



MPP4201 - MPP4205
CONTROL DEVICES - MMSM PIN
AND LIMITER DIODES
 RoHS Compliant

GENERAL DESCRIPTION

This series of surface mount PIN and Limiter diodes utilize new and unique monolithic MMSM technology. The technology is a package/device integration accomplished at the wafer fabrication level. Since the cathode and anode interconnections utilize precision photolithographic techniques rather than wire bonds, parasitic package inductance is tightly controlled. The package parasitics provide smooth non-resonant functionality through X Band. This series of devices meets RoHS requirements per EU Directive 2002/95/EC.

APPLICATIONS

The MPP4200 series of PIN diodes can be used in RF circuits as an on/off element, as a switch, or as a current controlled resistor in attenuators extending over the frequency range from UHF through X band. Switch applications include high speed switches (ECM systems), TR switches channel or antenna selection switches (Telcom and WLAN applications), duplexers (radar) and digital phase shifters (phased arrays). These diodes are also used as passive and active limiters for low to moderate RF power levels. Attenuator type applications include amplitude modulators, AGC attenuators and power levelers.

KEY FEATURES

- Up to 10W incident RF power handling
- Low parasitics
- $L_P = 0.02\text{nH}$ Typical
- $C_P = 0.04\text{pF}$ Typical
- Broadband Performance through X-Band
- Available on Tape & Reel or on Film Frame for pick & place
- Small, SOD 323 Footprint
- RoHS Compliant ¹

1- These devices are supplied with gold terminations.

APPLICATION/BENEFITS

- Receiver protection circuits
- Broadband Switching
- Economy Switching
- RF Attenuators
- MRI

ABSOLUTE MAXIMUM RATINGS @ 25°C

| Rating | Symbol | Value | Unit |
|--|-----------|-------------|--------------------|
| Maximum Leakage Current @80% of minimum Rated V_B | I_R | 0.5 | μA |
| Operating Temperature | T_{OP} | -55 to +150 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{STG} | -65 to +150 | $^{\circ}\text{C}$ |

For the most current data, consult MICROSEMI's website: www.MICROSEMI.com
 Specifications are subject to change, consult the RFIS factory at (978) 442-5600 for the latest information.



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DEVICE ELECTRICAL PARAMETERS AT 25°C

| Model Number | Package Style | V_B (V) $I_R=10\mu A$ (Min) | C_T (pF) ¹ @-10V (Max) | $R_S(\Omega)^2$ @0.01mA (Typ) | $R_S(\Omega)^2$ @1mA | $R_S(\Omega)^2$ @10mA (Max) | $R_S(\Omega)^2$ @20mA (Max) |
|--------------|---------------|-------------------------------------|---|-------------------------------------|-------------------------|-----------------------------------|-----------------------------------|
| MPP4201 | 206 | 70 | 0.20 | | | | 2.5 |
| MPP4202 | 206 | 50 | 0.15 | | | | 2.8 |
| MPP4203 | 206 | 50 | 0.10 | | | | 3.0 |
| MPP4204 | 206 | 25 | 0.15 | | | 2.0 | |
| MPP4205 | 206 | 70 | 0.15 | 250 | 7-16 | 5.0 | |

| Model Number | Package Style | T_L (Typ) | Application |
|--------------|---------------|----------------|-------------------------|
| MPP4201 | 206 | 150 | Switching / Attenuation |
| MPP4202 | 206 | 50 | Switching |
| MPP4203 | 206 | 50 | Economy Switching |
| MPP4204 | 206 | 20 | Switching |
| MPP4205 | 206 | 150 | Attenuation |

Notes:

