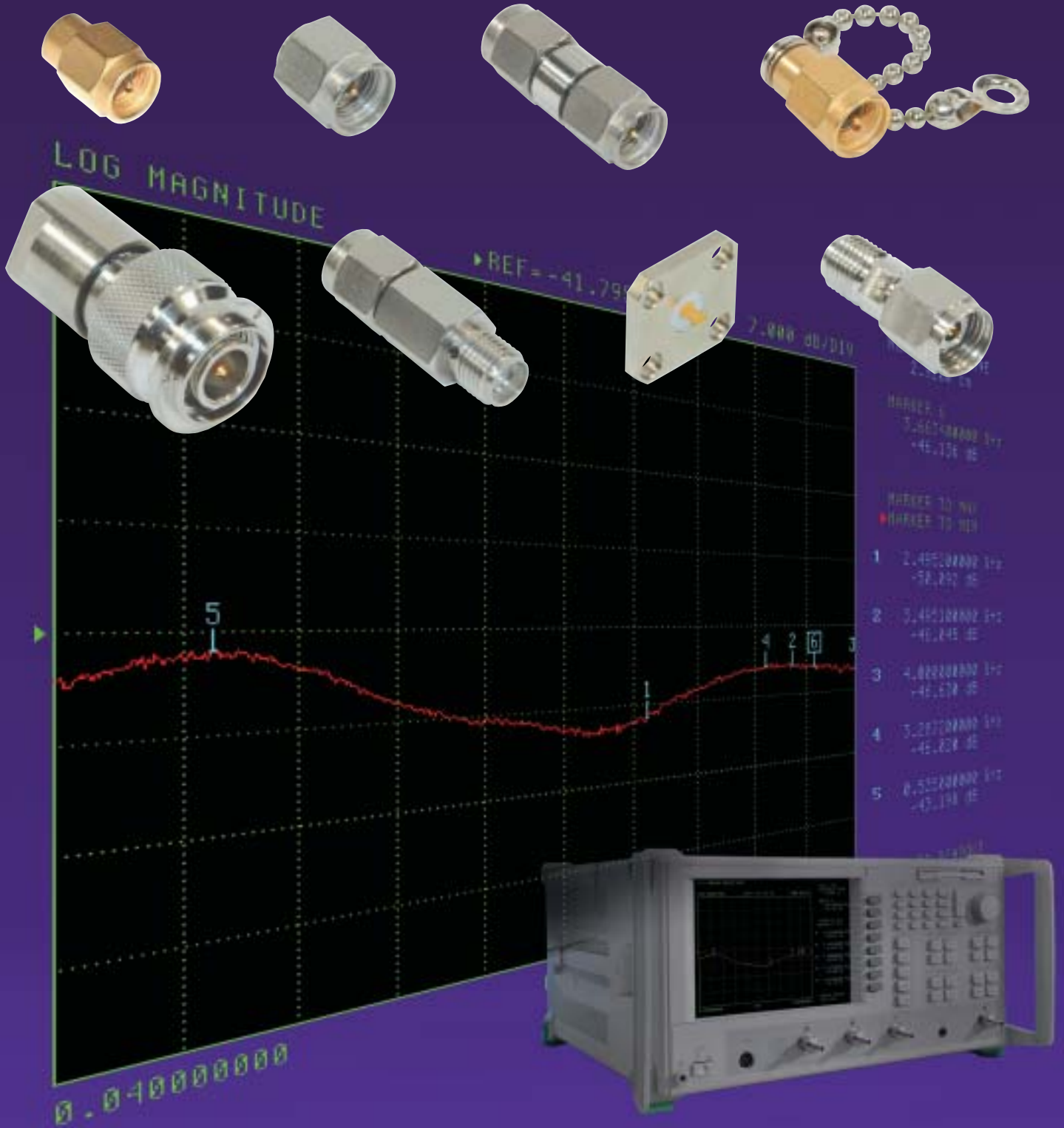


# SV MICROWAVE<sup>®</sup>

## Resistive Components



# RESISTIVE COMPONENTS

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*Dimension Note:* Throughout this catalog, dimensions are given in decimal inches.  
Millimeter conversion are given in parenthesis for reference only.

# ATTENUATORS – FIXED COAXIAL

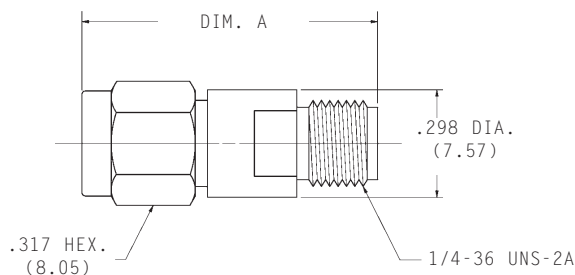
SV Microwave manufactures a complete line of standard and custom-designed attenuators, including QPL and Hi-Rel versions. A variety of connector configurations are available, including: SMA, SVK 2.92mm, 2.4mm, Blindmate, ZMA, SMB, SMC, SSMA, BNC, TNC and Type N, and provide direct replacements for other manufacturers. Low-power chip attenuators are also available in standard and innovative custom designs.

## Features

- Nominal Impedance: 50 Ohms
- Connector interfaces are in accordance with MIL-PRF-39012.
- Attenuators meet requirements of MIL-A-3933
- Environmental standards per MIL-STD-202

## SMA Subminiature • High Performance • 2 Watts • DC – 18 GHz

- 2 Watts @ +25°C derated linearly to 0.5 Watt @ +125°C (500 Watts peak power)
- Available in 0.5 dB increments from 1 to 10 dB
- Available in 1 dB increments from 11 to 20 dB
- 50 dB and 60 dB attenuation values available
- Plug-to-plug and jack-to-jack also available



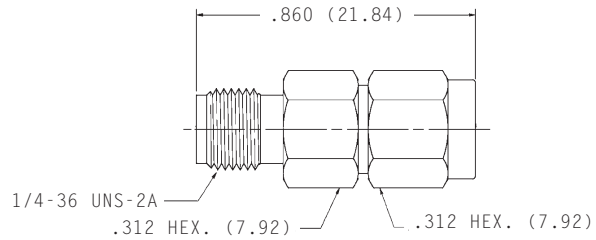
Part Number	dB Value	Attenuation Accuracy	VSWR				DM. A Inch (mm)
			DC – 4	4 – 8	8 – 12.4	12.4 – 18	
<b>SF0929-6200-03</b>	3	±0.3 dB	1.15:1 max.	1.20:1 max.	1.25:1 max.	1.35:1 max.	.86 (21.8)
<b>SF0929-6200-06</b>	6	±0.3 dB					
<b>SF0929-6200-10</b>	10	±0.5 dB					
<b>SF0929-6200-20</b>	20	±0.7 dB	1.15:1 max.	1.20:1 max.	1.25:1 max.	1.35:1 max.	.99 (25.1)
<b>SF0929-6200-30</b>	30	±1.0 dB					
<b>SF0929-6200-40</b>	40	±1.0 dB					

Finish: Passivated stainless steel body and connectors.

# ATTENUATORS – FIXED COAXIAL

## SMA Subminiature • 2 Watts • DC – 18 GHz

- 2 Watts @ +25°C derated linearly to 0.5 Watt @ +125°C (100 Watts peak power)
- Additional attenuation values available
- Plug-to-plug and jack-to-jack also available

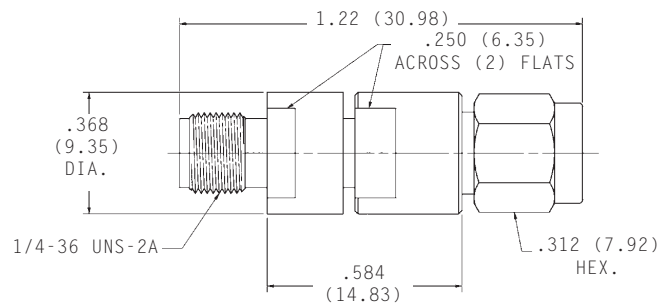


Part Number	dB Value	Attenuation Accuracy	VSWR		
			DC – 4	4 – 12.4	12.4 – 18
<b>SF0929-6299-03</b>	3	± 0.50 dB	1.15:1 max.	1.25:1 max.	1.50:1 max.
<b>SF0929-6299-06</b>	6	± 0.75 dB			
<b>SF0929-6299-10</b>	10	± 0.75 dB			
<b>SF0929-6299-20</b>	20	± 1.00 dB			

Finish: Passivated stainless steel body and connectors.

## SMA Miniature • 2 Watts • DC – 18 GHz

- 2 Watts @ +25°C derated linearly to 0.5 Watt @ +125°C (200 Watts peak power)
- Available in 0.5 dB increments from 0.5 to 10 dB
- Available in 1 dB increments from 10 to 20 dB
- Plug-to-plug and jack-to-jack also available



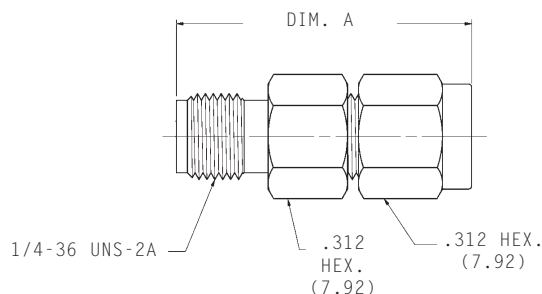
Part Number	dB Value	Attenuation Accuracy	VSWR			
			DC – 4	4 – 8	8 – 12.4	12.4 – 18
<b>SF0930-6200-03</b>	3	± 0.3 dB	1.15:1 max.	1.20:1 max.	1.25:1 max.	1.35:1 max.
<b>SF0930-6200-06</b>	6	± 0.3 dB				
<b>SF0930-6200-10</b>	10	± 0.5 dB				
<b>SF0930-6200-20</b>	20	± 0.7 dB				
<b>SF0930-6200-30</b>	30	± 1.0 dB				
<b>SF0930-6200-40</b>	40	± 1.0 dB				

Finish: Passivated stainless steel body and connectors.

# ATTENUATORS – FIXED COAXIAL

## SMA Subminiature • High Performance • 2 Watts • DC – 18 GHz

- 2 Watts @ +25°C derated linearly to 0.5 Watt @ +125°C (500 Watts peak power)
- Additional attenuation values available
- Plug-to-plug and jack-to-jack also available

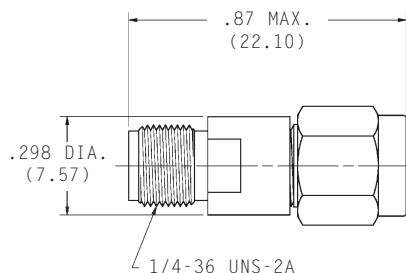


Part Number	dB Value	Attenuation Accuracy	VSWR				DIM. A Inch (mm)
			DC – 4	4 – 8	8 – 12.4	12.4 – 18	
<b>SF0929-6112-03</b>	3	±0.3 dB	1.15:1 max.	1.20:1 max.	1.25:1 max.	1.35:1 max.	.86 (21.8)
<b>SF0929-6112-06</b>	6	±0.3 dB					
<b>SF0929-6112-10</b>	10	±0.5 dB					
<b>SF0929-6112-20</b>	20	±0.6 dB	1.15:1 max.	1.20:1 max.	1.25:1 max.	1.35:1 max.	.99 (25.1)
<b>SF0929-6112-30</b>	30	±1.0 dB					
<b>SF0929-6112-40</b>	40	±1.0 dB					

Finish: Passivated stainless steel body and connectors.

