MLP71xx Series

Rev. V8

Features

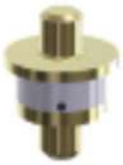
- Low Insertion Loss
- Fast Turn-on Time
- Wide Bandwidth
- RoHS* Compliant



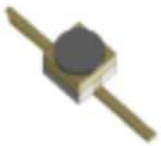
CS11



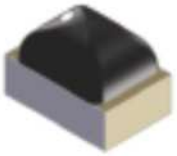
SOD323



CS37



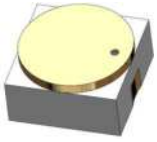
H20



CS16



CS32 & CS32SP



ODS-1056

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, compliant to current RoHS EU directive.

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RF Characteristics: T_A = +25°C

Parameter	Peak Power In	Threshold	Leakage Output Power	Insertion Loss	CW Input Power	Recovery Time
Unit	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 +150°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.

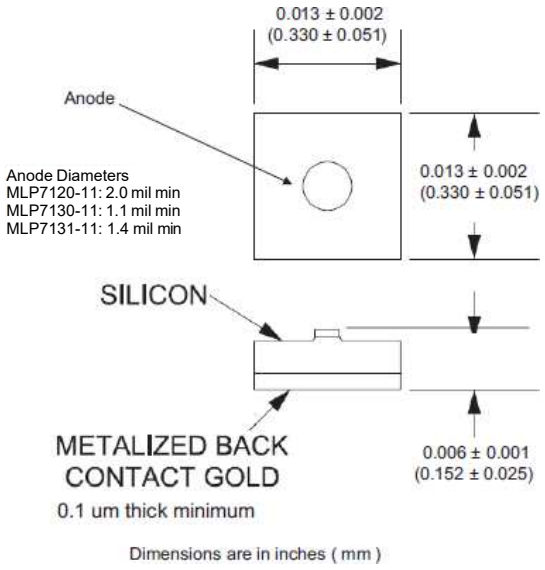
Moisture Sensitivity

These electronic devices are rated MSL 1.

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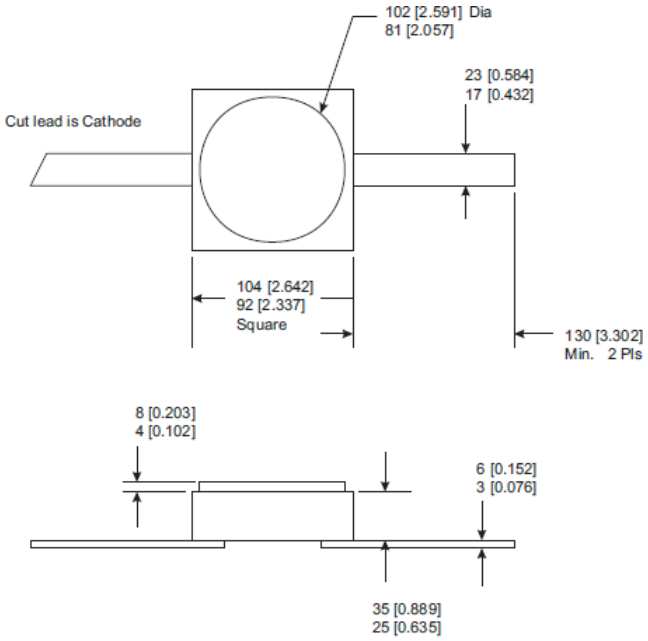
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Outline Drawing - CS11



