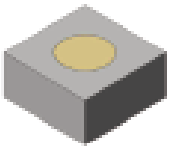
MLP71xx Series

Low Power Limiter Diodes

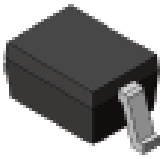
Rev. V2

Features

- Low Insertion Loss
- Fats Turn-on Time
- Wide Bandwidth
- RoHS* Compliant

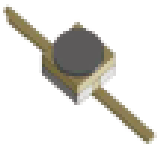


CS11

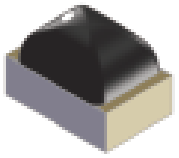


SOD323

CS37



H20



CS16

CS32

Description

The MLP71xx Series limiter diodes are specially processed PIN diodes with thin intrinsic regions designed for use in passive or active limiters from 100 MHz to beyond 20 GHz. The different "I" region thicknesses and capacitances provide variable threshold and leakage power levels and power handling capability.

This rugged device is capable of reliable operation in military, commercial and industrial applications.

The MPL71xx Series is designed to be used in receiver protection applications.

Electrical Specifications: T_A = +25°C

Parameter	Breakdown Voltage (V_B)	Junction Capacitance* (C_J)		Series Resistance (R_S)		Lifetime (T_L)	Thermal Resistance
Condition	I_R = 10 µA	V_R = 0 V, 1 MHz	V_R = 6 V, 1 MHz	I_F = 10 mA, 1 GHz	I_F = 1 mA, 1 GHz	I_F = 10 mA, I_R = 6 mA	
Unit	V	pF		Ω		ns	°C/W
	Typ.	Typ.	Max.	Typ.	Typ.	Typ.	Max.
MLP7100	20 - 45	0.2	0.15	1.5	5.0	5	100
MLP7101	20 - 45	0.5	0.30	1.2	4.5	10	80
MLP7102	20 - 45	0.7	0.50	1.0	4.0	10	55
MLP7110	45 - 75	0.2	0.15	1.5	4.0	10	80
MLP7111	45 - 75	0.5	0.30	1.2	3.5	15	60
MLP7112	45 - 75	0.7	0.50	1.0	3.0	20	40
MLP7120	120 - 180	0.2	0.15	1.5	3.5	50	40
MLP7121	120 - 180	0.6	0.30	1.0	3.0	50	20
MLP7122	120 - 180	0.8	0.50	0.5	3.0	100	15
MLP7130	15 - 30	0.12	0.10	2.0	4.0	5	120
MLP7131	15 - 30	0.2	0.15	1.5	3.0	5	80
MLP7140	30 - 60	0.12	0.10	2.0	4.0	7	100
MLP7141	30 - 60	0.2	0.15	1.5	4.0	7	70

* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

M/A-COM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macom.com for additional data sheets and product information.

For further information and support please visit:
https://www.macom.com/support

RF Characteristics: T_A = +25°C

Unit	Peak Power In	Threshold	Leakage Output Power	Insertion Loss	CW Input Power	Recovery Time
	dBm	dBm	dBm	dB	W	ns
	Max.	Typ.	Typ.	Typ.	Max.	Typ.
MLP7100	50	10	22	0.1	2	10
MLP7101	53	10	24	0.2	3	10
MLP7102	56	10	25	0.2	4	10
MLP7110	53	15	27	0.1	3	20
MLP7111	56	15	29	0.2	4	20
MLP7112	59	15	31	0.2	5	20
MLP7120	60	20	39	0.1	5	50
MLP7121	63	20	41	0.2	10	50
MLP7122	66	20	44	0.2	15	50
MLP7130	47	7	19	0.1	2	5
MLP7131	50	7	22	0.1	3	5
MLP7140	47	12	24	0.1	3	10
MLP7141	50	12	27	0.1	4	10

Absolute Maximum Ratings

Parameter	Absolute Maximum
Leakage Current	100 nA @ 80% of min. V_B
Operating Temperature	-55°C to +150°C
Storage Temperature	-65°C to +100°C

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 HBM Class 0 devices.