## SVK 2.92mm • 0.5 Watt • DC – 40 GHz

- 0.5 Watts @ +25°C derated linearly to 0.25 Watt @ +125°C (100 Watts peak power)
- Additional attenuation values available
- Plug-to-plug and jack-to-jack also available

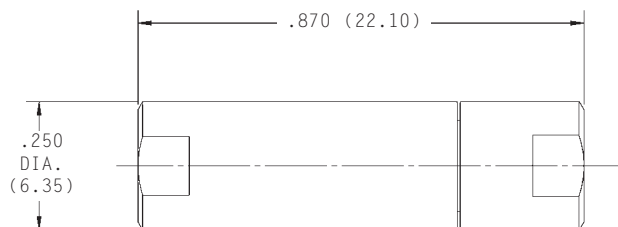


Part Number	dB Value	Attenuation Accuracy		VSWR	
		DC – 26.5	26.5 – 40	DC – 26.5	26.5 – 40
<b>SF0915-6200-03</b>	3	±0.5 dB	±0.8 dB	1.30:1 max.	1.40:1 max.
<b>SF0915-6200-06</b>	6				
<b>SF0915-6200-10</b>	10				
<b>SF0915-6200-20</b>	20	±0.6 dB	±1.0 dB		

Finish: Passivated stainless steel body and connectors.

# ATTENUATORS – FIXED COAXIAL

## SMP Full Detent Male • 0.5 Watt DC – 18 GHz



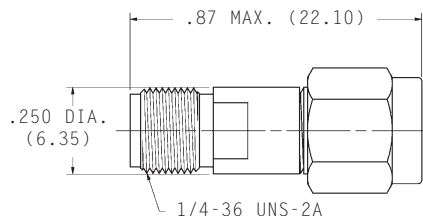
- 0.4 Watt @ +25°C derated linearly to 0.25 Watt @ +125°C (100 Watts peak power)
- Available in 0.5 dB increments from 0.5 to 20 dB
- VSWR: 1.20:1 max. DC – 4 GHz  
1.35:1 max. 4 – 12.4 GHz  
1.50:1 max. 12.4 – 18 GHz

Part Number	dB Value	Attenuation Accuracy
<b>SF0912-6305-03</b>	3	±0.3 dB
<b>SF0912-6305-06</b>	6	±0.3 dB
<b>SF0912-6305-10</b>	10	±0.5 dB
<b>SF0912-6305-20</b>	20	±1.0 dB

Finish: Passivated stainless steel body and sleeves.

## 2.4mm • 0.5 Watt • DC – 50 GHz

- 0.5 Watts @ +25°C derated linearly to 0.25 Watt @ +125°C (100 Watts peak power)
- Additional attenuation values available
- Plug-to-plug and jack-to-jack also available



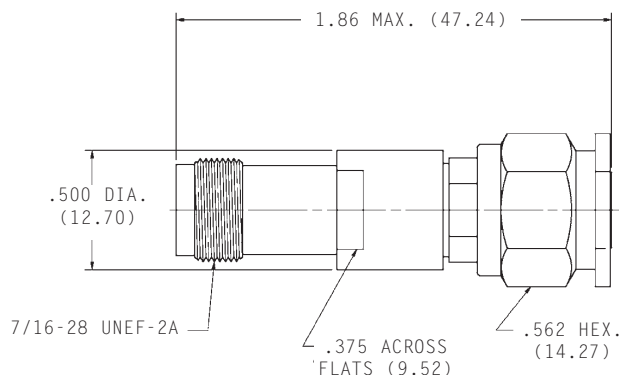
Part Number	dB Value	Attenuation Accuracy			VSWR		
		DC – 26.5	26.5 – 40	40 – 50	DC – 26.5	26.5 – 40	40 – 50
<b>SF0916-6200-03</b>	3	±0.5 dB	±1.0 dB	1.5dB	1.35:1 max.	1.50:1 max.	1.65:1 max.
<b>SF0916-6200-06</b>	6						
<b>SF0916-6200-10</b>	10						
<b>SF0916-6200-20</b>	20	±0.75 dB	±1.25 dB	±2.0 dB			

Finish: Passivated stainless steel body and connectors.

# ATTENUATORS – FIXED COAXIAL

## TNC • 2 Watts • DC – 18GHz

- 2 Watts @ +25°C derated linearly to 0.5 Watt @ +125°C (500 Watts peak power)
- Additional attenuation values available
- Plug-to-plug and jack-to-jack also available

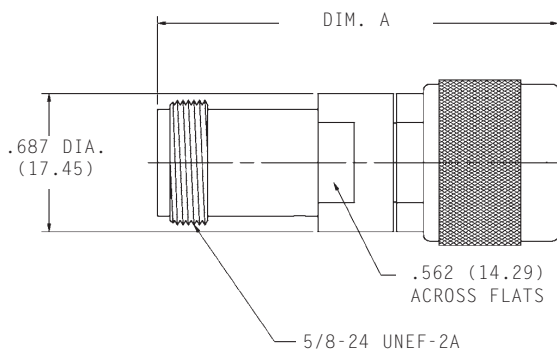


Part Number	dB Value	Attenuation Accuracy	VSWR			
			DC – 4	4 – 8	8 – 12.4	12.4 – 18
<b>SF0945-6200-03</b>	3	±0.3 dB	1.15:1 max.	1.20:1 max.	1.25:1 max.	1.35:1 max.
<b>SF0945-6200-06</b>	6	±0.3 dB				
<b>SF0945-6200-10</b>	10	±0.4 dB				
<b>SF0945-6200-20</b>	20	±0.6 dB				
<b>SF0945-6200-30</b>	30	±1.0 dB				
<b>SF0945-6200-40</b>	40	±1.0 dB				

Finish: Passivated stainless steel body and connectors.

## Type N • 5 Watts • DC – 18 GHz

- 5 Watts @ +25°C derated linearly to 0.5 Watt @ +125°C (500 Watts peak power)
- Additional attenuation values available
- Plug-to-plug and jack-to-jack also available

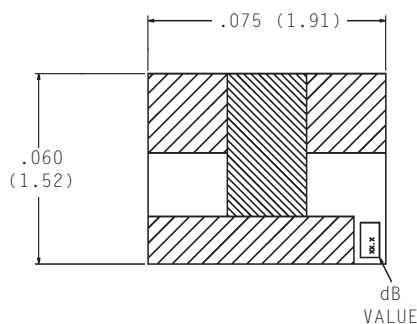


Part Number	dB Value	Attenuation Accuracy	VSWR					DIM .A (mm)
			DC – 2	2 – 4	4 – 8	8 – 12.4	12.4 – 18	
<b>SF0965-6200-03</b>	3	±0.3 dB	1.10:1 max.	1.15:1 max.	1.20:1 max.	1.25:1 max.	1.35:1 max.	2.00 (50.8)
<b>SF0965-6200-06</b>	6	±0.3 dB						
<b>SF0965-6200-10</b>	10	±0.5 dB						
<b>SF0965-6200-20</b>	20	±0.6 dB	1.10:1 max.	1.15:1 max.	1.20:1 max.	1.25:1 max.	1.35:1 max.	2.13 (54.1)
<b>SF0965-6200-30</b>	30	±1.0 dB						
<b>SF0965-6200-40</b>	40	±1.0 dB						

Finish: Passivated stainless steel body and connectors.  
For nickel plated brass, change part number prefix from SF to NK.

# CHIP ATTENUATORS • 100 mW • DC – 18 GHz

- Nominal Impedance: 50 Ohms
- Rated Power Dissipated: 250 mW max. (75°C)
- VSWR: 1.50:1 max.
- 100 mW @ +100°C derated linearly to 0 mW @ +150°C
- Additional attenuation values available
- Reliable RF performance in low-power applications
- Dimensionally optimal for printed circuit boards and circuits where space is at a premium
- Welded lead attachment
- Laser trimmed with dB value laser cut on chip face



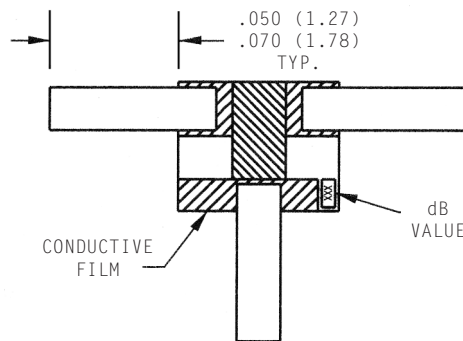
## Single Layer Chip

Part Number*	dB Value
<b>0640-1203</b>	3
<b>0640-1206</b>	6
<b>0640-1210</b>	10
<b>0640-1220</b>	20

\*Add suffix T to part number for solder tinned conductors.

### Materials and Finish

- Substrate: Alumina Nitride
- Resistive Film: Tantalum Nitride
- Conductive Film: Titanium Tungsten, Gold, Nickel, Gold



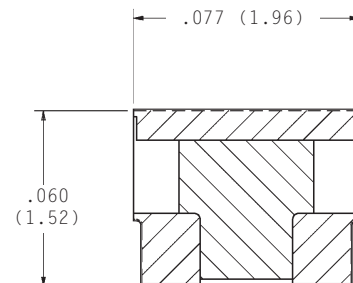
## .003 (.076) Welded Leads

Part Number*	dB Value
<b>0640-1403</b>	3
<b>0640-1406</b>	6
<b>0640-1410</b>	10
<b>0640-1420</b>	20

\*Add suffix T to part number for solder tinned conductors.

### Materials and Finish

- Terminals: Gold Plated Beryllium Copper
- Substrate: Alumina Nitride
- Resistive Film: Tantalum Nitride
- Conductive Film: Titanium Tungsten, Gold, Nickel, Gold



## Edge Metallization Chip

Part Number*	dB Value
<b>0640-1503</b>	3
<b>0640-1506</b>	6
<b>0640-1510</b>	10
<b>0640-1520</b>	20

\*Add suffix T to part number for solder tinned conductors.

