

Product Overview

The series of surface mount 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.

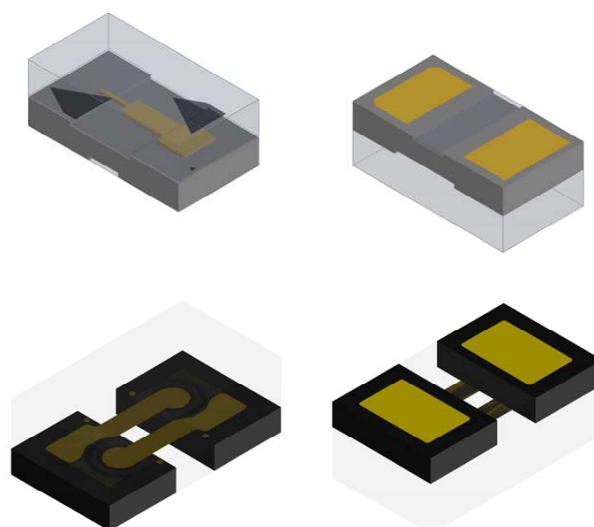
Key Features

- Up to 10W incident RF power handling
- Anti-parallel configuration available
- $L_p = 0.02$ nH typical
- $C_p = 0.04$ pF typical
- Broadband performance through X-band
- Available on tape and reel or on film, frame for pick and place
- Small SOD 323 footprint
- RoHS compliant¹

Applications

- Receiver protection circuits
- Broadband switching
- Economy switching
- RF attenuators
- MRI

Package Styles



Performance Overview

Parameters	Conditions	Value	Units
V_B	$I_R = 10 \mu\text{A}$	15, 25, 50	V
V_F	$I_F = 100 \mu\text{A}$	0.45, 0.60	V
V_F	$I_F = 100 \text{mA}$	1.0, 1.2	V
T_L		10, 20, 30	ns

Note:

1. These devices are supplied with gold terminations.

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1. Electrical Specifications

1.1 Typical Electrical Performance

Table 1-1. Device Electrical Parameters at 25 °C

PN	Pkg Style	V_B	C_T^1	R_S^2	R_S^2	V_F	V_F	T_L
		$I_R = 10 \mu A$	at -10V	at 1 mA	at 10 mA	$I_F = 100 \mu A$	$I_F = 100 mA$	
		(V)	(pF)	(Ω)	(Ω)	(V)	(V)	(ns)
		(Min)	(Max)	(Typ)	(Max)	(Min)	(Max)	(Typ)
MPL4700	206	25	0.15	4	2.0	-	-	20
MPL4701	206	15	0.20	6	2.5	-	-	10
MPL4702	406	50 ^a	3.0 ^b	12	2.0	0.45	1.0	30
MPL4703	406	25 ^a	0.3 ^b	6	3.0	0.60	1.2	20

Notes:

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

1.2 Absolute Maximum Ratings

The following table shows the absolute maximum ratings at 25 °C unless otherwise specified.

Table 1-2. Absolute Maximum Ratings

Ratings	Symbol	Value	Unit
Maximum Leakage current at 80% of minimum rated V_B	I_R	0.5	μA
Operating temperature	T_{OP}	-55 to +150	$^{\circ}C$
Storage temperature	T_{STG}	-65 to +150	$^{\circ}C$

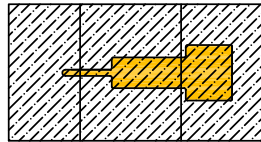


ESD Sensitive Device

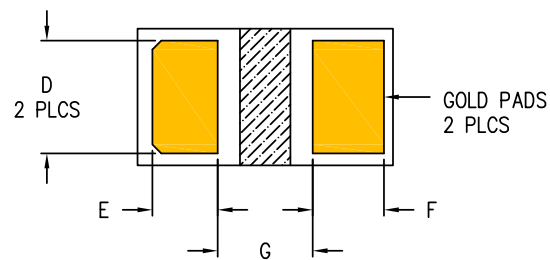
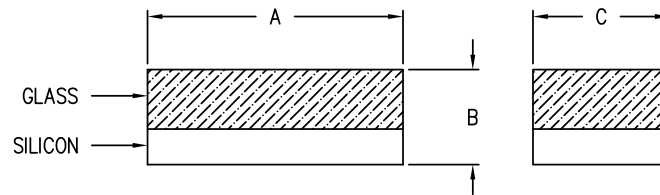
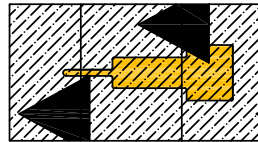
2. Outline Drawing

