

# Silicon Limiter PIN Diode

## MLP7100 Series



Chip



SOD-323



CS37



CS20



CS19



### DESCRIPTION

The Aeroflex / Metelics MLP71XX Series Limiter diodes are specially processed PIN diodes with a thin intrinsic region designed for use in passive or active limiters over the entire range of frequencies 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

### Features

- Low Loss
- Greater Bandwidth
- Fast Turn on Time

### Maximum Ratings

Rating	Limits	Units
Operating Temperature	-55 to +150	°C
Maximum Leakage Current	0.5 mA at 88% of minimum breakdown	
ESD & MSL Ratings	Class 0 (Human Body Model) & MSL1	

### Electrical Characteristics $T_{CASE} = +25\text{ }^{\circ}\text{C}$

	Reverse Voltage	Total Capacitance*	Total Capacitance*	Series Resistance	Series Resistance	Lifetime	Pulsed Thermal Resistance	Thermal Resistance
	VB	CT	CT	RS	RS	TL	1uS pulse	
Condition	IR=10uA	VR=0V, f=1MHz	VR=6V, f=1MHz	IF=10mA, F=1GHz	IF=1mA, F=1GHz	IF=10mA, IR=6mA		
UOM	V	pF	pF	Ohm	Ohm	nS	°C/W	°C/W
Spec	Typ	Typ	Max	Typ	Typ	Typ	Typ	Max
MLP7100	20 - 45	0.2	0.15	1.5	5	5	20	100
MLP7101	20 - 45	0.5	0.3	1.2	4.5	10	12	80
MLP7102	20 - 45	0.7	0.5	1	4	10	10	55
MLP7110	45 - 75	0.2	0.15	1.5	4	10	15	80
MLP7111	45 - 75	0.5	0.3	1.2	3.5	15	10	60
MLP7112	45 - 75	0.7	0.5	1	3	20	6	40
MLP7120	120 - 180	0.2	0.15	1.5	3.5	50	1.2	40
MLP7121	120 - 180	0.6	0.3	1	3	50	0.5	20
MLP7122	120 - 180	0.8	0.5	0.5	3	100	0.3	15
MLP7130	15 - 30	0.12	0.1	2	4	5	30	120
MLP7131	15 - 30	0.2	0.15	1.5	3	5	20	80
MLP7140	30 - 60	0.12	0.1	2	4	7	20	100
MLP7141	30 - 60	0.2	0.15	1.5	4	7	15	70

\*  $C_T$  value given in chip form and will vary depending upon the desired packaging type.