### Materials and Finish

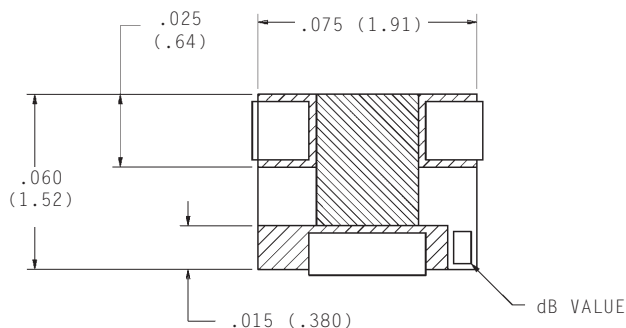
- Substrate: Alumina Nitride
- Resistive Film: Tantalum Nitride
- Terminal Pads: Tantalum, Copper, Nickel, Gold

dB Value	Attenuation Accuracy (dB)			
	DC – 4	4 – 8	8 – 12.4	12.4 – 18
3	±0.50	±0.50	±0.50	±0.50
6	±0.50	±0.50	±0.50	±0.75
10	±0.50	±0.50	±0.75	±1.00
20	±1.00	+0.50 -4.00	+1.00 -7.00	-



# CHIP ATTENUATORS

- Nominal Impedance: 50 Ohms
- VSWR: 1.50:1 max.
- Additional attenuation values available
- Reliable RF performance in low-power applications
- Dimensionally optimal for printed circuit boards and circuits where space is at a premium
- Welded lead attachment
- Laser trimmed with dB value laser cut on chip face



## .015 (.38) Thick Substrate DC – 18 GHz

Part Number*	dB Value
<b>0640-1603</b>	3
<b>0640-1606</b>	6
<b>0640-1610</b>	10
<b>0640-1620</b>	20

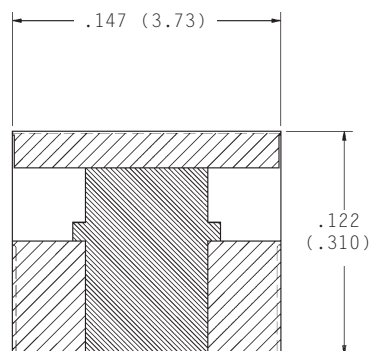
\*Add suffix T to part number for solder tinned conductors.

Average Power: +100 mW @ +100°C derated linearly to 0 Watts @ +150°C

### Materials and Finish

- Substrate: Alumina Nitride
- Resistive Film: Tantalum Nitride
- Terminal Pads: Tantalum, Copper, Nickel, Gold

dB Value	Attenuation Accuracy (dB)			
	DC – 4	4 – 8	8 – 12.4	12.4 – 18
3	±0.50	±0.50	±0.50	±0.50
6	±0.50	±0.50	±0.50	±0.75
10	±0.50	±0.50	±0.75	±1.00
20	±1.00	+0.50 -4.00	+1.00 -7.00	-



## .020 (.51) Thick Substrate DC – 12.4 GHz

Part Number*	dB Value
<b>0640-1803</b>	3
<b>0640-1806</b>	6
<b>0640-1810</b>	10
<b>0640-1820</b>	20

\*Add suffix T to part number for solder tinned conductors.

Average Power: +0.5 Watts @ +25°C derated linearly to 0 Watts @ +150°C

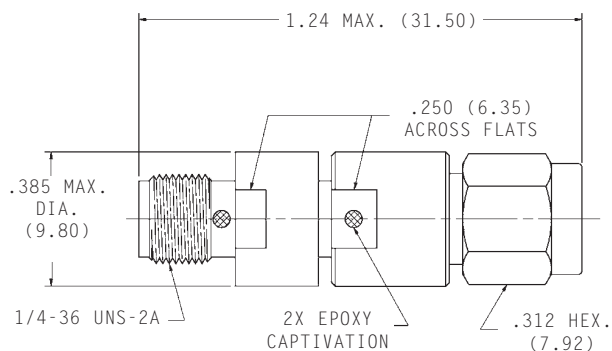
### Materials and Finish

- Substrate: Alumina Nitride
- Resistive Film: Tantalum Nitride
- Terminal Pads: Tantalum, Copper, Nickel, Gold

dB Value	Attenuation Accuracy (dB)		
	DC – 4	4 – 8	8 – 12.4
3	±0.50	±0.50	±0.50
6	±0.50	±0.50	±0.50
10	±0.50	±0.50	±0.75
20	±1.00	+0.50 -4.00	+1.00 -7.00

# QPL ATTENUATORS

## SMA Miniature



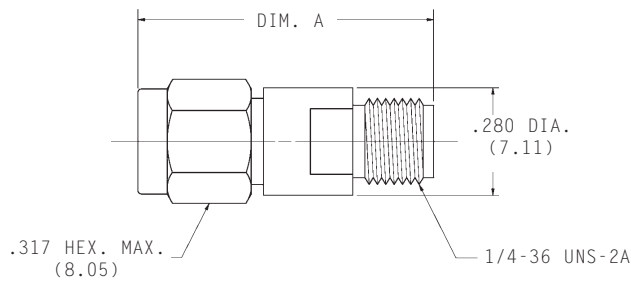
Part Number*	dB Value	Frequency Range
<b>MIL-A-3933/14-06</b>	1.0	DC – 12.4 GHz
<b>MIL-A-3933/14-23</b>	1.5	DC – 12.4 GHz
<b>MIL-A-3933/14-07</b>	2.0	DC – 12.4 GHz
<b>MIL-A-3933/14-01</b>	3.0	DC – 12.4 GHz
<b>MIL-A-3933/14-08</b>	4.0	DC – 12.4 GHz
<b>MIL-A-3933/14-09</b>	5.0	DC – 12.4 GHz
<b>MIL-A-3933/14-02</b>	6.0	DC – 12.4 GHz
<b>MIL-A-3933/14-10</b>	7.0	DC – 12.4 GHz
<b>MIL-A-3933/14-11</b>	8.0	DC – 12.4 GHz
<b>MIL-A-3933/14-12</b>	9.0	DC – 12.4 GHz
<b>MIL-A-3933/14-03</b>	10.0	DC – 12.4 GHz
<b>MIL-A-3933/14-22</b>	11.0	DC – 12.4 GHz
<b>MIL-A-3933/14-21</b>	12.0	DC – 12.4 GHz
<b>MIL-A-3933/14-20</b>	13.0	DC – 12.4 GHz
<b>MIL-A-3933/14-19</b>	14.0	DC – 12.4 GHz
<b>MIL-A-3933/14-05</b>	15.0	DC – 12.4 GHz
<b>MIL-A-3933/14-18</b>	16.0	DC – 12.4 GHz
<b>MIL-A-3933/14-04</b>	20.0	DC – 12.4 GHz

Part Number*	dB Value	Frequency Range
<b>MIL-A-3933/16-16</b>	0.0	DC – 18 GHz
<b>MIL-A-3933/16-17</b>	0.5	DC – 18 GHz
<b>MIL-A-3933/16-05</b>	1.0	DC – 18 GHz
<b>MIL-A-3933/16-18</b>	1.5	DC – 18 GHz
<b>MIL-A-3933/16-06</b>	2.0	DC – 18 GHz
<b>MIL-A-3933/16-19</b>	2.5	DC – 18 GHz
<b>MIL-A-3933/16-01</b>	3.0	DC – 18 GHz
<b>MIL-A-3933/16-20</b>	3.5	DC – 18 GHz
<b>MIL-A-3933/16-07</b>	4.0	DC – 18 GHz

Part Number*	dB Value	Frequency Range
<b>MIL-A-3933/16-21</b>	4.5	DC – 18 GHz
<b>MIL-A-3933/16-08</b>	5.0	DC – 18 GHz
<b>MIL-A-3933/16-22</b>	5.5	DC – 18 GHz
<b>MIL-A-3933/16-02</b>	6.0	DC – 18 GHz
<b>MIL-A-3933/16-23</b>	6.5	DC – 18 GHz
<b>MIL-A-3933/16-09</b>	7.0	DC – 18 GHz
<b>MIL-A-3933/16-24</b>	7.5	DC – 18 GHz
<b>MIL-A-3933/16-10</b>	8.0	DC – 18 GHz
<b>MIL-A-3933/16-25</b>	8.5	DC – 18 GHz
<b>MIL-A-3933/16-11</b>	9.0	DC – 18 GHz
<b>MIL-A-3933/16-26</b>	9.5	DC – 18 GHz
<b>MIL-A-3933/16-03</b>	10.0	DC – 18 GHz
<b>MIL-A-3933/16-27</b>	10.5	DC – 18 GHz
<b>MIL-A-3933/16-28</b>	11.0	DC – 18 GHz
<b>MIL-A-3933/16-29</b>	11.5	DC – 18 GHz
<b>MIL-A-3933/16-30</b>	12.0	DC – 18 GHz
<b>MIL-A-3933/16-31</b>	12.5	DC – 18 GHz
<b>MIL-A-3933/16-32</b>	13.0	DC – 18 GHz
<b>MIL-A-3933/16-33</b>	13.5	DC – 18 GHz
<b>MIL-A-3933/16-34</b>	14.0	DC – 18 GHz
<b>MIL-A-3933/16-35</b>	14.5	DC – 18 GHz
<b>MIL-A-3933/16-36</b>	15.0	DC – 18 GHz
<b>MIL-A-3933/16-37</b>	15.5	DC – 18 GHz
<b>MIL-A-3933/16-38</b>	16.0	DC – 18 GHz
<b>MIL-A-3933/16-39</b>	16.5	DC – 18 GHz
<b>MIL-A-3933/16-40</b>	17.0	DC – 18 GHz
<b>MIL-A-3933/16-41</b>	17.5	DC – 18 GHz
<b>MIL-A-3933/16-42</b>	18.0	DC – 18 GHz
<b>MIL-A-3933/16-43</b>	18.5	DC – 18 GHz
<b>MIL-A-3933/16-44</b>	19.0	DC – 18 GHz
<b>MIL-A-3933/16-45</b>	19.5	DC – 18 GHz
<b>MIL-A-3933/16-04</b>	20.0	DC – 18 GHz

\* Add the suffix "N" or "S" to the part number to indicate Non-Screened or Screened units.