Package Style - 206

OPTIONAL (NOTE 1)
CATHODE INDICATOR



CATHODE INDICATOR

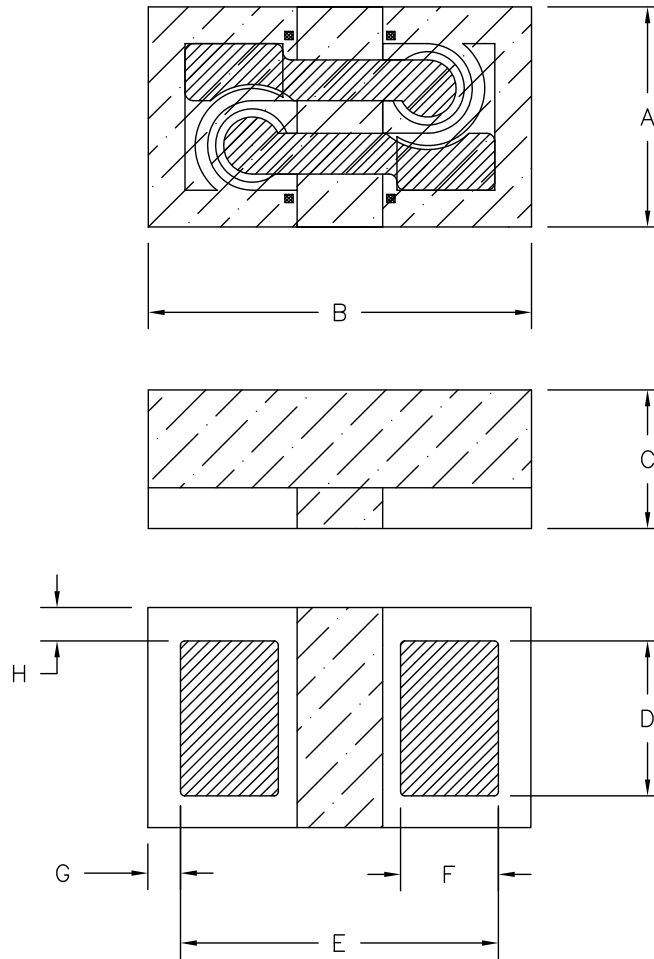


NOTES

1. AT THE DESCRETION OF THE SUPPLIER.

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	-

3. Ordering Information

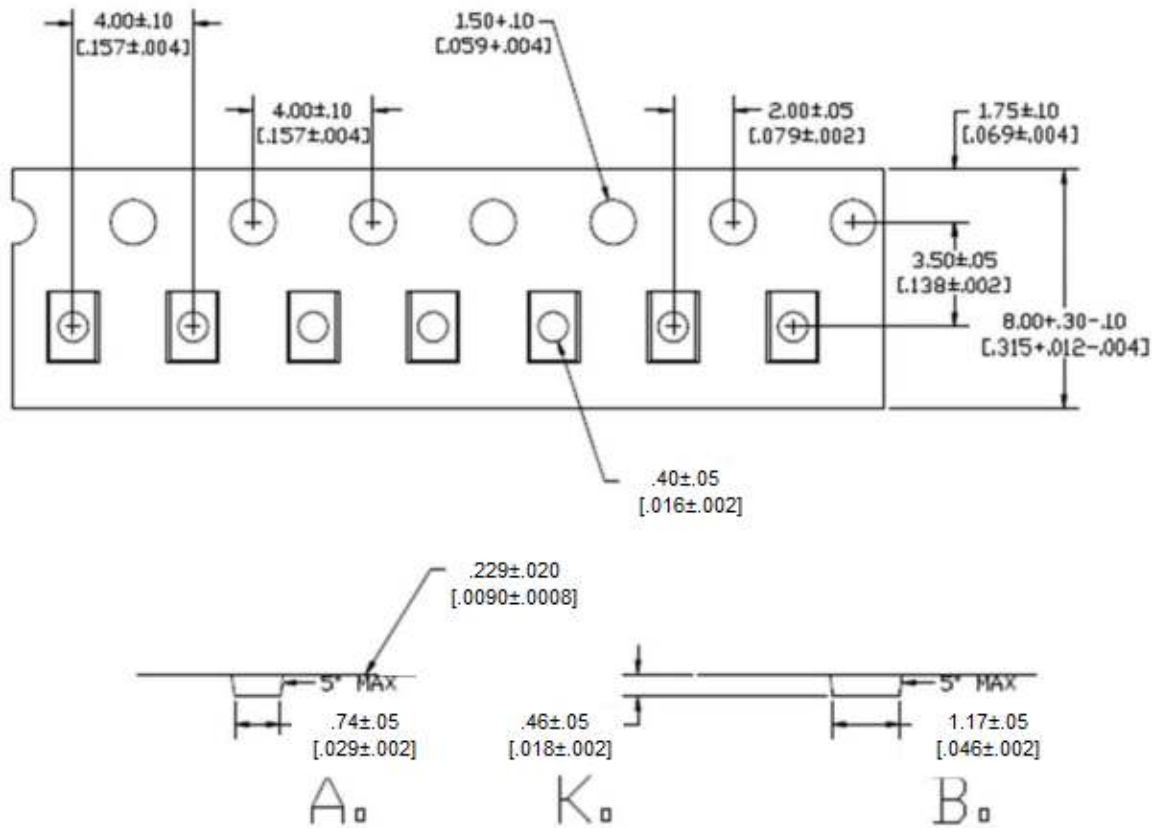
For additional ordering information, contact your Microchip sales representative.

Part Number ¹	Package Style
MPL4700	206
MPL4701	206
MPL4702	406
MPL4703	406

Note:

1. For Tape and reel add /TR at the end, for example, MPL4700-206/TR.

Figure 3-1. Tape and Reel Format—4 mm pitch



4. Revision History

The revision history describes the changes that were implemented in the document. The changes are listed by revision, starting with the most current publication.

Revision	Date	Description
A	07/2023	Document migrated from Microsemi template to Microchip template; Assigned Microchip literature number DS-00005060A.
Initial releases	10/2013 – 05/2020	Initial releases

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ISBN: 978-1-6683-2724-1

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