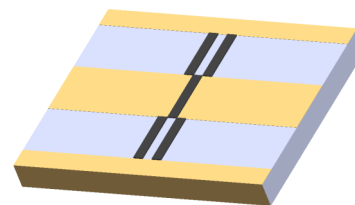


ATTENUATOR

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Features

- Excellent flatness and attenuation accuracy
- Superior Power Handling
- Less than 0.1% resistance change 1000 hours @ 125°C
- VSWR Maximum Ratings
 - DC to 12.4 GHz: 1.20:1
 - 12.5 to 18.0 GHz: 1.30:1
 - 18.1 to 26.5 GHz: 1.40:1
- Metallization per MIL-G-45204, Type III, Grade A
- Ground Wrap Terminations
- RoHS Compliant



Description

SemiGen's RF/microwave quartz attenuator pads feature precise resistor films and superior metallization resulting in optimized performance. Our advanced thin-film technology provides full edge wrap metal for SMT installation with a complete grounded backside for ease in attachment, eliminating the need for additional ground bonding. Top side contacts are designed to support standard RF/microwave assembly techniques. Designed for commercial, military, and space applications, all values are available with MIL-PRF-38534, Class H or Class K Element evaluation.

Absolute Maximum Ratings^{1,2}

Parameter	Absolute Maximum
Power Dissipation ¹	70 °C/W
Mounting Temperature	+400°C for 5 seconds
Junction Temperature ^{2,3}	+150°C
Temperature Coefficient	±100ppm
Operating Temperature	-55°C to +150°C

1. Achieved at T^{CASE} = 25°C; Derated linearly to zero at 175°C.
*Note: 3X 0.001" Au wire bonds, each conductor.
2. Exceeding any one or combination of these limits may cause permanent damage to this device.
3. SemiGen does not recommend sustained operation near these survivability limits.

Mechanical Specification

Parameter	Absolute Maximum
Substrate	Fused Silica 10 ± 2.0 mils thick
Solderable	Gold Plated Backside
Metallization	Topside: TiW / Au Bottomside: TiW Pt / Au
Resistor	TaN

Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

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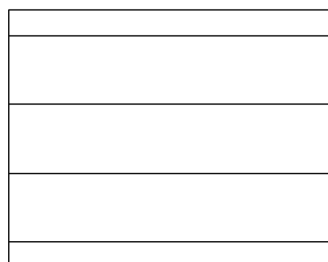
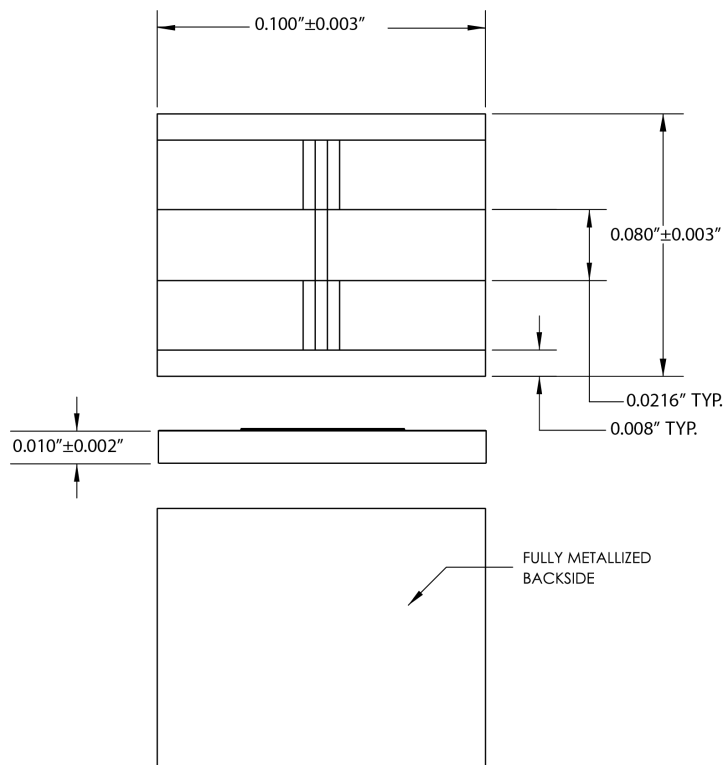
Electrical Specifications: $T_A = +25\text{ }^{\circ}\text{C}$