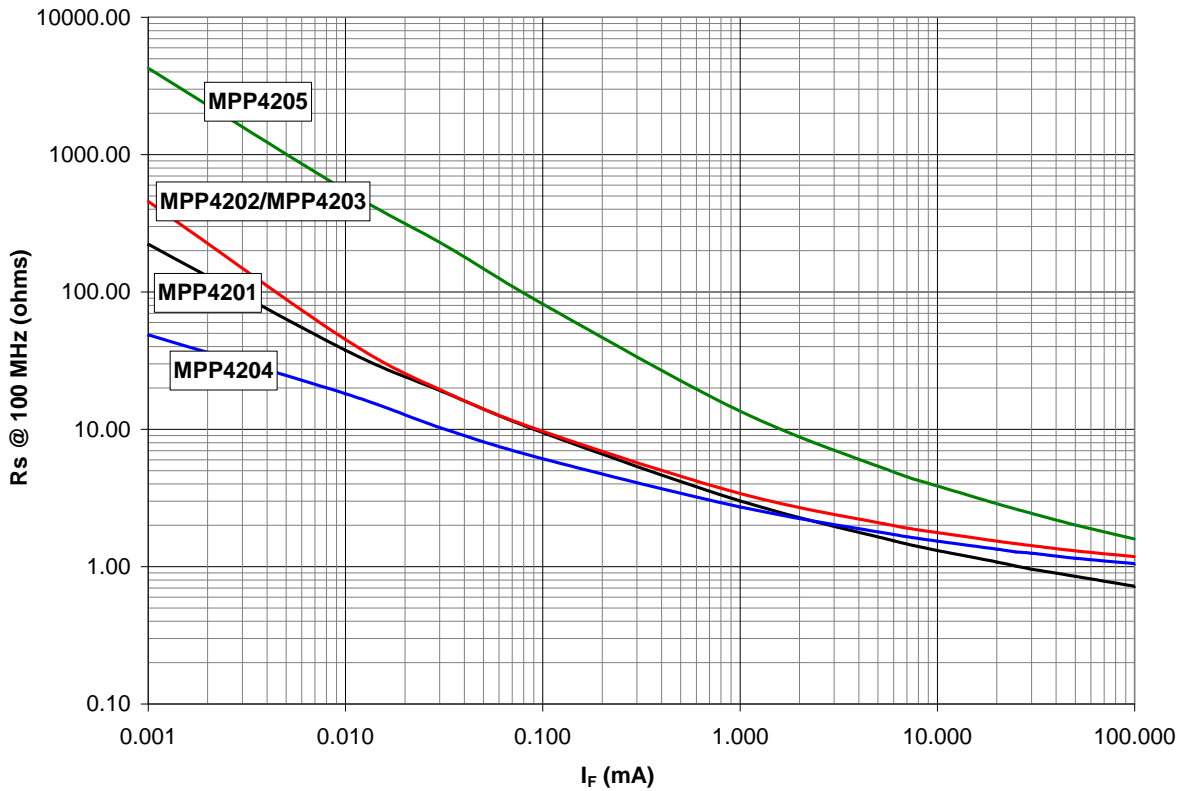
- 1- Capacitance is measured at $f = 1$ MHz.
- 2- Series Resistance (R_S) is measured at $f = 100$ MHz. Devices are mounted in a package suitable for testing.
 - a. R_S is measured at 1 GHz for the MPL series devices.
 - b. Not measured in anti-parallel configuration.
 - c. $V_r = 0V$. This value is the sum of two junctions.

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TYPICAL R_s VS I_f @ 25°C

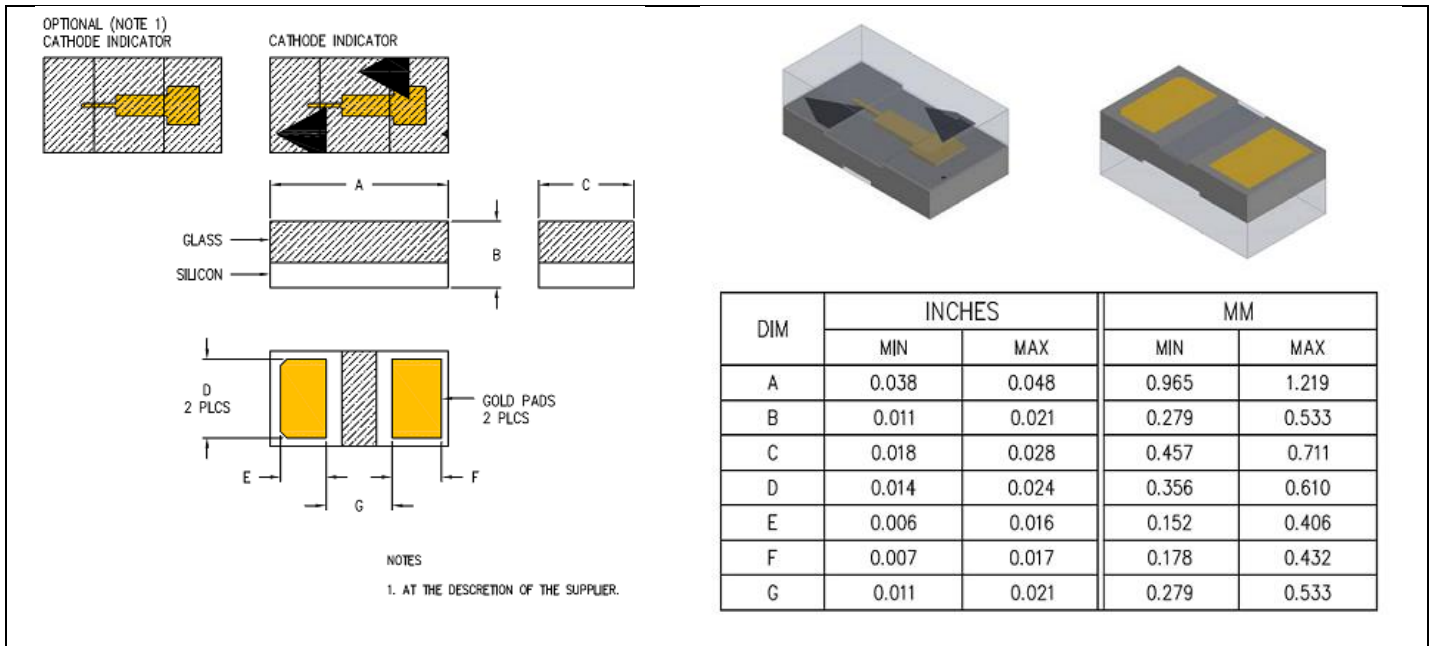


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PACKAGE STYLE 206



Revision History

| Revision Level / Date | Para. Affected | Description |
|-----------------------|-----------------------------------|-----------------|
| 2 / 16 April 2013 | - | Initial Release |
| 3 / 21 October 2013 | Applications / Device Electricals | Revised |

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