## SMA Subminiature



Part Number*	dB Value	Frequency Range (GHz)	DIM. A (mm) Max.
MIL-A-3933/25-58	0.0	DC – 18	.87 (22.1)
MIL-A-3933/25-59	0.5	DC – 18	.87 (22.1)
MIL-A-3933/25-1	1.0	DC – 2	.87 (22.1)
MIL-A-3933/25-27	1.0	DC – 12.4	.87 (22.1)
MIL-A-3933/25-60	1.0	DC – 18	.87 (22.1)
MIL-A-3933/25-61	1.5	DC – 18	.87 (22.1)
MIL-A-3933/25-2	2.0	DC – 2	.87 (22.1)
MIL-A-3933/25-28	2.0	DC – 12.4	.87 (22.1)
MIL-A-3933/25-62	2.0	DC – 18	.87 (22.1)
MIL-A-3933/25-63	2.5	DC – 18	.87 (22.1)
MIL-A-3933/25-3	3.0	DC – 2	.87 (22.1)
MIL-A-3933/25-29	3.0	DC – 12.4	.87 (22.1)
MIL-A-3933/25-64	3.0	DC – 18	.87 (22.1)
MIL-A-3933/25-65	3.5	DC – 18	.87 (22.1)
MIL-A-3933/25-4	4.0	DC – 2	.87 (22.1)
MIL-A-3933/25-30	4.0	DC – 12.4	.87 (22.1)
MIL-A-3933/25-66	4.0	DC – 18	.87 (22.1)
MIL-A-3933/25-67	4.5	DC – 18	.87 (22.1)
MIL-A-3933/25-5	5.0	DC – 2	.87 (22.1)
MIL-A-3933/25-31	5.0	DC – 12.4	.87 (22.1)
MIL-A-3933/25-68	5.0	DC – 18	.87 (22.1)
MIL-A-3933/25-69	5.5	DC – 18	.87 (22.1)
MIL-A-3933/25-6	6.0	DC – 2	.87 (22.1)
MIL-A-3933/25-32	6.0	DC – 12.4	.87 (22.1)
MIL-A-3933/25-70	6.0	DC – 18	.87 (22.1)
MIL-A-3933/25-71	6.5	DC – 18	.87 (22.1)
MIL-A-3933/25-7	7.0	DC – 2	.87 (22.1)
MIL-A-3933/25-33	7.0	DC – 12.4	.87 (22.1)
MIL-A-3933/25-72	7.0	DC – 18	.87 (22.1)
MIL-A-3933/25-73	7.5	DC – 18	.87 (22.1)
MIL-A-3933/25-8	8.0	DC – 2	.87 (22.1)
MIL-A-3933/25-34	8.0	DC – 12.4	.87 (22.1)

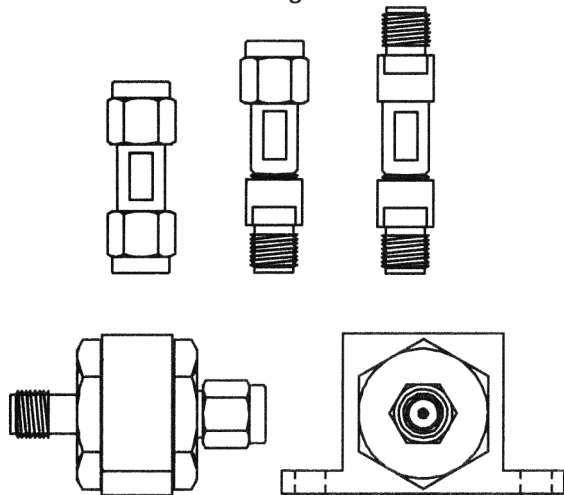
Part Number*	dB Value	Frequency Range (GHz)	DIM. A (mm) Max.
MIL-A-3933/25-74	8.0	DC – 18	.87 (22.1)
MIL-A-3933/25-75	8.5	DC – 18	.87 (22.1)
MIL-A-3933/25-9	9.0	DC – 2	.87 (22.1)
MIL-A-3933/25-35	9.0	DC – 12.4	.87 (22.1)
MIL-A-3933/25-76	9.0	DC – 18	.87 (22.1)
MIL-A-3933/25-77	9.5	DC – 18	.87 (22.1)
MIL-A-3933/25-10	10.0	DC – 2	.87 (22.1)
MIL-A-3933/25-36	10.0	DC – 12.4	.87 (22.1)
MIL-A-3933/25-78	10.0	DC – 18	.87 (22.1)
MIL-A-3933/25-11	11.0	DC – 2	.87 (22.1)
MIL-A-3933/25-37	11.0	DC – 12.4	.87 (22.1)
MIL-A-3933/25-79	11.0	DC – 18	.87 (22.1)
MIL-A-3933/25-12	12.0	DC – 2	.87 (22.1)
MIL-A-3933/25-38	12.0	DC – 12.4	.87 (22.1)
MIL-A-3933/25-80	12.0	DC – 18	.87 (22.1)
MIL-A-3933/25-13	13.0	DC – 2	1.03 (26.2)
MIL-A-3933/25-39	13.0	DC – 12.4	.94 (23.9)
MIL-A-3933/25-81	13.0	DC – 18	.94 (23.9)
MIL-A-3933/25-14	14.0	DC – 2	1.03 (26.2)
MIL-A-3933/25-40	14.0	DC – 12.4	.94 (23.9)
MIL-A-3933/25-82	14.0	DC – 18	.94 (23.9)
MIL-A-3933/25-15	15.0	DC – 2	1.03 (26.2)
MIL-A-3933/25-41	15.0	DC – 12.4	.94 (23.9)
MIL-A-3933/25-83	15.0	DC – 18	1.04 (26.4)
MIL-A-3933/25-16	16.0	DC – 2	1.03 (26.2)
MIL-A-3933/25-42	16.0	DC – 12.4	.94 (23.9)
MIL-A-3933/25-84	16.0	DC – 18	1.04 (26.4)
MIL-A-3933/25-17	17.0	DC – 2	1.03 (26.2)
MIL-A-3933/25-43	17.0	DC – 12.4	.94 (23.9)
MIL-A-3933/25-85	17.0	DC – 18	1.04 (26.4)
MIL-A-3933/25-18	18.0	DC – 2	1.03 (26.2)
MIL-A-3933/25-44	18.0	DC – 12.4	.94 (23.9)
MIL-A-3933/25-86	18.0	DC – 18	1.04 (26.4)
MIL-A-3933/25-19	19.0	DC – 2	1.03 (26.2)
MIL-A-3933/25-45	19.0	DC – 12.4	.94 (23.9)
MIL-A-3933/25-87	19.0	DC – 18	1.04 (26.4)
MIL-A-3933/25-20	20.0	DC – 2	1.03 (26.2)
MIL-A-3933/25-46	20.0	DC – 12.4	1.04 (26.4)
MIL-A-3933/25-88	20.0	DC – 18	1.04 (26.4)

\* Add the suffix "N" or "S" to the part number to indicate Non-Screened or Screened units.

## Custom Attenuators

SV Microwave has completed hundreds of custom attenuator designs. Below are a few of our custom configurations. Contact us today with your requirements.

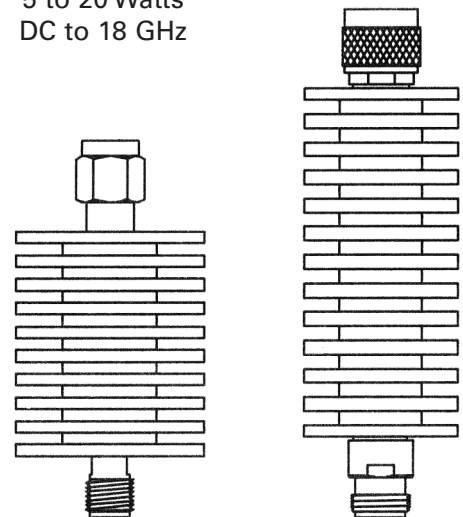
SMA • 2 Watts • DC to 18 GHz  
Over 20 different lengths



SMA • 30 Watts • DC to 12 GHz

Type N  
50 Watts

SMA and Type N  
5 to 20 Watts  
DC to 18 GHz



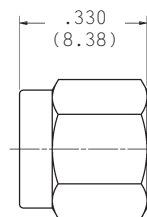
# TERMINATIONS

SV Microwave manufactures a complete line of standard and custom-designed terminations, including QPL and Hi-Rel versions. A variety of connector configurations are available, including: SMA, SVK 2.92mm, 2.4mm, Blindmate, ZMA, SMB, SMC, SSMA, BNC, TNC and Type N, and provide direct replacements for other manufacturers. These products use either rod or chip resistors. Flange mounts are also available, along with high-power versions to 50 watts.

## Features

- Nominal Impedance: 50 Ohms
- Connector interfaces are in accordance with MIL-PRF-39102
- Terminations in accordance with MIL-DTL-39030
- Environmental standards per MIL-STD-202

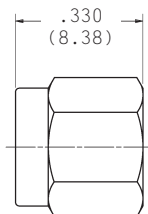
## SMA Plug • Solderless • 1 Watt\*



Part Number	Frequency (GHz)	VSWR Max.
<b>SF8018-6138</b>	DC – 18	1.05 + .01f (f = Freq. in GHz)

Finish: Passivated stainless steel coupling nut. For gold plating, remove the prefix "SF" from the part number.  
\*1 Watt @ +25°C derated linearly to 0.5 Watt @ +125°C (50 Watts peak power).

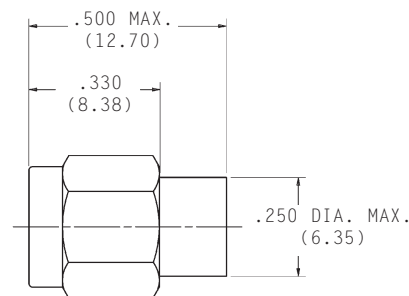
## SMA Plug • 1 Watt\*



Part Number	Frequency (GHz)	VSWR Max.
<b>SF8018-6061</b>	DC – 18	1.10:1
<b>SF8018-6060</b>	DC – 18	1.15:1
<b>SF8018-6057</b>	DC – 18	1.30:1

Finish: Passivated stainless steel coupling nut. For gold plating, remove the prefix "SF" from the part number.  
\*1 Watt @ +25°C derated linearly to 0.5 Watt @ +125°C (50 Watts peak power).

## SMA Plug • 1 Watt\*

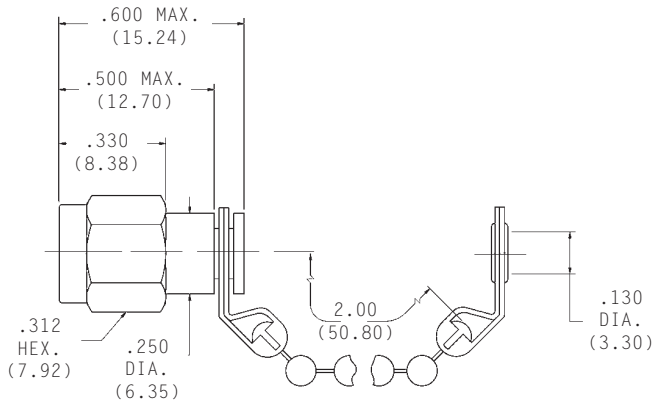


Part Number	Frequency (GHz)	VSWR Max.
<b>SF8018-6005</b>	DC – 18	1.05 + .01f (f = Freq. in GHz)
<b>SF8018-6172</b>	DC – 18	1.20:1

Finish: Passivated stainless steel coupling nut. For gold plating, remove the prefix "SF" from the part number.  
\*1 Watt @ +25°C derated linearly to 0.5 Watt @ +125°C (50 Watts peak power).