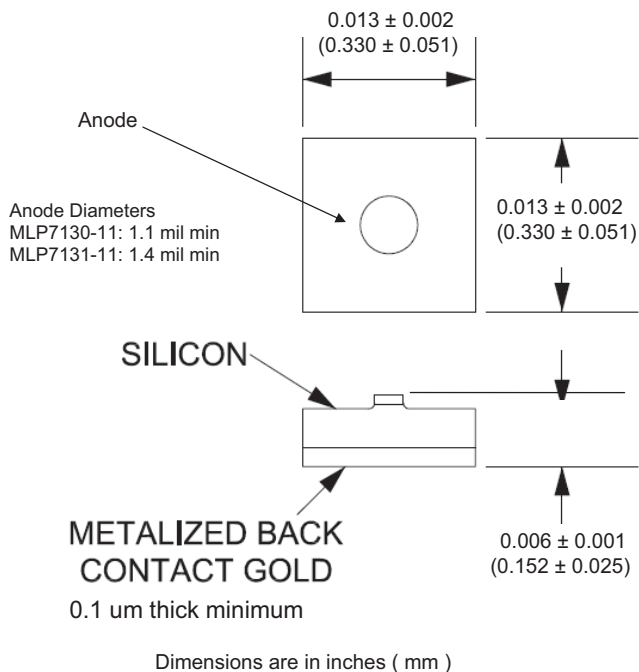


RF Characteristics  $T_{Case} = +25^{\circ}C$

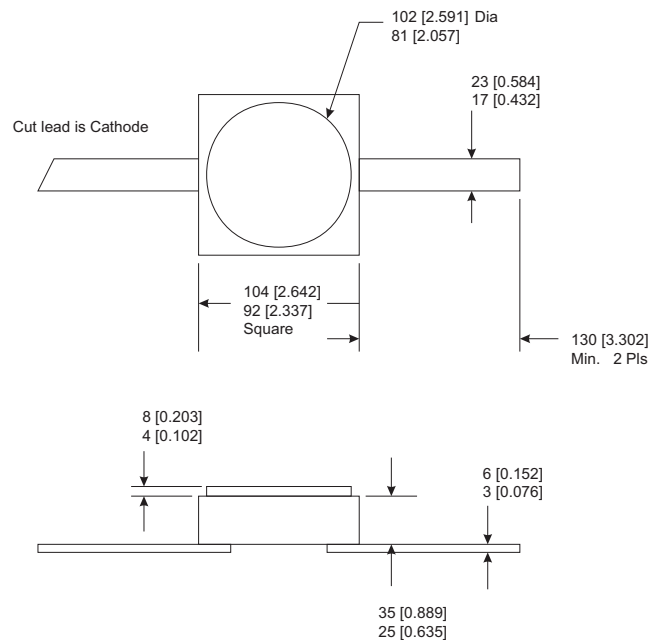
	Peak Power In	Threshold	Leakage Pout	Insertion Loss	C.W. Power In	Recovery Time
UoM	dBm	dB	dBm	dB	W	nS
Spec.	Maximum	Typical	Typical	Typical	Maximum	Typical
MLP7100	50	10	22	0.1	2	10
MLP7101	53	10	24	0.2	3	10
MLP7102	56	10	25	0.2	4	10
MLP7110	53	15	27	0.1	3	20
MLP7111	56	15	29	0.2	4	20
MLP7112	59	15	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

Outline Drawings

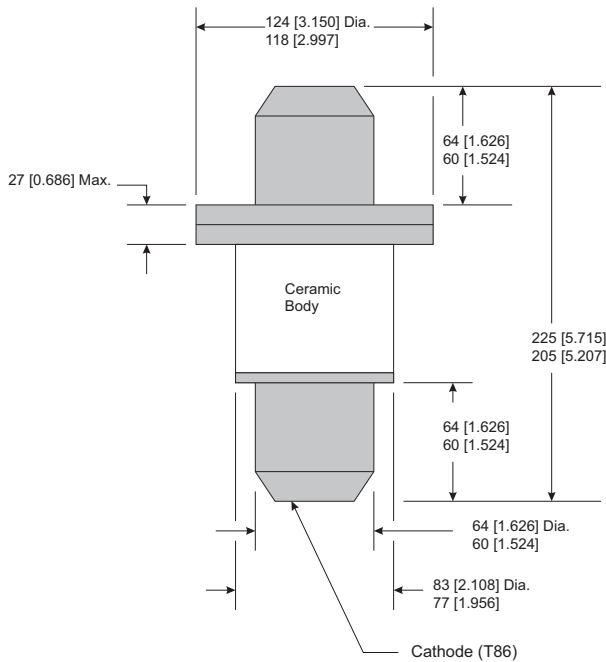
CS11 (C11)



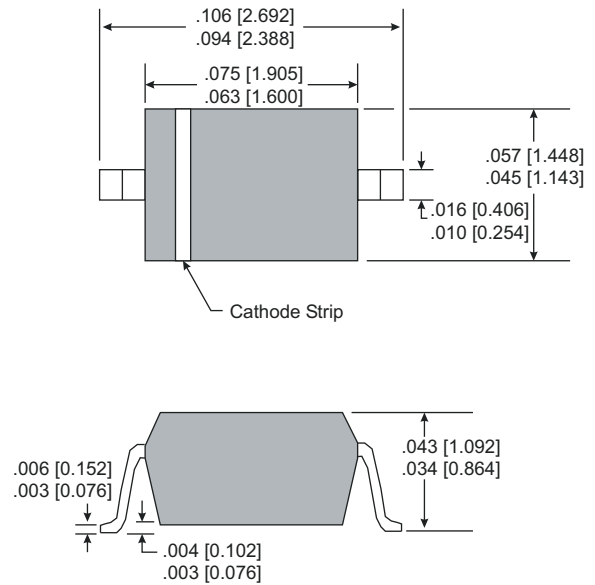
CS20 (H20)