Part Number	Attenuation Nom. (dB)	Frequency Flatness (dB)	Return Loss (dB)
01311-00A	0	± 0.2	>18
01311-.5A	0.5	± 0.2	>18
01311-01A	1	± 0.2	>18
01311-02A	2	± 0.2	>18
01311-03A	3	± 0.2	>18
01311-04A	4	± 0.2	>18
01311-05A	5	± 0.2	>18
01311-06A	6	± 0.2	>18
01311-07A	7	± 0.2	>18
01311-08A	8	± 0.2	>18
01311-09A	9	± 0.2	>18
01311-10A	10	± 0.2	>18
01311-11A	11	± 0.3	>18
01311-12A	12	± 0.3	>18
01311-13A	13	± 0.3	>18
01311-14A	14	± 0.3	>18
01311-15A	15	± 0.3	>18
01311-16A	16	± 0.3	>18
01311-17A	17	± 0.3	>18
01311-18A	18	± 0.3	>18
01311-19A	19	± 0.3	>18
01311-20A	20	± 0.3	>18

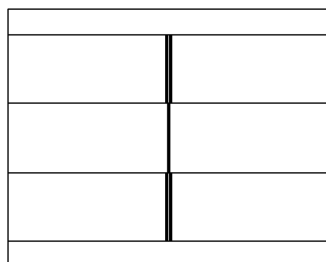
ATTENUATOR

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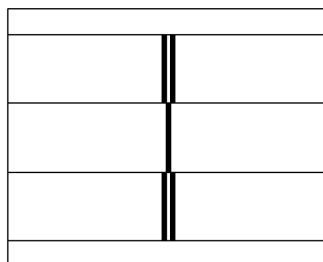
Outline Drawing



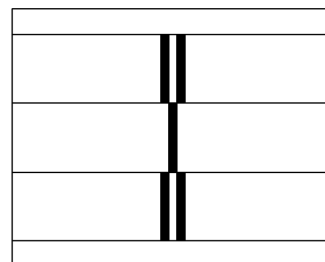
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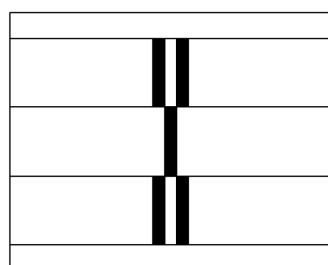
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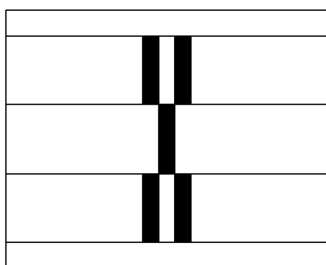
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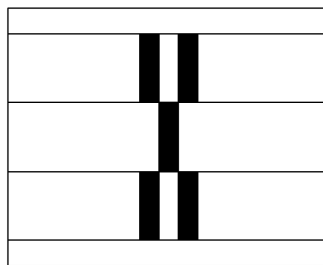
01311-02A



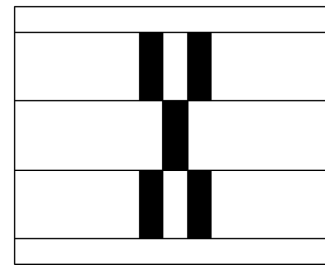
01311-03A



01311-04A



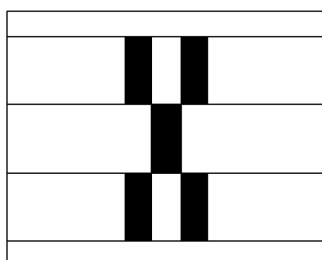
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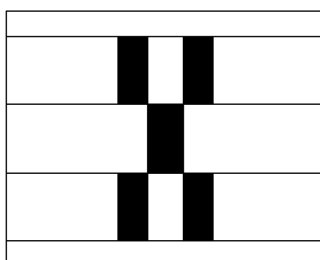
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ATTENUATOR