# TERMINATIONS

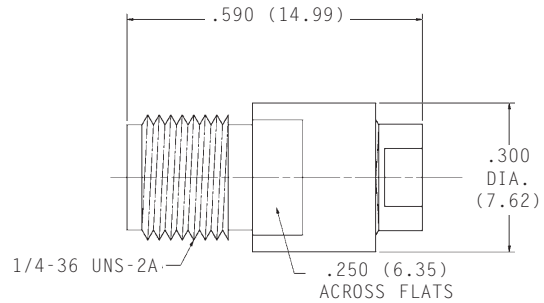
## SMA Plug With Bead Chain • 1 Watt\*



Part Number	Frequency (GHz)	VSWR Max.
<b>SF8018-6174</b>	DC - 18	1.30:1

Finish: Passivated stainless steel coupling nut. For gold plating, remove the prefix "SF" from the part number.  
 \*1 Watts @ +25°C derated linearly to 0.5 Watt @ +125°C (200 Watts peak power).

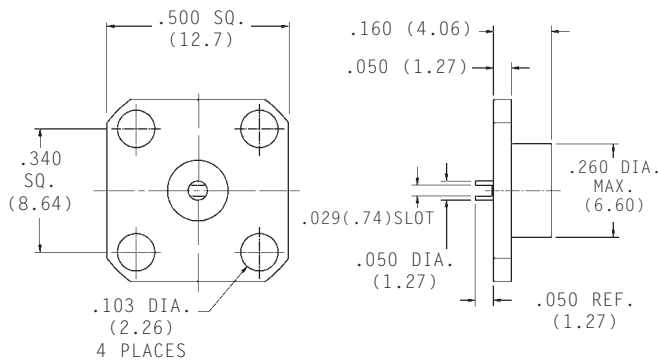
## SMA Jack • 2 Watt\*



Part Number	Frequency (GHz)	VSWR Max.
<b>8021-6100</b>	DC - 18	1.05 + .010f (f = Freq. in GHz)

Finish: Gold plate.  
 \*2 Watts @ +25°C derated linearly to 0.5 Watt @ +125°C (200 Watts peak power).

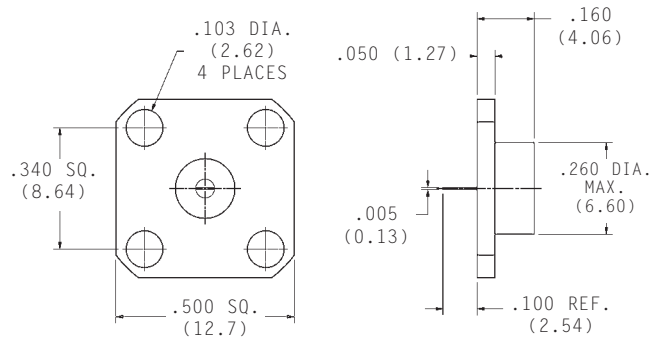
## SMA Flange Mount • 1 Watt\*



Part Number	Frequency (GHz)	VSWR Max.
<b>0229-0101</b>	DC - 18	1.20:1

Finish: Nickel.  
 \* 1 Watt @ +25°C derated linearly to 0.5 Watt @ +125°C (200 Watts peak power).

## SMA Flange Mount • 1 Watt\*

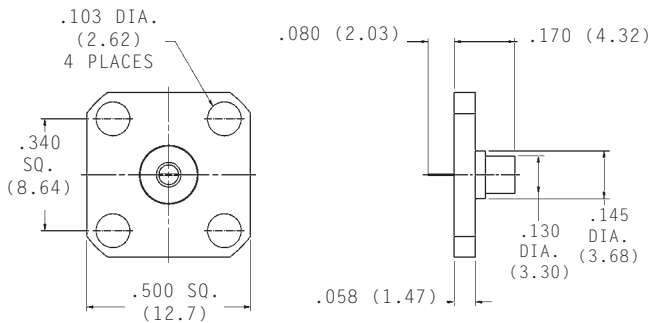


Part Number	Frequency (GHz)	VSWR Max.
<b>0229-0100</b>	DC - 18	1.20:1

Finish: Gold plate.  
 \* 1 Watt @ +25°C derated linearly to 0.5 Watt @ +125°C (200 Watts peak power).

# TERMINATIONS

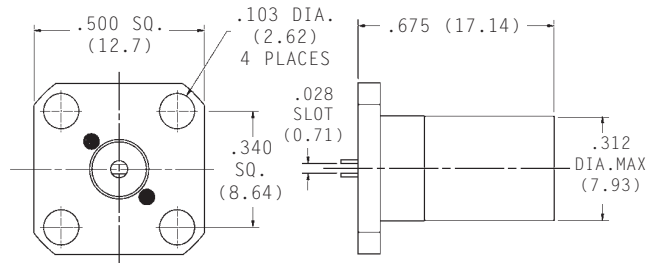
## SMA Flange Mount • 1 Watt\*



Part Number	Frequency (GHz)	VSWR Max.
<b>0229-0133</b>	DC – 18	1.35:1

Finish: Gold plate.  
 \* 1 Watt @ +25°C derated linearly to 0.5 Watt @ +125°C (200 Watts peak power).

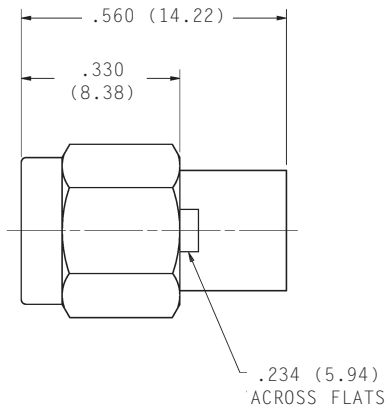
## SMA Flange Mount • 15 Watts\*



Part Number	Frequency (GHz)	VSWR Max.
<b>0229-4119</b>	DC – 5	1.10:1

Finish: Gold plate.  
 \* 15 Watts @ +25°C derated linearly to 0.5 Watt @ +125°C.

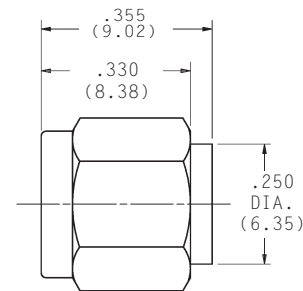
## SVK 2.92mm Plug • 2 Watts\*



Part Number	Frequency (GHz)	VSWR Max.
<b>SF8015-6007</b>	DC – 40	1.25:1

Finish: Passivated stainless steel.  
 \* 2 Watts @ +25°C derated linearly to 0.25 Watt @ +125°C (100 Watts peak power).

## SVK 2.92mm Plug • 2 Watts\*

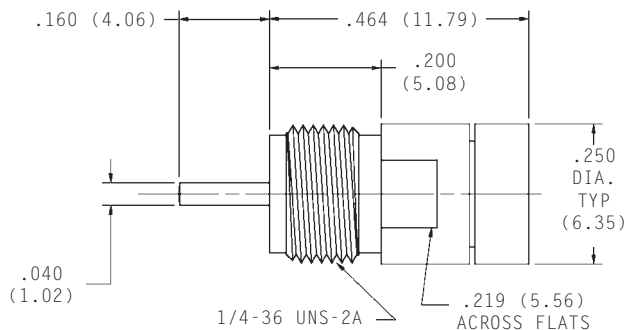


Part Number	Frequency (GHz)	VSWR Max.
<b>SF8015-6002</b>	DC – 40	1.25:1

Finish: Passivated stainless steel.  
 \* 2 Watts @ +25°C derated linearly to 0.25 Watt @ +125°C (100 Watts peak power).

# TERMINATIONS

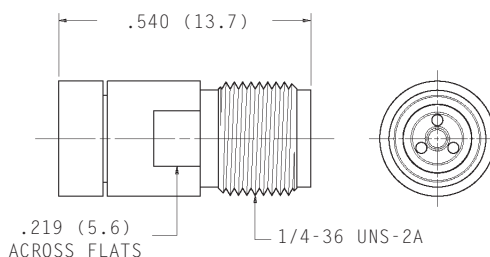
## SVK 2.92mm Jack • 2 Watts\*



Part Number	Frequency (GHz)	VSWR Max.
<b>SF8015-6008</b>	DC – 40	1.25:1

Finish: Passivated stainless steel.  
 \* 2 Watts @ +25°C derated linearly to 0.25 Watt @ +125°C (100 Watts peak power).

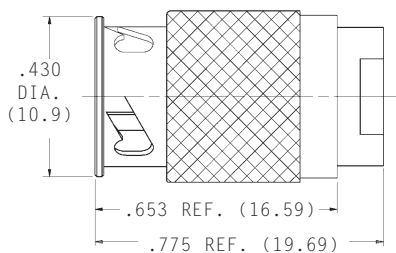
## SVK 2.92mm Jack • 2 Watts\*



Part Number	Frequency (GHz)	VSWR Max.
<b>SF8015-6400</b>	DC – 40	1.25:1

Finish: Passivated. stainless steel. For gold plating, remove the prefix "SF" from the part number.  
 \* 2 Watts at +25°C derated linearly to 0.25 Watt at +125°C (100 Watts peak power).

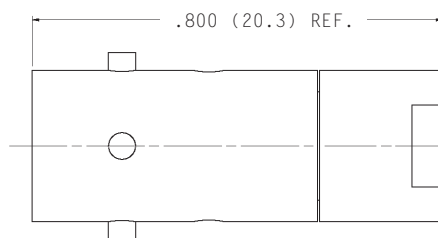
## ZMA Plug • 1 Watt\*



Part Number	Frequency (GHz)	VSWR Max.	Keying Config.
<b>SF8087-6009</b>	DC – 12.4	1.25	90°**

Finish: Passivated stainless steel.  
 Calibration Kit available. Ask for Part Number 8700-CALKIT.  
 Contact factory for terminations with chains.  
 \* 1 Watt @ +25°C derated linearly to 0.5 Watt @ +125°C (50 Watts peak power).  
 \*\* Other keying configurations available.

## ZMA Jack • 1 Watt\*



Part Number	Frequency (GHz)	VSWR Max.	Keying Config.
<b>SF8087-6010</b>	DC – 12.4	1.25	90°**

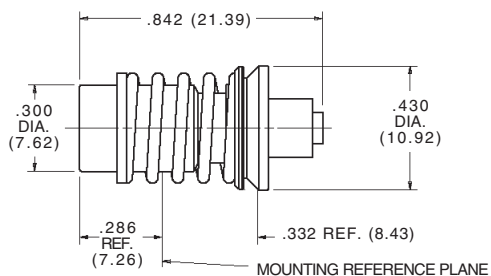
Finish: Passivated stainless steel.  
 Calibration Kit available. Ask for Part Number 8700-CALKIT.  
 Contact factory for terminations with chains.  
 \* 1 Watt @ +25°C derated linearly to 0.5 watt @ +125°C (50 watts peak power).  
 \*\* Other keying configurations available.