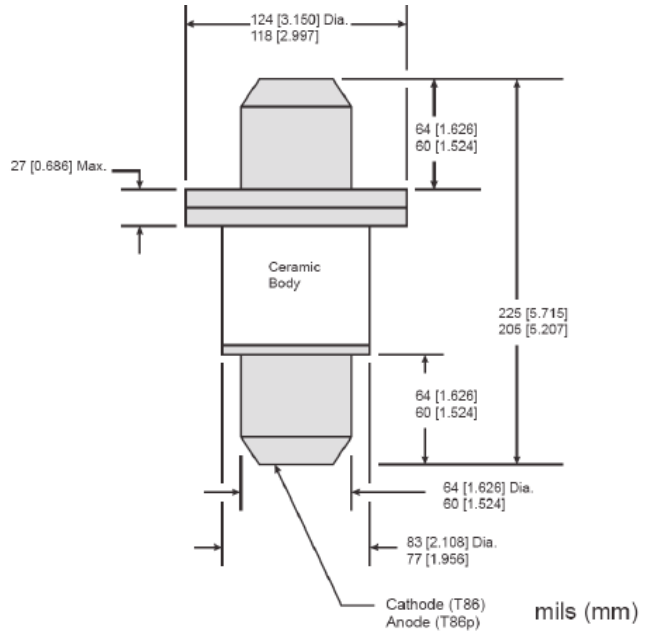
Dimensions are in inches (mm)

Outline Drawing - CS20 (H20)



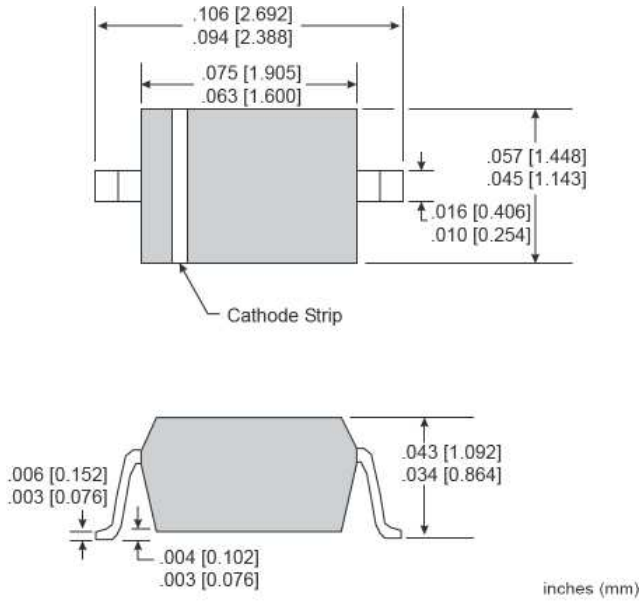
Package Capacitance (C_{PKG}) = 0.2 pF

Outline Drawing - CS37 (T86)