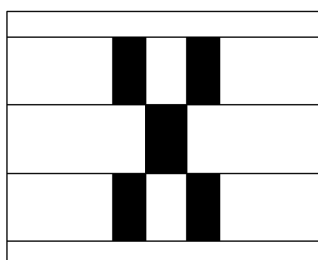
Rev. 1



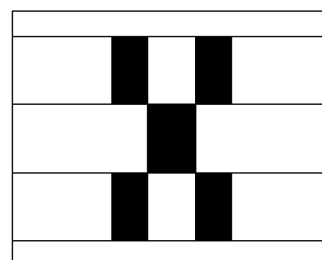
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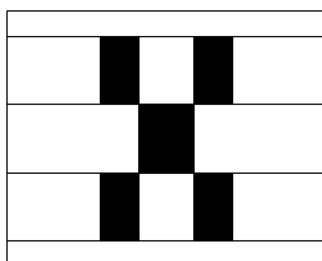
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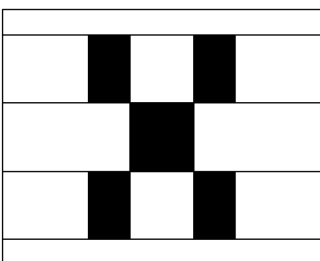
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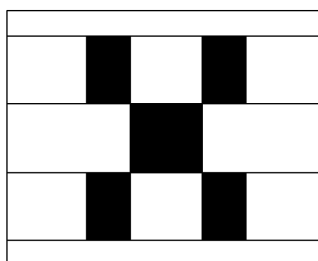
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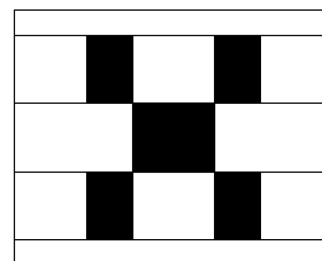
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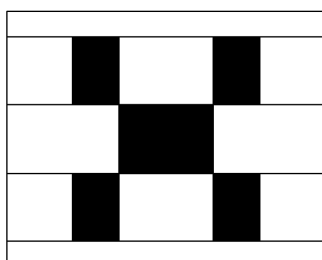
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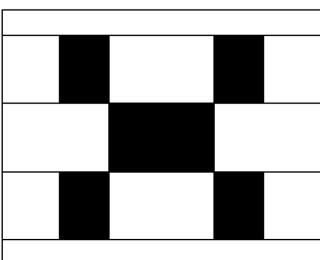
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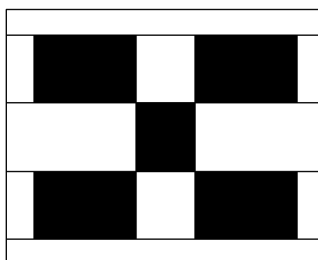
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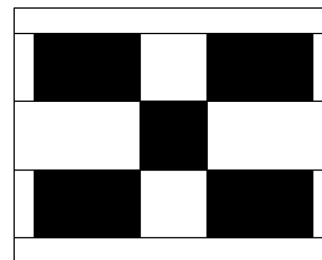
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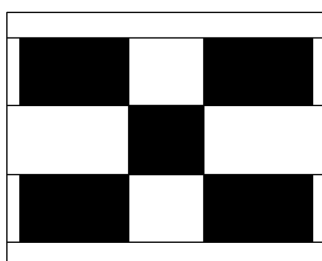
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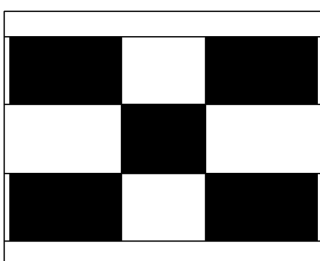
01311-17A