# TERMINATIONS

## BZ Snap-In Plug • 1 Watt\*

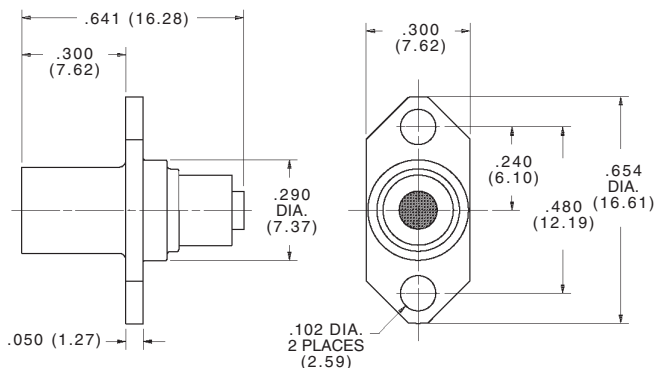


Part Number	Frequency (GHz)	VSWR Max.
<b>SF8088-6001</b>	DC – 2	1.20:1

Finish: Passivated stainless steel.

\* 1 Watt @ +25°C derated linearly to 10% power at +125°C (100 Watts peak power).

## BZ Flange Mount Jack • 1 Watt\*

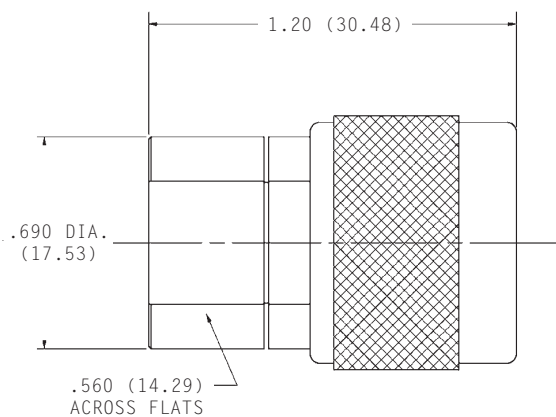


Part Number	Frequency (GHz)	VSWR Max.
<b>SF8088-6002</b>	DC – 2	1.20:1

Finish: Passivated stainless steel.

\* 1 Watt @ +25°C derated linearly to 10% power at +125°C (100 Watts peak power).

## Type N Plug • 5 Watts\*

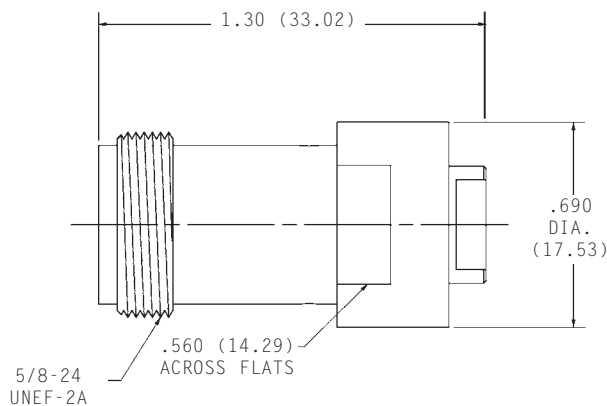


Part Number	Frequency (GHz)	VSWR Max.
<b>SF8065-6020</b>	DC – 18	1.07 + .012f (f = Freq. in GHz)

Finish: Passivated stainless steel.

\* 5 Watts @ +25°C derated linearly to 0.5 watt @ +125°C (500 Watts peak power).

## Type N Jack • 5 Watts\*



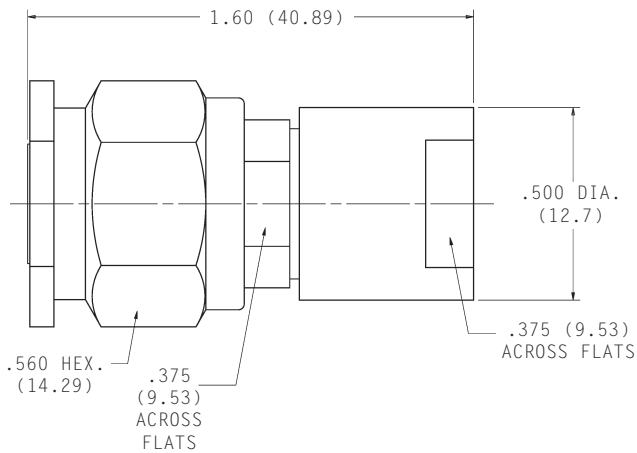
Part Number	Frequency (GHz)	VSWR Max.
<b>SF8065-6030</b>	DC – 18	1.07 + .012f (f = Freq. in GHz)

Finish: Passivated stainless steel.

\* 5 Watts @ +25°C derated linearly to 0.5 watt @ +125°C (500 Watts peak power).

# SHORT CIRCUIT and CUSTOM TERMINATIONS

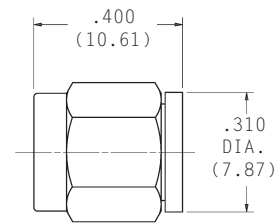
## TNC Plug • 5 Watts\*



Part Number	Frequency (GHz)	VSWR Max.
<b>SF8045-6050</b>	DC – 18	1.10 + .012f (f = Freq. in GHz)

Finish: Passivated stainless steel.  
 \* 5 Watts @ +25°C derated linearly to 0.5 watt @ +125°C  
 (500 Watts peak power).

## SMA Plug Short

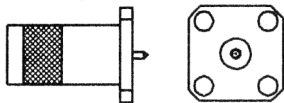


Part Number **SF8018-6007**

Finish: Passivated stainless steel coupling nut. For gold plate, remove the prefix "SF" from the part number.

## Custom Terminations

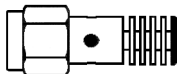
SV Microwave has completed hundreds of custom termination designs. Below are a few of our custom configurations. Contact us today with your requirements.



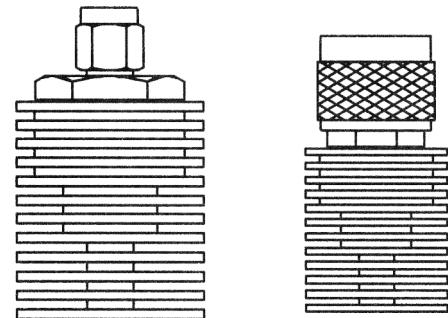
Flange Mount • 15 Watts  
DC to 18 GHz



SMA • Low Cost  
DC to 4 GHz



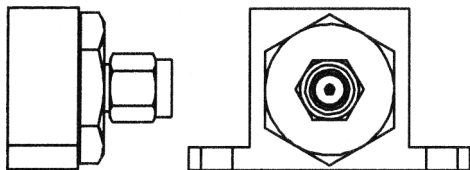
SMA • 3 Watts  
DC to 18 GHz



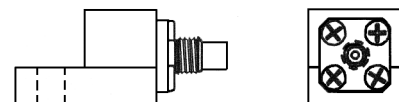
SMA and Type N  
5 to 10 Watts • DC to 18 GHz



Blindmate  
DC to 18 GHz



SMA • 30 Watts • DC to 12 GHz

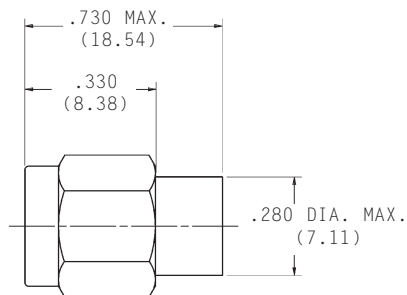


SMC • 50 Watts  
DC to 2 GHz

**SV MICROWAVE®**  
RF Connectors & Components

E-Mail: [sales@svmicro.com](mailto:sales@svmicro.com) • Website: [www.svmicrowave.com](http://www.svmicrowave.com)  
 2400 Centrepark West Drive, Suite 100, West Palm Beach, Florida 33409 U.S.A.  
 Phone: 561-840-1800 • FAX: 561-842-6277

## SMA Plug • 0.5 Watt\*



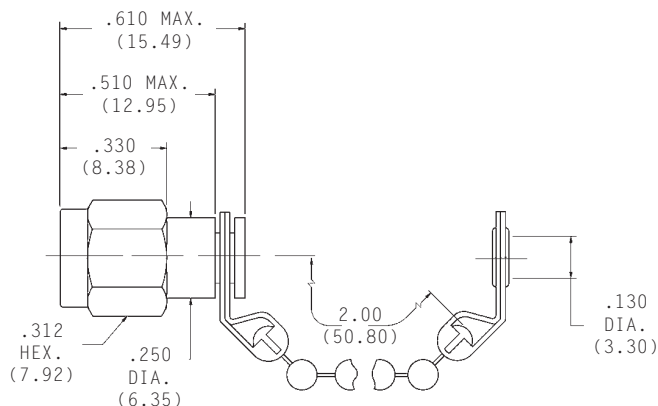
Part Number**	Frequency (GHz)	VSWR Max.
<b>M39030/3-02</b>	DC – 18	1.05 + .010f

Finish: Gold plate.

\* 0.5 Watts @ +25°C derated linearly to 25% of average power @ +125°C (50 Watts peak power).

\*\* Add the suffix "N" or "S" to the part number to indicate Non-Screened or Screened units.

## SMA Plug with Bead Chain • 0.5 Watt\*



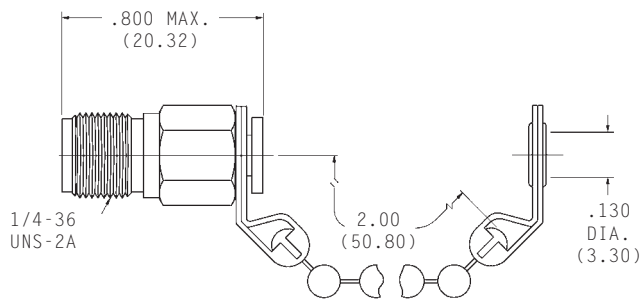
Part Number**	Frequency (GHz)	VSWR Max.
<b>M39030/3-03</b>	DC – 18	1.05 + .012f

Finish: Gold plate.

\* 0.5 Watts @ +25°C derated linearly to 25% of average power @ +125°C (50 Watts peak power).

\*\* Add the suffix "N" or "S" to the part number to indicate Non-Screened or Screened units.

## SMA Jack with Bead Chain • 0.5 Watt\*



Part Number**	Frequency (GHz)	VSWR Max.
<b>M39030/3-07</b>	DC – 18	1.05 + .010f

Finish: Gold plate.

\* 0.5 Watts @ +25°C derated linearly to 25% of average power @ +125°C (50 Watts peak power).

\*\* Add the suffix "N" or "S" to the part number to indicate Non-Screened or Screened units.

# RESISTANCE CARDS

## Resistive Metal Film Deposited On High-Temperature Fiberglass Plastic

SV Microwave's metal film resistance cards are made of highly stable microwave absorber materials. The combination of a metal resistance film deposited on a laminated dielectric base, which is dimensionally stable, offers an ideal microwave material for attenuators and absorbers.

The base substrate is a fine weave glass cloth impregnated with high-temperature thermosetting resin procured to MIL-P-18177. A resistance film of nickel/chromium (NiCr) is uniformly deposited on the fiberglass substrate surface approximately 50 millionths of an inch thick. A clear protective coating of acrylic is provided over the metal film.