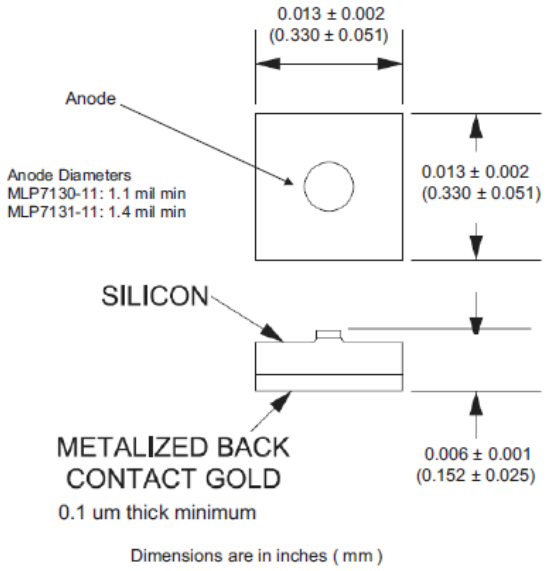
Moisture Sensitivity

These electronic devices are rated MSL 1.

M/A-COM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macom.com for additional data sheets and product information.

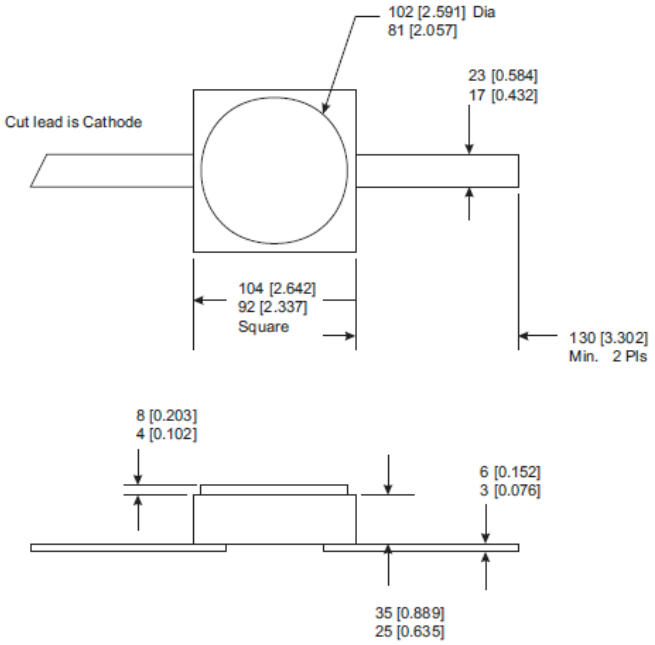
For further information and support please visit:
https://www.macom.com/support

Outline Drawing - CS11



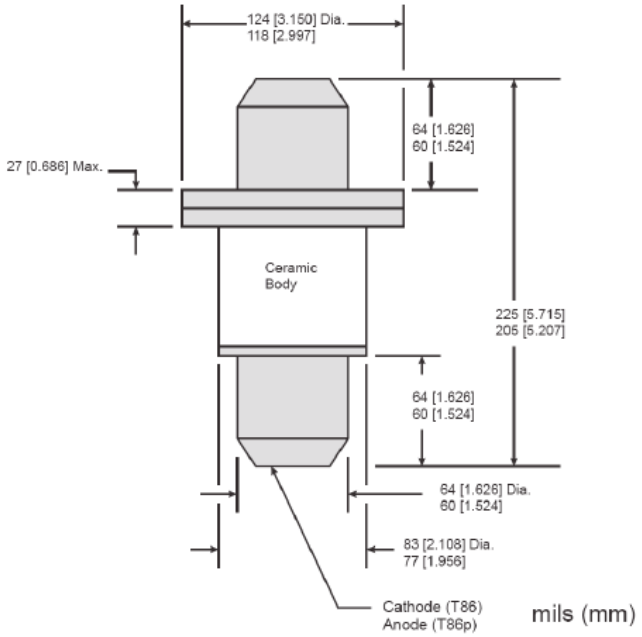
Dimensions are in inches (mm)

Outline Drawing - CS20 (H20)



