

Features

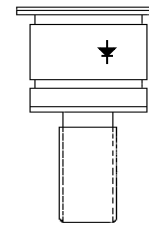
- High Power Switching Diode
- Low Loss, Low Distortion Design
- Rugged, Hermetically Sealed Packaging
- Threaded Stud Attachment
- Non Magnetic to 3 Tesla for MRI Applications
- RoHS* Compliant

Applications

- Filter Switches
- Antenna Couplers
- Power Amplifier By-pass Switches
- MRI Switches

Description

The MA4P4006-1041 PIN diode utilize modern semiconductor and packaging technology that assures low loss, low distortion, and reliable performance in switch applications at frequencies as low as 1 MHz. The semiconductor technology utilized in this design draws on MACOM's substantial experience in PIN diode design and wafer fabrication. The result is a device which has a thick I-region and long carrier lifetime while maintaining low series resistance and capacitance values.



ODS-1041

Packaging

The metal-ceramic package used for this diode design was developed specifically for high voltage/high power hermetic applications. The PIN diode chip is eutectically bonded to the package using gold/tin high temperature solder. The anode connection is ribbon bonded to ensure a robust attachment to the anode contact and the package flange. The package is sealed using a projection welding technique in an inert environment. This package meets the environmental requirements of MIL-STD-202 and MIL-STD750.

Ordering Information

| Part Number | Package Style |
|---------------|----------------------------|
| MA4P4006-1041 | Pill Package/Threaded Stud |

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

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

| Parameter | Test Conditions | Units | Min. | Typ. | Max. |
|-----------------------|--|--------------------|------|------|--------------|
| Reverse Voltage | 1 μA | V | — | — | 900 |
| Series Resistance | F = 120 MHz, I = 0.2 A I = 0.3 A | Ω | — | — | 0.20 0.15 |
| Total Capacitance | F = 1 MHz, V = 200 V | pF | — | — | 2 |
| Carrier Lifetime | $I_F = 10 \text{ mA}$, $I_R = 6 \text{ mA}$ | μs | 15 | — | — |
| Forward Voltage | $I_F = 0.1 \text{ A}$ | V | — | — | 0.9 |
| Thermal Resistance | — | $^\circ\text{C/W}$ | — | — | 6 |
| I-Region Width (Nom.) | — | μm | — | 175 | — |

Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|---|---|
| Instantaneous Reverse Voltage | Voltage Rating |
| Forward Current (RF & DC) $T_C = +25^\circ\text{C}$ | 15 A |
| Power Dissipation $T_C = +25^\circ\text{C}$ | $(T_J - T_C)/R_{TH}$ |
| Operating Junction Temperature | -55°C to $+175^\circ\text{C}$ |
| Storage Temperature | -65°C to $+175^\circ\text{C}$ |
| Installation Temperature | $250^\circ\text{C}/30 \text{ Seconds}$ |

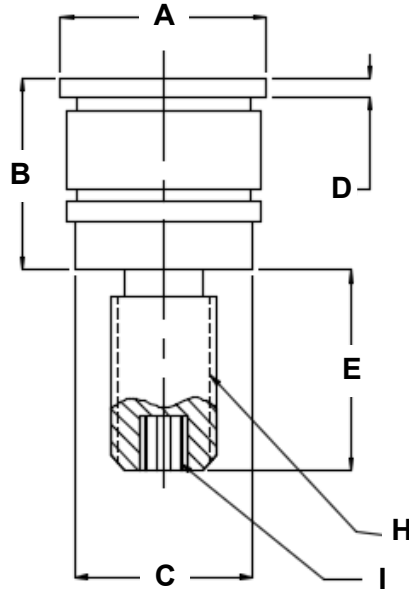
Handling Procedures

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 Class 1C, HBM devices.

Outline (ODS-1041)



Black Dot Denotes Cathode

| Dim. | Inches | | Millimeters | |
|------|-------------------------|-------|-------------|------|
| | Min. | Max. | Min. | Max. |
| A | 0.264 | 0.274 | 6.71 | 6.96 |
| B | 0.186 | 0.204 | 4.72 | 5.81 |
| C | 0.247 | 0.253 | 6.27 | 6.48 |
| D | 0.022 | 0.030 | 0.56 | 0.76 |
| E | 0.249 | 0.267 | 6.32 | 6.78 |
| H | 6-40 UNF-3A | | | |
| I | 0.072 SPLINE X 0.070 DP | | | |

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