Special machining techniques are not required. Metal film resistance cards can be laser cut, punched, drilled, sheared, machined and sanded. Care must be taken to avoid scratching the film.

### Applications:

SV Microwave resistance cards are well suited for all applications requiring accurate and reproducible dissipation of low RF power. They are ideal for use as microwave attenuators and terminations. Other uses include: terminations for directional couplers, isolation and impedance matching, protection of crystals, and mode suppressors.

### Film Card Specifications:

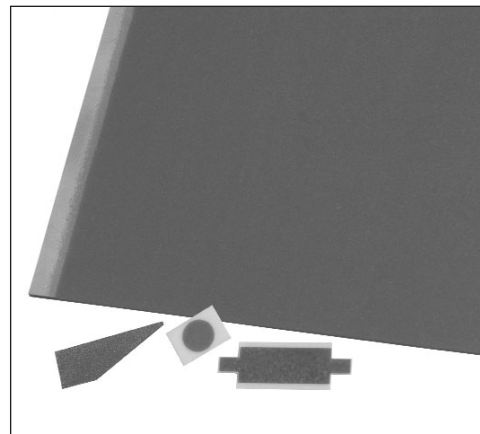
- Measurement of resistivity: Average resistivity in ohms per square is determined by measuring the DC resistance of the card at the silver conductor areas provided on both ends of the card.
- Standard size: 5 x 12 inches (127 x 305mm), thicknesses are: .010 +.004/-.003 (.254mm), .025 +.004/-.003 (.635mm), .032 +.004/-.003 (.813mm), .062 ±.007 (1.575mm).
- Resistance range: Resistivities of 25 to 400 ohms per square can be supplied. Standard values are: 50, 100, 125, 150, 180, 200, 300, 377 and 400 ohms per square.
- Resistance tolerance: 1% for a standard 5-inch (127mm) wide card, plus 1% per linear inch of length of card up to 22 inches (559mm) long.
- Temperature coefficient is positive and is less than 350 ppm per °C.
- The fiberglass substrate is procured to SV Microwave's internal specification and meets the requirements of MIL-P-18177.
- Film thickness is less than 50 x 10<sup>-6</sup> inches (1270 x 10<sup>-6</sup>mm) for all resistivities. The resistivity variations are obtained by varying the film thickness.
- Dissipation factor of the base material at 1 MC is .035. Dielectric constant at 1 MC is 5.40.
- Maximum power is 1 W per square inch at a maximum ambient of 80°C. Maximum surface temperature power plus ambient is 130°C.
- Protective coating over the film area is a clear acrylic coating.
- Ambient temperatures: -55°C to +130°C operating continuous duty. -65°C to +130°C storage. The maximum resistance change under the preceding ambients would be ±2%.
- Barometric pressure: Equivalent sea level to 70,000 feet. The maximum resistance change is negligible.
- Vibration: 10 CPS to 2,000 CPCS, 10G. The maximum resistance change is negligible.
- Shock: 30G, 11 milliseconds duration. The maximum resistance change is negligible.
- Moisture resistance cycling: Per MIL-STD-202, Method 106. The maximum resistance change under the preceding environment condition would be ±5%.

### Other Available Substrate Material:

Mylar® and Kapton®. Standard sheet size: 5 x 12 inches (127 x 305mm). Thickness: .001 inch (.025mm), .002 inch (.051mm), .003 inch (.076mm), .005 inch (.127mm), .010 inch (.254mm) specifications as above.

How To Order: \_\_\_\_\_ (width) x \_\_\_\_\_ (length) x \_\_\_\_\_ (thickness) / \_\_\_\_\_ (per square)  
Example: 5 x 12 x .032 / 200K (K for Kapton, M for Mylar)

Mylar and Kapton are registered trademarks of DuPont.



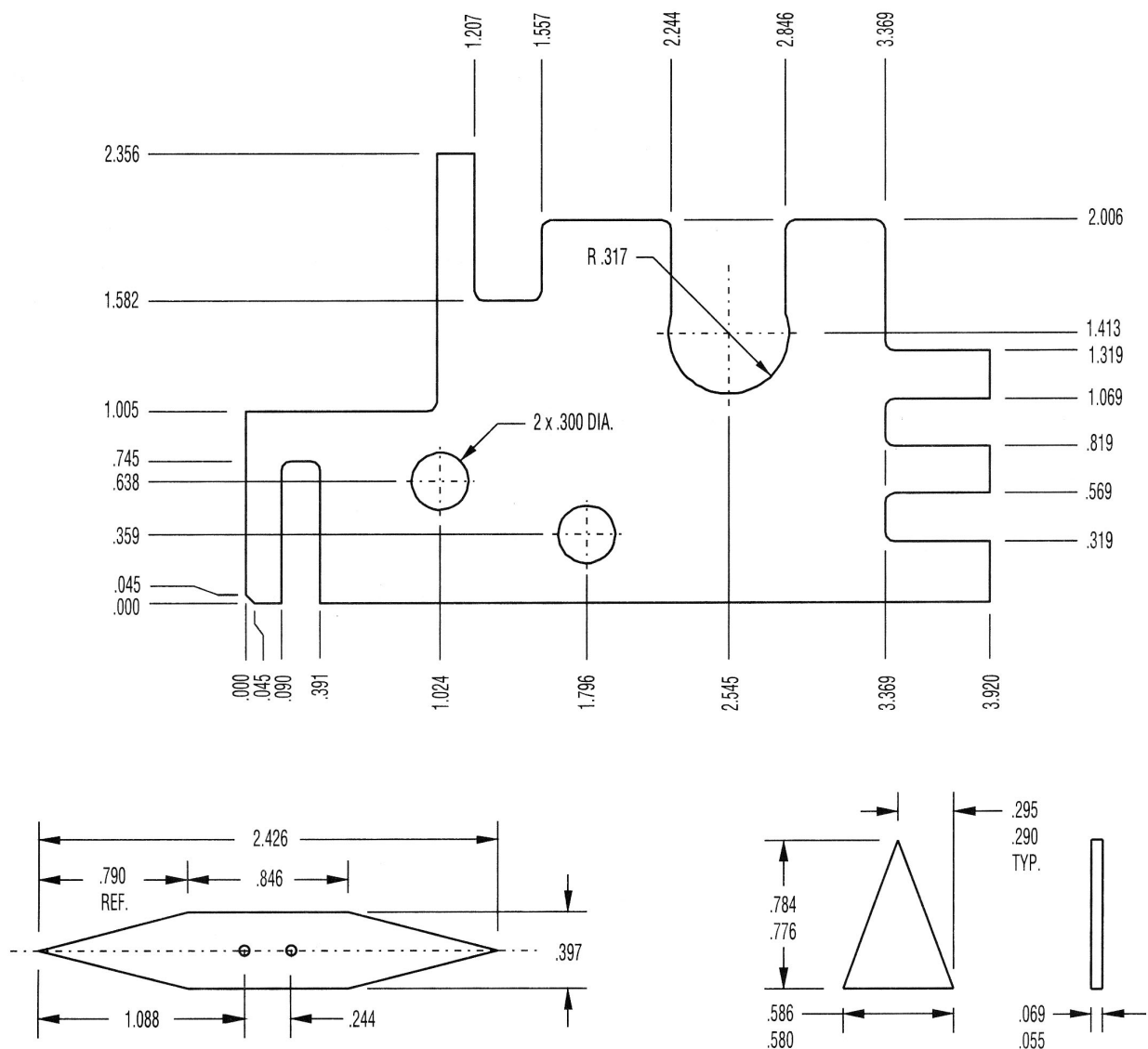
# RESISTANCE CARDS

## Custom-Cut Resistive Film Cards

SV Microwave will customize our resistive film cards per your requirements for use as RF absorbers or attenuators.

### Specifications:

- Resistance range and tolerance: Per SV Microwave standard film card specification
- Overall size: Up to 22 x 22 inches (559 x 559mm)
- Standard thickness: .010 (.254mm), .025 (.635mm), .032 (.813mm), .062 (1.575mm) per SV Microwave standard film card specification
- Dimensional control:  $\pm 0.005$  (.127mm) standard
- Hole size:  $\geq$ Film card thickness



## Company Description

SV Microwave, Inc., located in West Palm Beach, Florida, is a world leader in the RF/ Microwave industry. We design and manufacture RF/Microwave coaxial connectors, cable assemblies, attenuators, terminations, passive RF and made-to-order, high-performance, microwave signal processing components. We control virtually all of our processes with in-house machining, fabrication, assembly and testing. Our global sales channels are Direct Sales, Manufacturer's Representatives and Authorized Distributors. We are proud to have received the U.S. Navy's 2004 PEO IWS Excellence Award.

## Markets Served

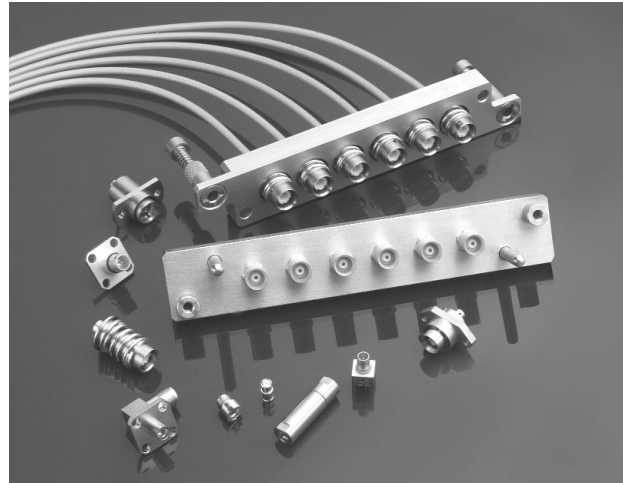
SV Microwave's products are used in wireless communications, satellite, electronic radar and defense systems, avionics, medical electronics, test and measurement systems, broadcast and broadband CATV industries and space programs (S-level qualified).

SV Microwave provides optimized electrical and mechanical performing products and meets cost requirements either by customizing connectors and components for new applications, by supplying products discontinued by other manufacturers, or by manufacturing high-volume components.