Package Capacitance (C_{PKG}) = 0.17 pF

Outline Drawing - SOD323

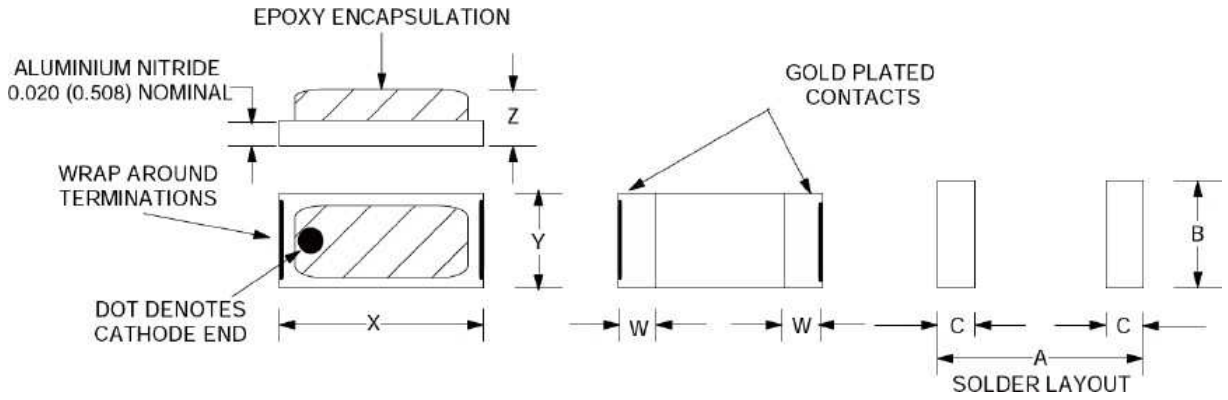


Package Capacitance (C_{PKG}) = 0.2 pF

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Outline Drawing - CS16-x

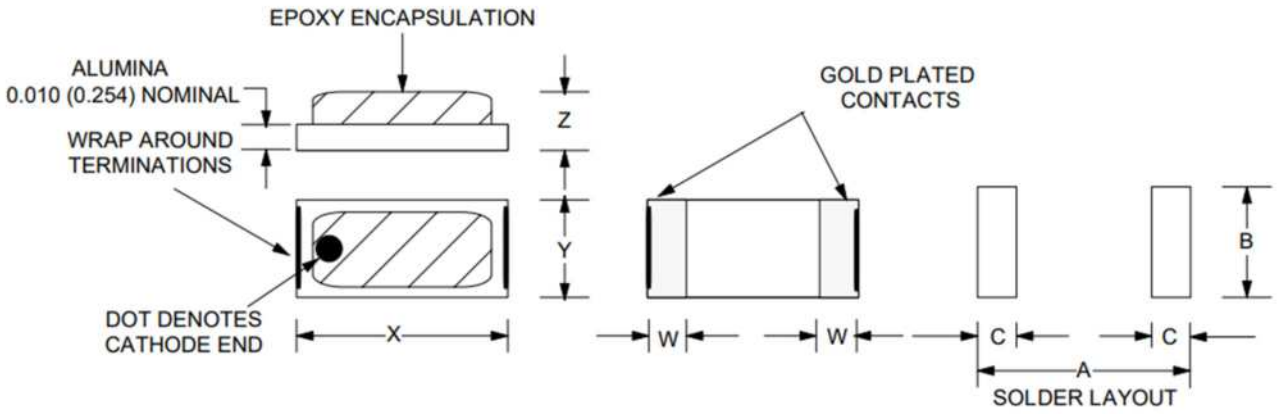


Package Style	Dimensions				Solder Layout (Typ.)			Package	
	W	X	Y	Z	A	B	C	CP (pF)	LP (nH)
CS16-1	0.012 (0.304)	0.060 (1.52)	0.040 (1.01)	0.050 (1.27)	0.072 (1.83)	0.040 (1.01)	0.020 (0.508)	0.09	0.35
CS16-2	0.012 (0.304)	0.075 (1.91)	0.050 (1.27)	0.050 (1.27)	0.087 (2.21)	0.070 (1.78)	0.020 (0.508)	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.

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Outline Drawing - CS19-x/E19-X