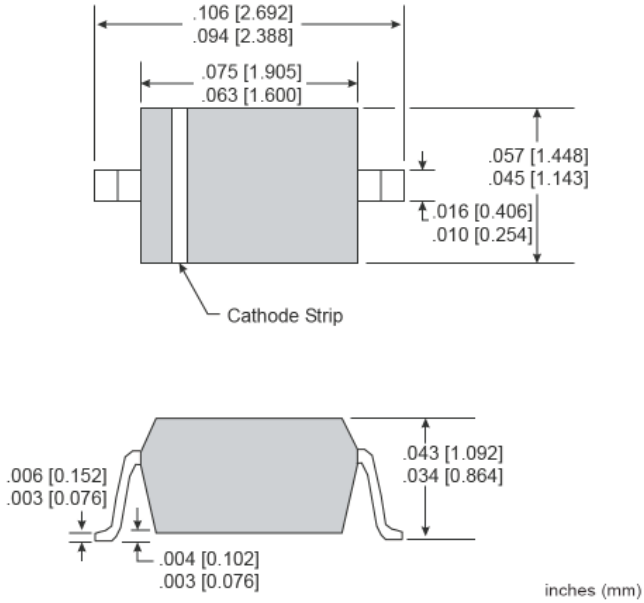
Package Capacitance (C_{PKG}) = 0.2 pF

Outline Drawing - CS37 (T86)



Package Capacitance (C_{PKG}) = 0.17 pF

Outline Drawing - SOD323

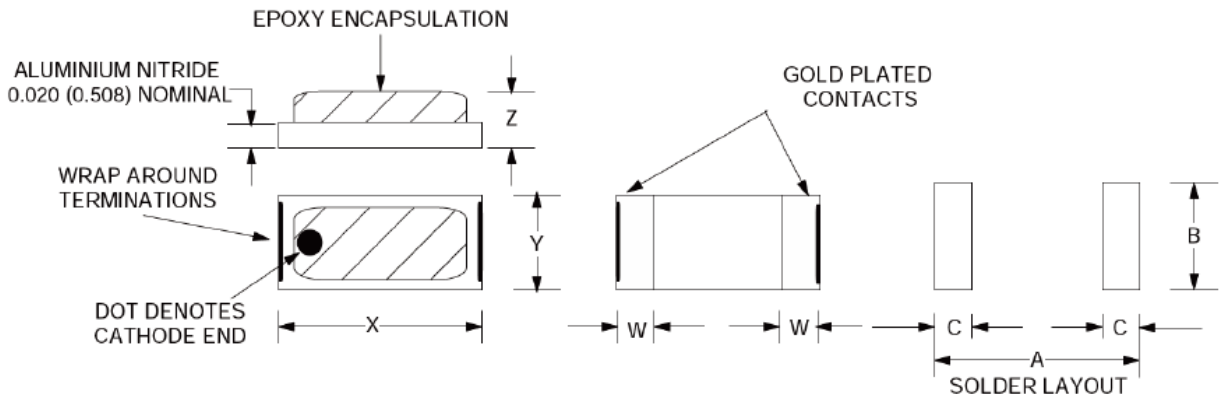


Package Capacitance (C_{PKG}) = 0.2 pF

M/A-COM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macom.com for additional data sheets and product information.