01311-18A



01311-19A



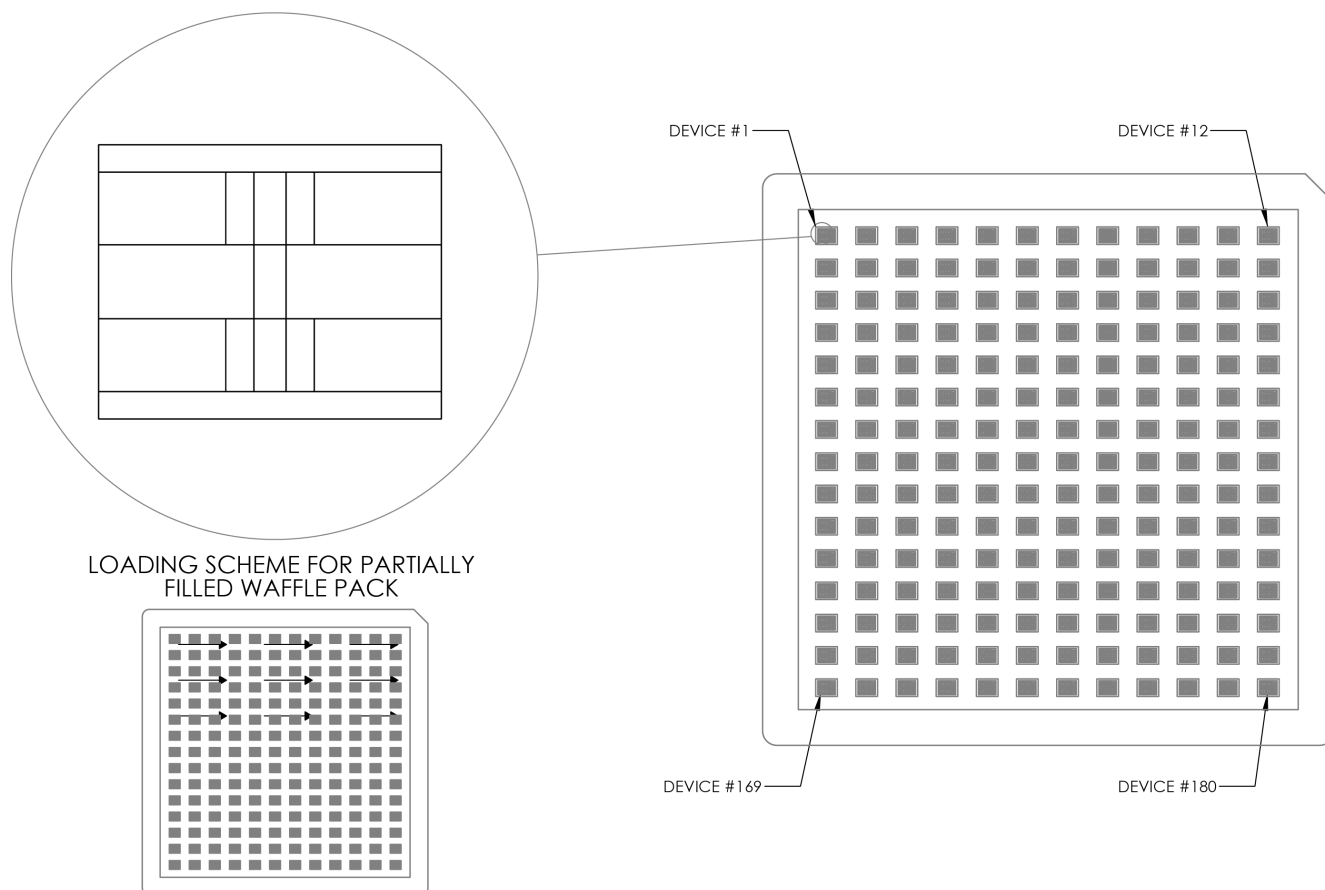
01311-20A

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Device Orientation Within Packaging

*Orientation may vary from image below



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Ordering Information

Part Number	Package	Qty.	Part Number	Package	Qty.
01311-00A	Waffle Pack	180 per Tray	01311-10A	Waffle Pack	180 per Tray
01311-.5A	Waffle Pack	180 per Tray	01311-11A	Waffle Pack	180 per Tray
01311-1A	Waffle Pack	180 per Tray	01311-12A	Waffle Pack	180 per Tray
01311-02A	Waffle Pack	180 per Tray	01311-13A	Waffle Pack	180 per Tray
01311-03A	Waffle Pack	180 per Tray	01311-14A	Waffle Pack	180 per Tray
01311-04A	Waffle Pack	180 per Tray	01311-15A	Waffle Pack	180 per Tray
01311-05A	Waffle Pack	180 per Tray	01311-16A	Waffle Pack	180 per Tray
01311-06A	Waffle Pack	180 per Tray	01311-17A	Waffle Pack	180 per Tray
01311-07A	Waffle Pack	180 per Tray	01311-18A	Waffle Pack	180 per Tray
01311-08A	Waffle Pack	180 per Tray	01311-19A	Waffle Pack	180 per Tray
01311-09A	Waffle Pack	180 per Tray	01311-20A	Waffle Pack	180 per Tray

*Consult factory for custom attenuation values and/or substrate substitution options.

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