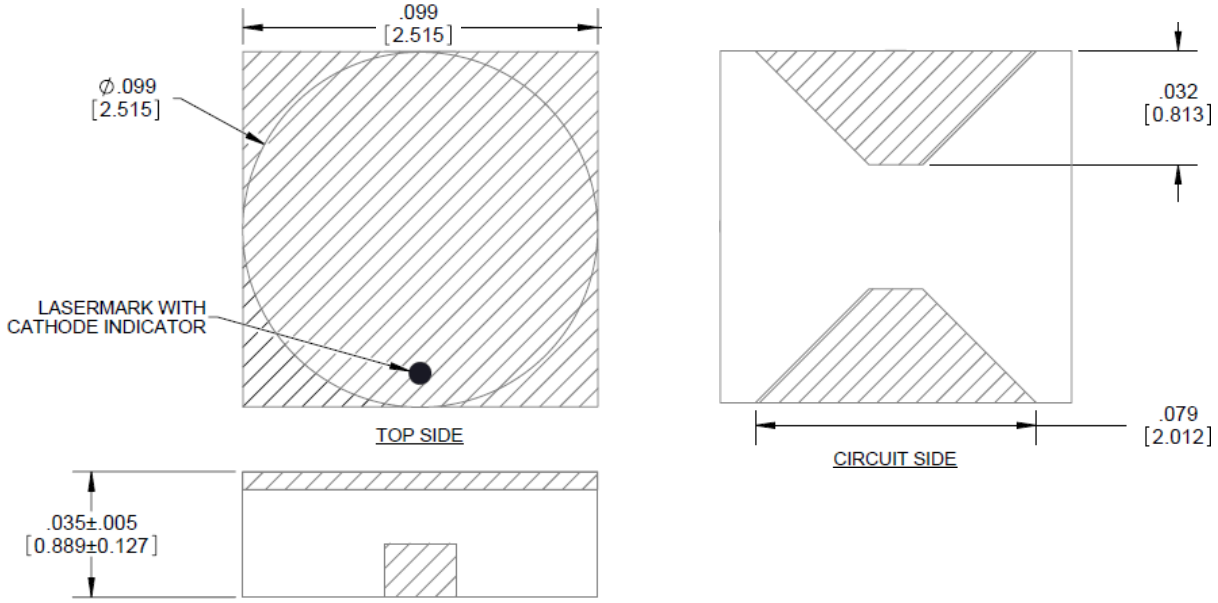


Package Style	Dimensions				Solder Layout (Typ.)			Package	
	W	X	Y	Z	A	B	C	CP (pF)	LP (nH)
CS19-1	0.012 (0.304)	0.060 (1.52)	0.040 (1.01)	0.030 (.762)	0.072 (1.83)	0.040 (1.01)	0.020 (0.508)	0.11	0.35
CS19-2	0.012 (0.304)	0.075 (1.91)	0.050 (1.27)	0.035 (.889)	0.087 (2.21)	0.070 (1.78)	0.020 (0.508)	0.13	0.4
CS19-3	0.012 (0.304)	0.100 (2.54)	0.050 (1.27)	0.035 (.889)	0.112 (2.84)	0.070 (1.78)	0.020 (0.508)	0.16	0.4
CS19-4	0.012 (0.304)	0.120 (3.05)	0.060 (1.52)	0.035 (.889)	0.132 (3.35)	0.080 (2.03)	0.020 (0.508)	0.11	0.4
CS19-5	0.012 (0.304)	0.200 (5.08)	0.100 (2.54)	0.035 (.889)	0.212 (5.38)	0.120 (3.05)	0.020 (0.508)	0.11	0.5
CS19-6	0.010 (0.254)	0.040 (1.01)	0.020 (0.508)	0.030 (.762)	0.050 (1.27)	0.030 (0.762)	0.018 (0.457)	0.08	0.35
CS19-7	0.010 (0.254)	0.060 (1.52)	0.020 (0.508)	0.030 (.762)	0.070 (1.78)	0.030 (0.762)	0.018 (0.457)	0.10	0.35
Tolerance (+/-)	0.002 (0.051)	0.003 (0.76)	0.003 (0.76)	Max.	Nom.	Nom.	Nom.	Nom.	Nom.