For further information and support please visit:
https://www.macom.com/support

Outline Drawing - CS16

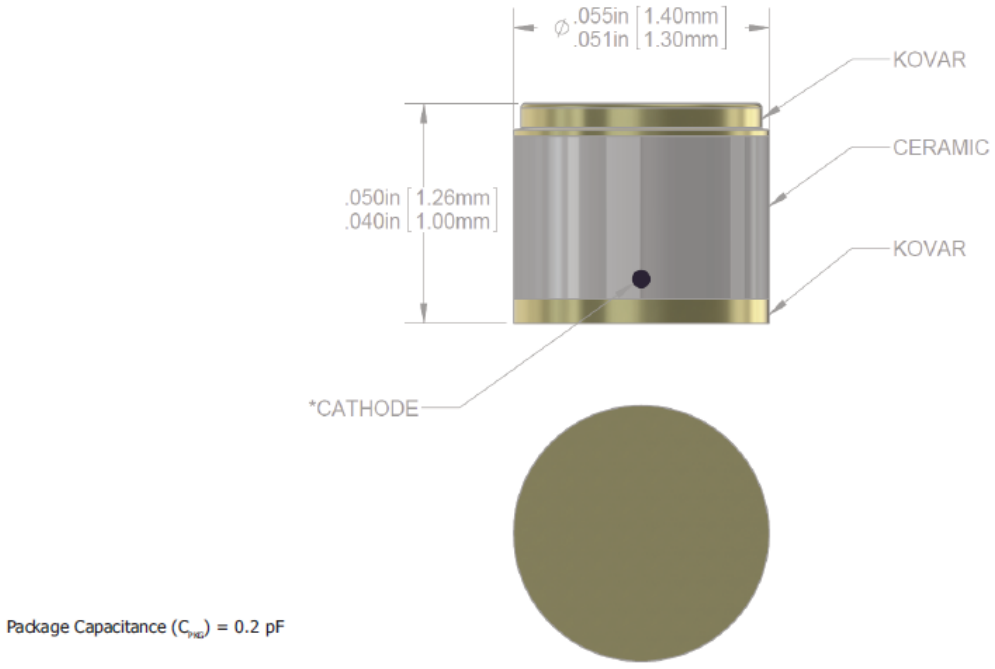


Package Style	Dimensions				Solder Layout (Typ.)			Package	
	W	X	Y	Z	A	B	C	CP (pF)	LP (nH)
CS16-1	0.012 (0.304)	0.060 (1.52)	0.040 (1.01)	0.050 (1.27)	0.072 (1.83)	0.040 (1.01)	0.020 (0.508)	0.09	0.35
CS16-2	0.012 (0.304)	0.075 (1.91)	0.050 (1.27)	0.050 (1.27)	0.087 (2.21)	0.070 (1.78)	0.020 (0.508)	0.11	0.4
CS16-3	0.012 (0.304)	0.100 (2.54)	0.050 (1.27)	0.050 (1.27)	0.112 (2.84)	0.070 (1.78)	0.020 (0.508)	0.14	0.4
CS16-4	0.012 (0.304)	0.120 (3.05)	0.060 (1.52)	0.050 (1.27)	0.132 (3.35)	0.080 (2.03)	0.020 (0.508)	0.09	0.4
CS16-5	0.012 (0.304)	0.200 (5.08)	0.100 (2.54)	0.050 (1.27)	0.212 (5.38)	0.120 (3.05)	0.020 (0.508)	0.09	0.5
CS16-6	0.010 (0.254)	0.040 (1.01)	0.020 (0.508)	0.050 (1.27)	0.050 (1.27)	0.030 (0.762)	0.018 (0.457)	0.06	0.35
CS16-7	0.010 (0.254)	0.060 (1.52)	0.020 (0.508)	0.050 (1.27)	0.070 (1.78)	0.030 (0.762)	0.018 (0.457)	0.08	0.35
Tolerance (+/-)	0.002 (0.051)	0.003 (0.76)	0.003 (0.76)	Max.	Nom.	Nom.	Nom.	Nom.	Nom.

M/A-COM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macom.com for additional data sheets and product information.

For further information and support please visit:
https://www.macom.com/support

Outline Drawing - CS32



Package Capacitance (C_{PKG}) = 0.2 pF

Ordering Information

Case Style	Description
-11	CS11 , Limiter PIN diode in chip form
-16-x	CS16 , Surface mount, AlN Carrier, Epoxy encapsulated package
-20	CS20 (H20) , Surface mount, Ceramic package
-37	CS37 (T86) Pill package, Ceramic body
-SOD323	SOD323, Surface mount Plastic package
-32	CS32, Kovar pill package
Example Part Number : MLP71XX-YY, Replace - YY with the desired case style suffix	

M/A-COM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macom.com for additional data sheets and product information.

For further information and support please visit:
https://www.macom.com/support

M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppels or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.