## Technical Services

SV Microwave is committed to helping customers meet their RF/microwave performance goals. We have invested in a talented engineering staff, supported by state-of-the-art design, high-frequency software for 3-dimensional RF simulations and

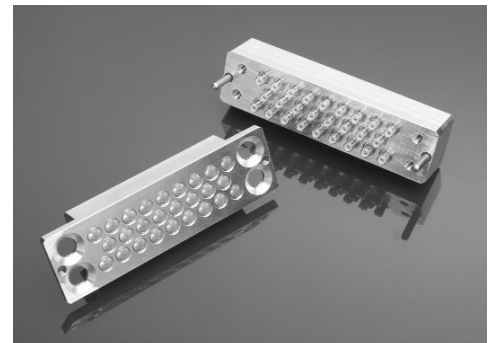
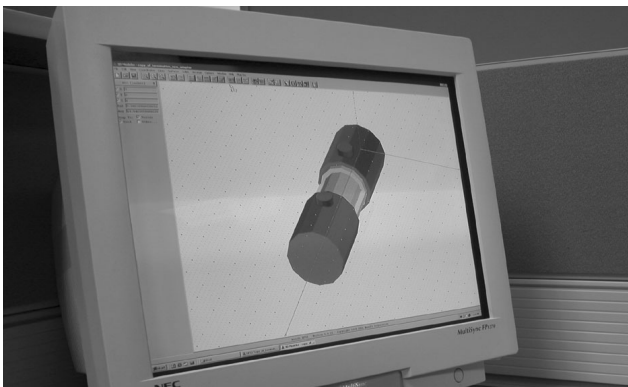
network measurement test equipment, and can provide detailed design assistance for unique



applications from DC through millimeter frequencies. SV Microwave is a global industry leader in the development and application of Blind Mate connector technology and has been spearheading the use of these connectors in advanced packaging concepts for the defense and telecommunication industries, obtaining the first DSCC QPL status. We recently introduced 3G Vector Modulators for next-generation wireless systems.

## Major Products

**RF Connectors:** SMA, SMA Slide-On, SSMA, High-Frequency SSMA, SMP, BMZ, BZ, High-Power BZ, BMA, BMMA, ZMA, High-Power ZMA, TNC, Precision TNC, N, High-Frequency N, Precision N, 1.85mm, 2.4mm, SVK 2.92mm, 3.5mm, 7mm, SMB, SMC, C and Between-Series Adapters. Space-qualified versions for Hi-Rel applications are also available. Blindmate multi-contact assemblies.

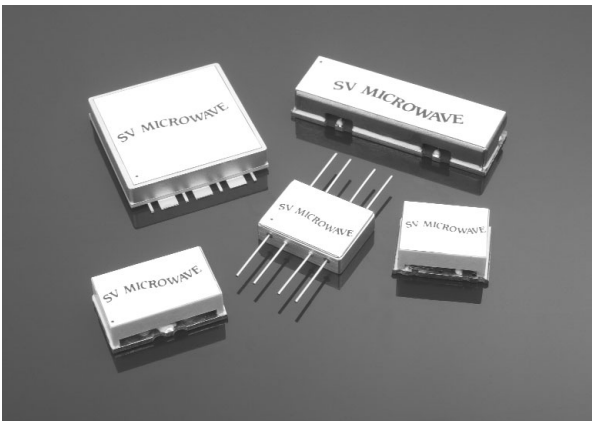


**Cable Assemblies:** flexible, semi-rigid, conformable, Coaxial, twinaxial and triaxial. We



integrate the best-suited cable for an application with the best-performing connectors to yield the best combination of performance and value for our customers.

**Passive RF and Microwave Signal Processing Components:** Mixers, modulators, demodulators, phase shifters and attenuators. We have the capability to design and produce made-to-order hard-to-find, high-performance products in industry-standard packages and footprints.



**Resistive Products:** fixed coaxial attenuators, terminations in all popular connector families and resistive film cards.

## Quality Systems

SV Microwave's quality systems include registration to ISO 9001 and are certified to the requirements of MIL-STD-790 for its Military Qualifications. SV Microwave is a qualified product source for MIL-PRF-39012, MIL-PRF-55339, MIL-C-83517, MIL-DTL-39030, MIL-A-3933, and MIL-PRF-31031 and also is listed as an approved source for numerous DSCC drawings. SV Microwave is currently implementing Lean Manufacturing Six Sigma this fiscal year.

## Facilities

SV Microwave is located in a new 40,000-square-foot, state-of-the-art facility in West Palm Beach, Florida, adjacent to Palm Beach International Airport. This facility houses manufacturing, assembly, inventory, research and development and the administrative offices. SV Microwave employs state-of-the-art technology, beginning with CAD/CAM, CNC machining equipment, SPC and, finally, network testing equipment. SV Microwave can produce high-volume products through the use of its offshore manufacturing facilities.



**SV MICROWAVE®**  
RF Connectors & Components

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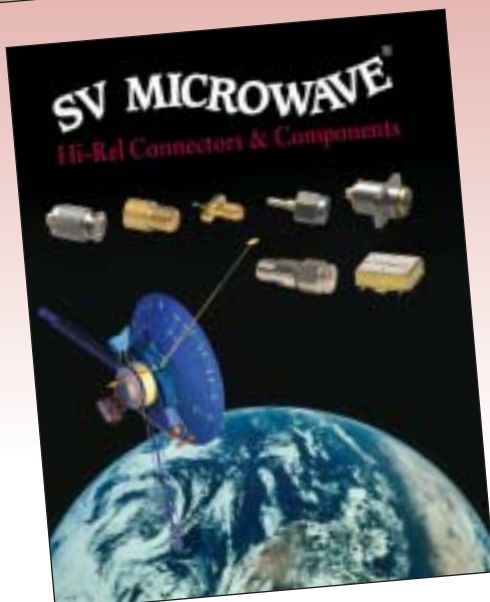
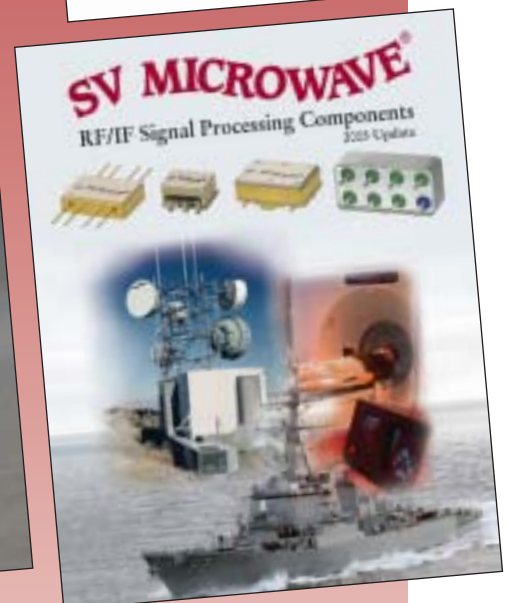
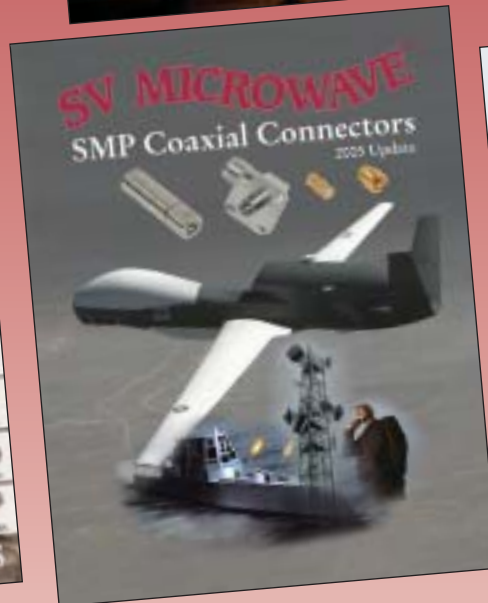
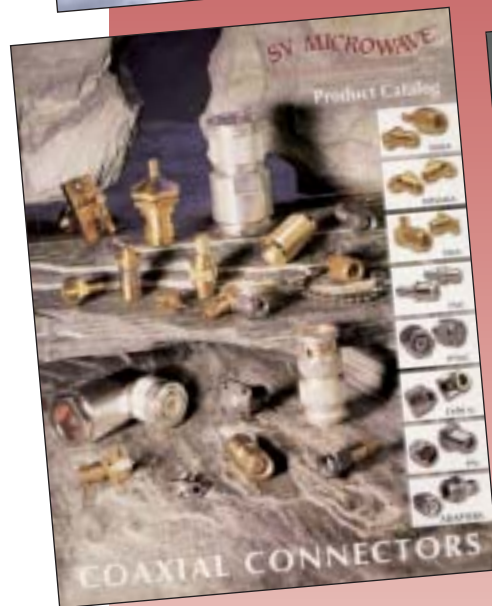
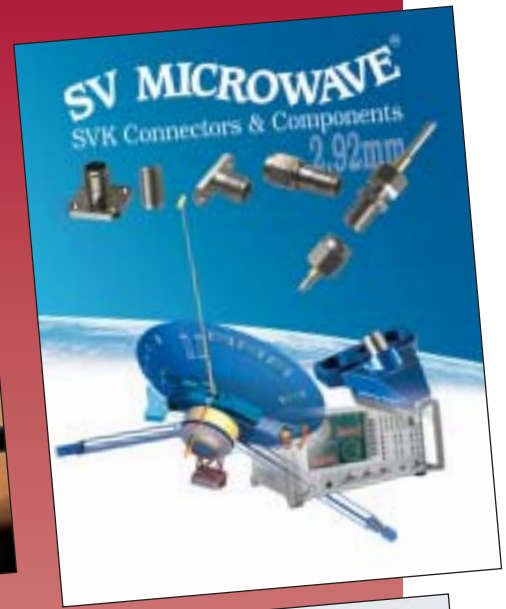
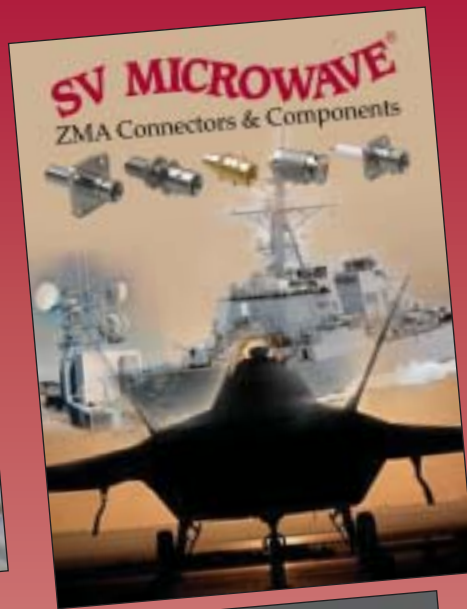
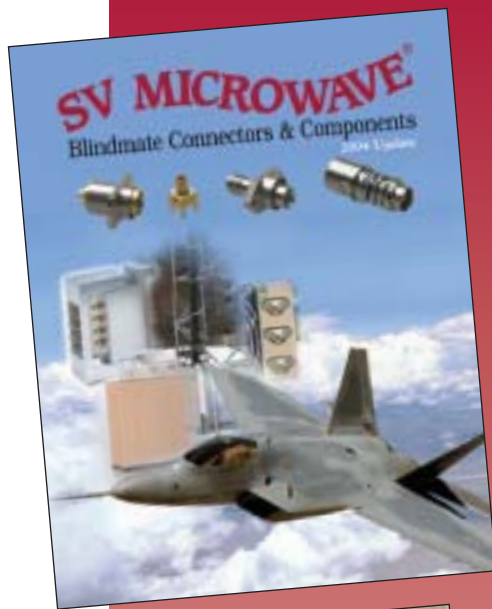


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## SV MICROWAVE<sup>®</sup>

RF Connectors & Components

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Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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