

## Step Recovery Diode

Rev. V1

### Features

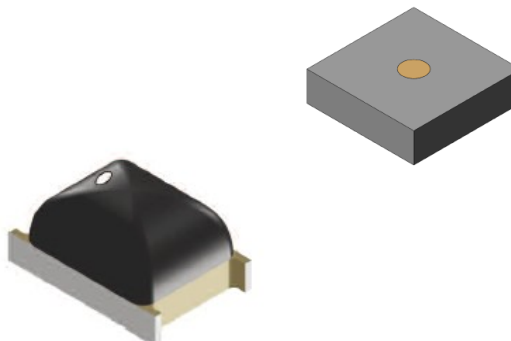
- Low Transition Time
- High Efficiency
- High Cutoff Frequency
- High Reliability
- RoHS\* Compliant

### Description

The MSD700 step recovery diode is designed with epitaxial silicon which provides high output power and efficiency in harmonic generator applications. It is manufactured using a proven diode fabrication process for high reproducibility. A unique silicon dioxide passivation process assures greater stability reliability and low leakage currents at high temperatures.

This diode is available in chip form, and in ceramic surface mount package with epoxy encapsulation (CS19-1). The low junction capacitance (0.2 pF typical) of the MSD700 enables the device to be used in higher order multipliers and comb generator.

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



### Electrical Specifications: $T_A = +25^\circ\text{C}$

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Breakdown Voltage ( $V_B$ )	$I_R = 10 \mu\text{A}$	V	15	—	—
Series Resistance ( $R_S$ )	$I_F = 25 \text{ mA}$	$\Omega$	—	—	1.2
Junction Capacitance ( $C_J$ )	$V_R = 0 \text{ V}, 1 \text{ MHz}$ $V_R = -6 \text{ V}, 1 \text{ MHz}$	pF	— 0.2	0.2 —	— 0.4
Minority Carrier Lifetime ( $T_L$ )	$I_F = 6 \text{ mA}, I_R = 10 \text{ mA}$	ns	—	8	—
Transition Time ( $T_T$ )	$I_F = 10 \text{ mA}, V_R = 10 \text{ V}$	ps	—	60	—
Thermal Resistance ( $\theta_{JC}$ )	—	$^\circ\text{C/W}$	—	—	125

### Ordering Information

Part Number	Package
MSD700-C11-W	400 piece waffle pack
MSD700-C19-1-W	100 piece waffle pack
MSD700-C19-1-R	3000 piece reel

### Absolute Maximum Ratings

Parameter	Absolute Maximum
Reverse DC Voltage	15 V
Junction Temperature	+150 $^\circ\text{C}$
Operating Temperature	-55 $^\circ\text{C}$ to +150 $^\circ\text{C}$
Storage Temperature	-65 $^\circ\text{C}$ to +200 $^\circ\text{C}$

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

### Environmental Capabilities

The MSD700 step recovery diode is capable of meeting the environmental requirements of MIL-STD-750 and MIL-STD-883.

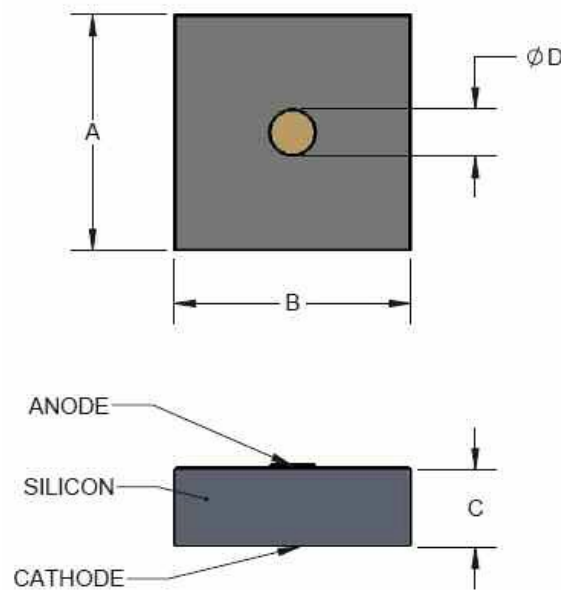
### ESD & Moisture Sensitivity Level Rating

As are all semiconductors, MSD700 diode is susceptible to damage from ESD events. Proper

### Assembly Instructions

Die attach of the MSD700 SRD chip diodes may be accomplished with eutectic solders, such as 80 Au / 20 Sn, or conductive epoxy. The leads of the beam lead device may be attached to a hybrid circuit using thermo compression bonding or conductive epoxy.

