MPP4201 – MPP4206, MPL4700

CONTROL DEVICES – MMSM PIN and Limiter Diodes

RoHS Compliant

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 MPP4000 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.

The MPL4700 / MPL4701 series of Limiter diodes are design for low to medium power receiver protection. The typical leakage output power for the MPL4701 is +20 dbm versus +24 dbm for the MPL4700. The MPL4702 is optimized for MRI surface coil applications.

ABSOLUTE MAXIMUM RATINGS AT 25º C (UNLESS OTHERWISE SPECIFIED)

Rating	Symbol	Value	Unit
Maximum Leakage Current @80% of minimum Rated V_B	I_R	0.5	uA
Operating Temperature	T_{OP}	-55 to +150	ºC
Storage Temperature	T_{STG}	-65 to +150	ºC

IMPORTANT: *For the most current data, visit:* ***www.MICROSEMI.com***

Specifications are subject to change. Consult factory for latest information.

These devices are ESD sensitive and must be handled use using ESD precautions.

KEY FEATURES

- Up to 10W incident RF power handling
- Low parasitics
  L_P = 0.02nH Typical
  C_P = 0.04pF 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.

APPLICATIONS/BENEFITS

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

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RoHS Compliant

DEVICE ELECTRICAL PARAMETERS @25°C (unless otherwise specified)

Model Number	Package Style	V_B (V) I_R=10µA (Min)	C_T(pF)[1] @-10V (Max)	R_S(Ω)[2]@ 0.01 mA (Typ)	R_S(Ω)[2] @1 mA	R_S(Ω)[2] @10 mA (Max)	R_S(Ω)[2] @20 mA (Max)	T_L (Typ)	Application
MPP4201	206	70	0.20				2.5	150	Switching / Attenuation
MPP4202	206	50	0.15				2.8	50	Switching
MPP4203	206	50	0.10				3.0	50	Economy Switching
MPP4204	206	25	0.15			2.0		20	Switching
MPP4205	206	70	0.15	250	7-16	5.0		150	Attenuation
MPP4206	206	200	0.15		5 TYP.	2.5		500	Switching / Attenuation
MPL4700	206	25	0.15			2.0[a]		20	Receiver Protection
MPL4701	206	15	0.20			2.5[a]		10	Receiver Protection
MPL4702	406	50[b]	3.0[c]		12	2		30	Anti-parallel Pair MRI Surface Coil Detune

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 1GHz for the MPL series devices.

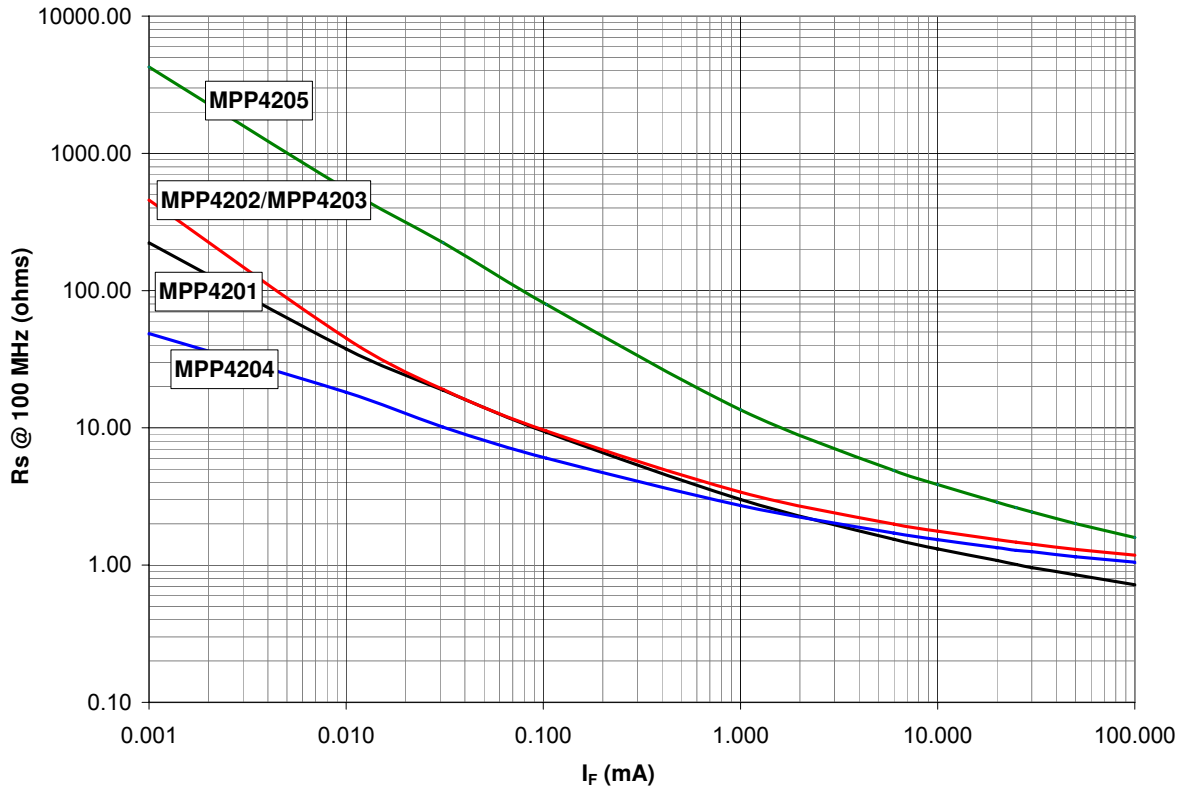
b. Not measured in anti-parallel configuration.