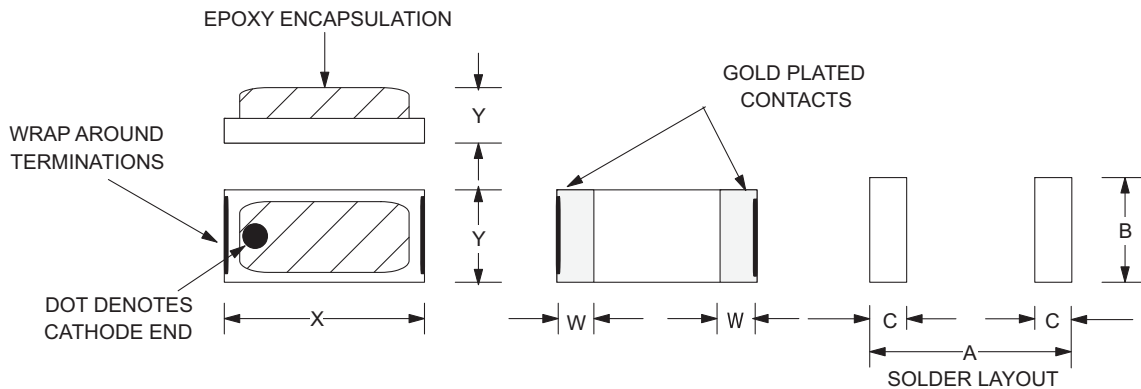
### CS37 (T86)



### SOD-323



### CS19



PKG STYLE	DIMENSIONS				SOLDER LAYOUT (TYP.)			PACKAGE CP AND LP
	W DIM.	X DIM	Y DIM.	Z DIM.	A	B	C	
CS19-1	12 (.304)	60 (1.52)	40 (1.01)	30 (.762)	72 (1.83)	40 (1.52)	20 (.508)	.06 pF .4 nH
CS19-2	12 (.304)	75 (1.91)	50 (1.27)	35 (.889)	87 (2.21)	70 (1.78)	20 (.508)	.07 pF .4 nH
CS19-3	12 (.304)	100 (2.54)	50 (1.27)	35 (.889)	112 (2.84)	70 (1.78)	20 (.508)	.08 pF .5 nH
CS19-4	12 (.304)	120 (3.05)	60 (1.52)	35 (.889)	132 (3.35)	80 (2.03)	20 (.508)	.09 pF .6 nH
CS19-5	12 (.304)	200 (5.08)	100 (2.54)	35 (.889)	212 (5.38)	120 (3.05)	20 (.508)	.10 pF .6 nH
CS19-6	10 (.254)	40 (1.01)	20 (.508)	30 (.762)	50 (1.27)	30 (.762)	15 (.381)	.05 pF .4 nH
CS19-7	10 (.254)	60 (1.52)	20 (.508)	30 (.762)	70 (1.78)	30 (.762)	15 (.381)	.06 pF .4 nH
TOL. ±	2.0 (.051)	3.0 (.076)	3.0 (.076)	MAX.	NOM.	NOM.	NOM.	NOM.

Note: Dimensions are in inches (mm)

### Ordering Information

Example Part: MLP71XX-XX, replace –XX with desired case style suffix	
-11	CS11 (C11), Silicon Die
-19	CS19, Surface Mount, Epoxy Encapsulated
-20	CS20 (H20), Surface Mount, Ceramic Package
-37	CS37 (T86), Pill Package, Ceramic Body
0	SOD323, Surface Mount, Plastic Package

#### Aeroflex / Metelics, Inc.

54 Grenier Field Road, Londonderry, NH 03053  
Tel: (603) 641-3800  
Sales: (888) 641-SEMI (7364)  
Fax: (603)-641-3500

975 Stewart Drive, Sunnyvale, CA 94085  
Tel: (408) 737-8181  
Fax: (408) 733-7645

[www.aeroflex.com/metelics](http://www.aeroflex.com/metelics)

[metelics-sales@aeroflex.com](mailto:metelics-sales@aeroflex.com)

Aeroflex / Metelics, Inc. reserves the right to make changes to any products and services herein at any time without notice. Consult Aeroflex or an authorized sales representative to verify that the information in this data sheet is current before using this product. Aeroflex does not assume any responsibility or liability arising out of the application or use of any product or service described herein, except as expressly agreed to in writing by Aeroflex; nor does the purchase, lease, or use of a product or service from Aeroflex convey a license under any patent rights, copyrights, trademark rights, or any other of the intellectual rights of Aeroflex or of third parties.

Copyright 2011 Aeroflex / Metelics. All rights reserved.

ISO 9001:2008 certified companies



Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.