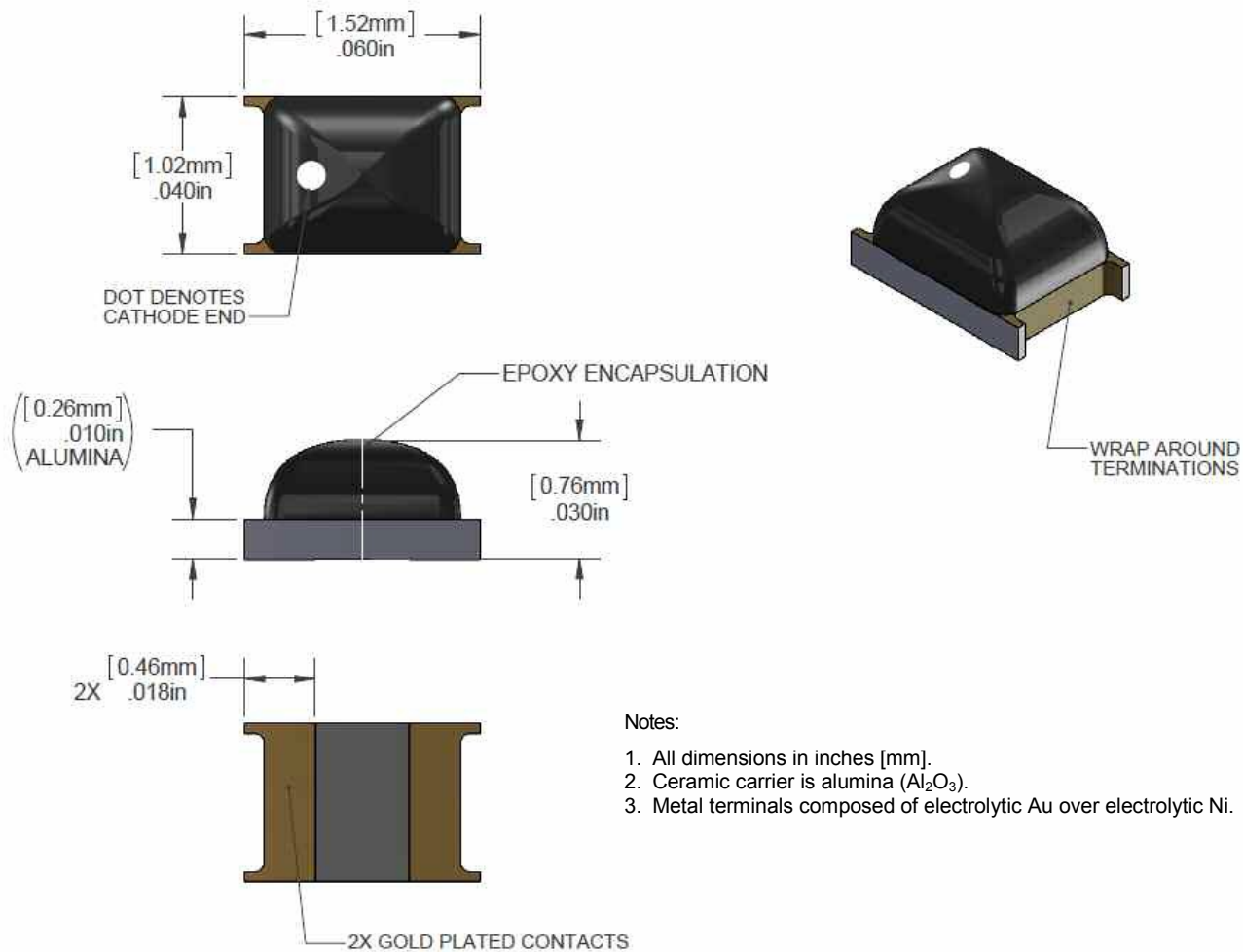
### Outline (CS11)



### Dimensions (CS11)

Dim.	Min.	Nom.	Max.
A	0.013	0.015	0.017
B	0.013	0.015	0.017
C	0.004	0.005	0.006
D	—	≥0.002	—

### Outline (CS19-1)



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