c. Vr= 0V. This value is the sum of two junctions.

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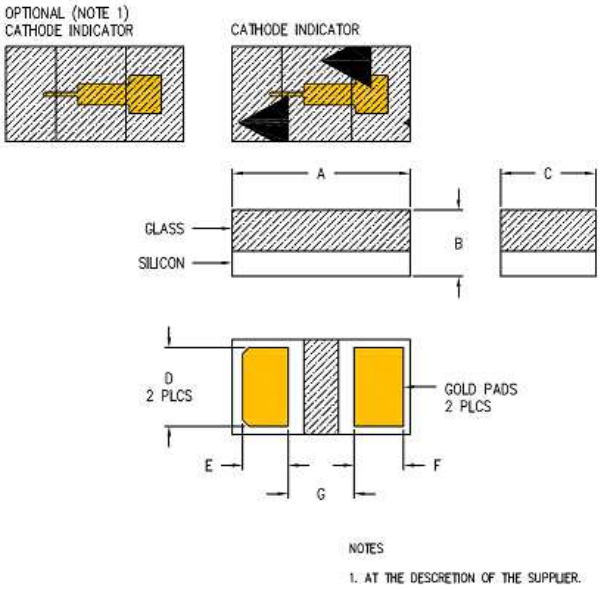
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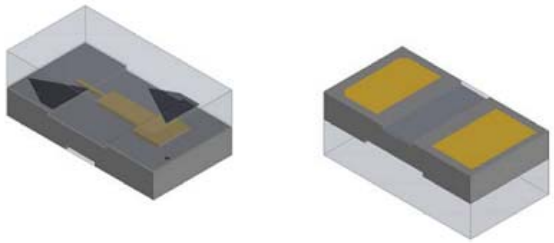
TYPICAL RS VS If @ 25°C



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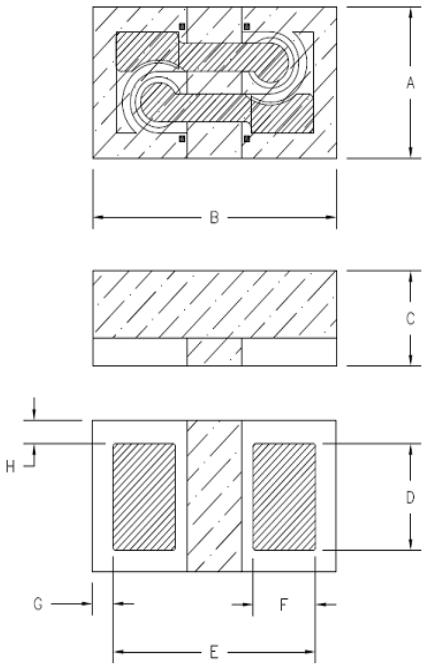
PACKAGE STYLE 206

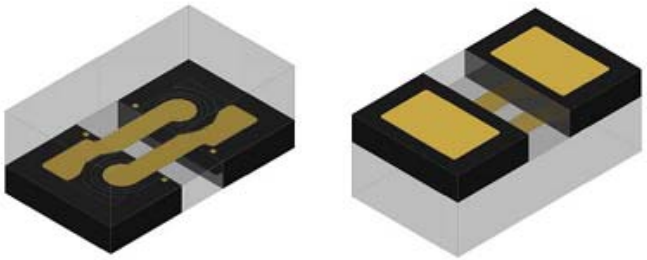




DIM	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.038	0.048	0.965	1.219
B	0.011	0.021	0.279	0.533
C	0.018	0.028	0.457	0.711
D	0.014	0.024	0.356	0.610
E	0.006	0.016	0.152	0.406
F	0.007	0.017	0.178	0.432
G	0.011	0.021	0.279	0.533

PACKAGE STYLE 406





DIM	INCHES			MM		
	MIN	TYP	MAX	MIN	TYP	MAX
A	–	0.023	–	–	0.584	–
B	–	0.043	–	–	1.092	–
C	0.014	–	0.020	0.356	–	0.508
D	–	0.019	–	–	0.483	–
E	–	0.039	–	–	0.991	–
F	–	0.012	–	–	0.305	–
G	–	0.002	–	–	0.051	–
H	–	0.002	–	–	0.051	–

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