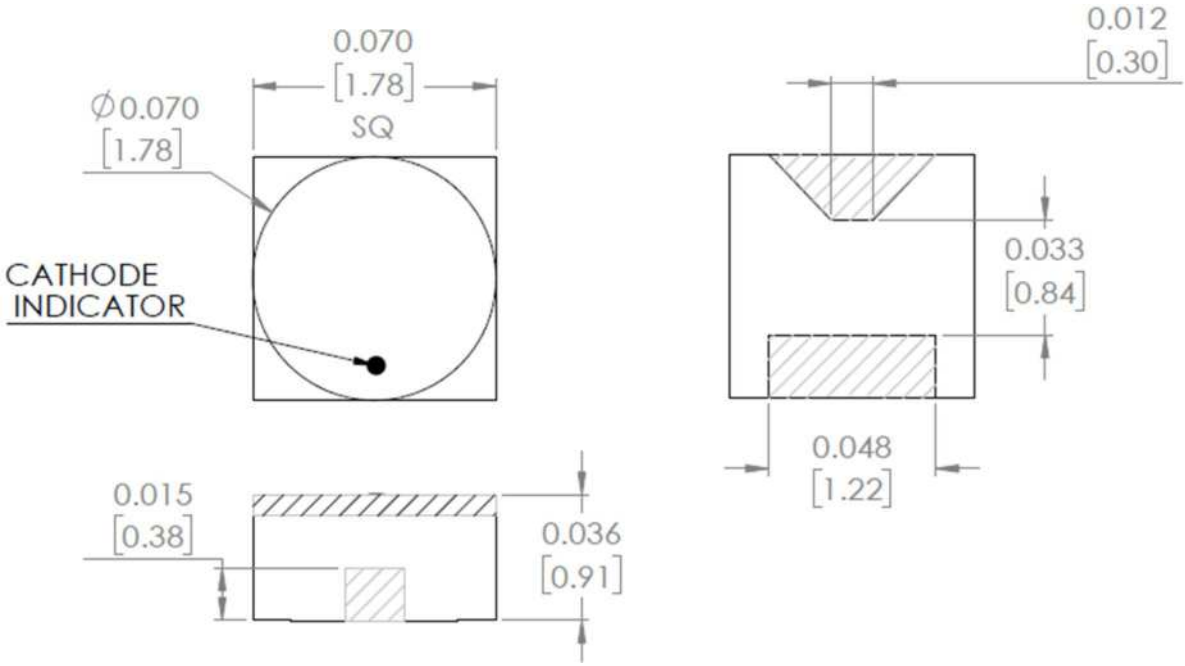
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Outline Drawing - CS20NL



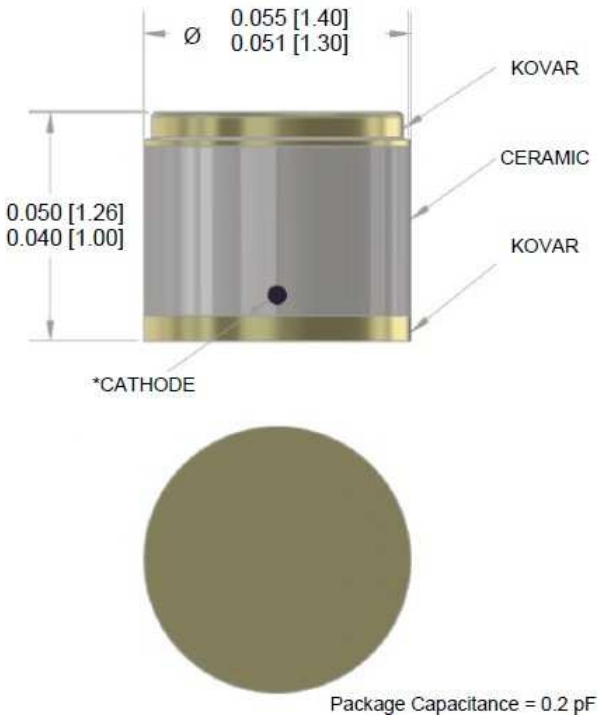
Outline Drawing - ODS-1056



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Outline Drawing - CS32 (* CS32SP–OFHC Cu)



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Ordering Information

Case Style	Description
-11	CS11, limiter PIN diode in chip form
-16-x	CS16, surface mount, AlN carrier, epoxy encapsulated package
-19-x	CS19, surface mount, AlN carrier, epoxy encapsulated package
-20	CS20 (H20), surface mount, ceramic package
-20NL	CS20NL, surface mount, ceramic package
-32	CS32, Kovar pill package
-32SP	CS32SP, OFHC Cu pill package
-37	CS37 (T86), pill package, ceramic body
-SOD323	SOD323, surface mount plastic package
-1056	ODS-1056, surface mount, ceramic package
Example Part Number: MLP71XX-YY, Replace -YY with the desired case style suffix	

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