

Features

- Low Distortion Harmonics: -85 dBc
- Broadband Performance: >10 GHz
- Low Insertion Loss
- High Attenuation: 27 dB
- RoHS* Compliant

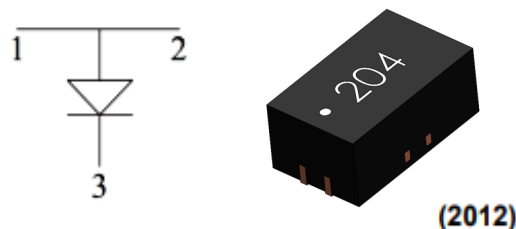
Applications

- Wireless Telecommunication Infrastructure and Test Instrument Applications

Description

MSAT-N25 is a broadband, high linearity, medium power shunt NIP attenuator packaged in a 1.9 x 1.1 mm DFN package. This device is designed for wireless telecommunication infrastructure and test instrument applications and it is also suited for other applications in 0.1 ~ 10 GHz range.

Pin Out / Schematic



Pin Configuration²

| Pin # | Pin Name | Description |
|-------|---------------------|-------------|
| 1 | RF _{IN} | RF Input |
| 2 | RF _{OUT} | RF Output |
| 3 | Paddle ³ | Ground |

2. MACOM recommends connecting No Connection (N/C) pins to ground.

3. The exposed pad centered on the package bottom must be connected to RF, DC and thermal ground.

Electrical Specifications: T_A = +25°C

| Parameter | Test Conditions | Units | Min. | Typ. | Max. |
|---|--|-------|------|------|------|
| Breakdown Voltage (V _{BR}) | I _R = 10 μA | V | 200 | — | — |
| Lifetime (L _T) | I _F = 10 mA, I _R = 6 mA, 10% / 90% | ns | 2000 | 3000 | 5000 |
| Minimum Series Resistance (R _S) | I = 100 mA, 500 MHz | Ω | — | 1.5 | 2.5 |
| High Series Resistance (R _S) | I = 10 μA, 500 MHz | Ω | 2000 | 3000 | 4000 |
| Low Series Resistance (R _S) | I = 1 mA, 500 MHz | Ω | 30 | 40 | 50 |
| Attenuation | I = 100 mA, ≤10 GHz | dB | 20 | 25 | — |

Ordering Information¹

| Part Number | Package |
|-------------|----------------|
| MSAT-N25 | 100 piece reel |

1. Reference Application Note M513 for reel size information.

1 * Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

Absolute Maximum Ratings^{4,5}

| Parameter | Absolute Maximum |
|---------------------------------------|-------------------|
| Forward Current (I_F) | 200 mA |
| Reverse Voltage (V_R) | 200 V |
| Thermal Resistance (θ_{JC}) | + 20 °C/W |
| Junction Temperature (T_J) | + 175 °C |
| Storage Temperature (T_{STG}) | -65 °C to +125 °C |
| Assembly Temperature (T_{SOLDER}) | + 260 °C |

4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.

Handling Procedures

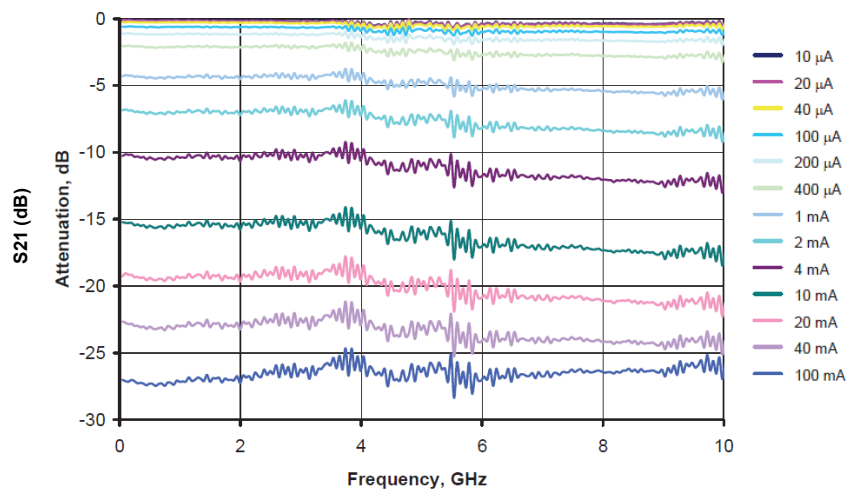
Please observe the following precautions to avoid damage:

Static Sensitivity

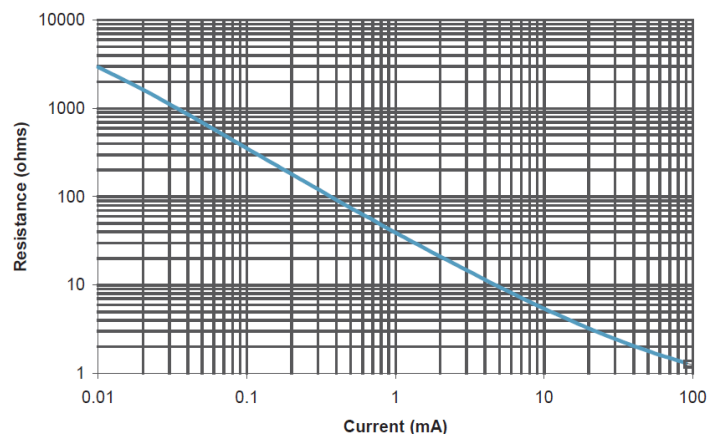
These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

Performance Curves

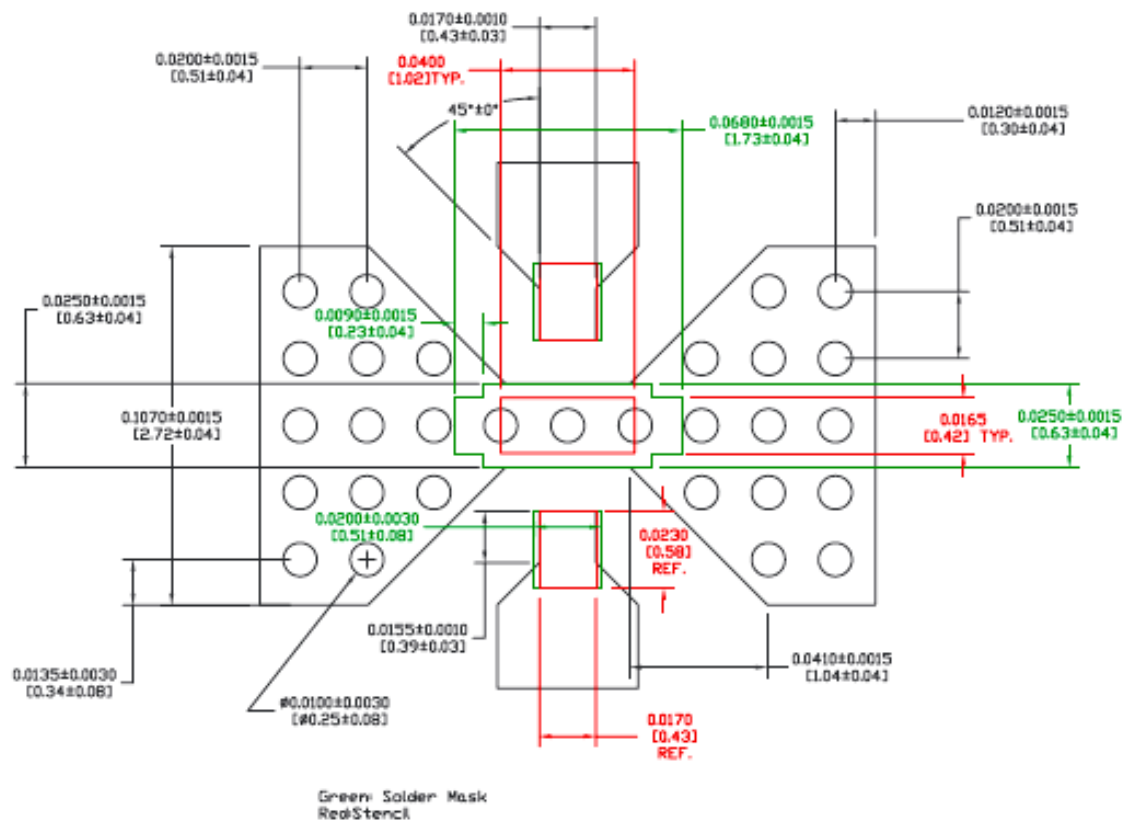
Attenuation vs. Current



Resistance vs. Current

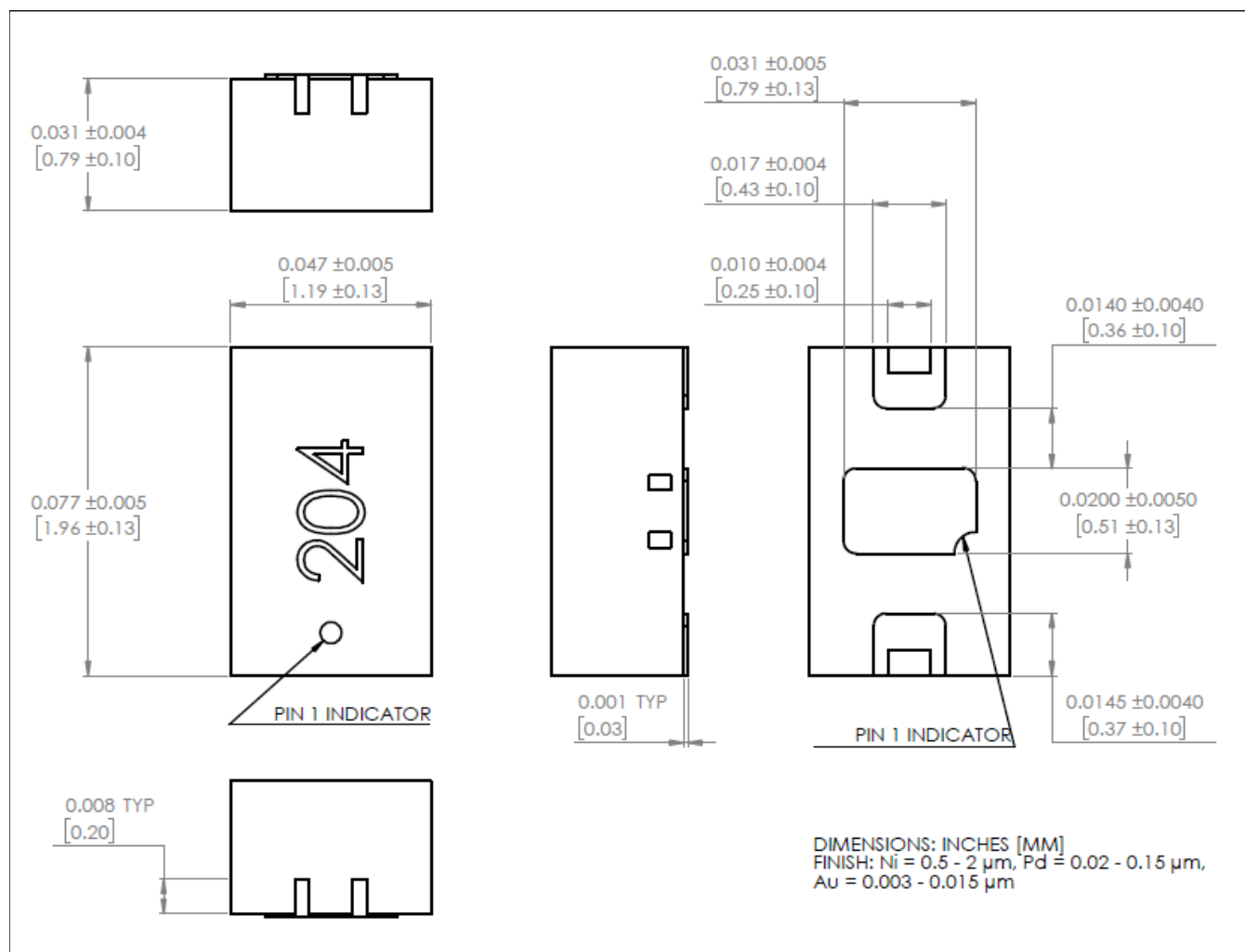


Recommended PCB Layout^{6,7}



6. If possible, use copper filled vias underneath pin 3 for better thermal performance; otherwise, use vias that are plated through, filled and plated over.
7. Solder mask should provide a 60 μ m clearance between copper pad and solder mask. Rounded package pads should have matching rounded solder mask openings.

Outline (2012)



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