

## Features

- High Average Incident Power Handling
- Rectangular MELF Ceramic Package
- Hermetically Sealed
- RoHS\* Compliant

## Applications

- MIL-Com
- Public Safety Radio

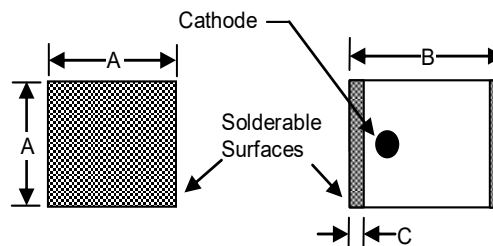
## Description

The MADP-SD0053-10790T is a surface mount PIN diode in a Metal Electrode Leadless Faced (MELF) package.

The MADP-SD0053-10790T is manufactured using MACOM's time proven HIPAX technology. The result is a low inductance ceramic package with no ribbons or wires. Incorporated in the package is a glass passivated CERMA chip that is full face bonded on the cathode and anode which maximizes the surface contact area to minimize the electrical and thermal resistances. The chip and package have been comprehensively characterized both electrically and mechanically to ensure repeatable and predictable performance.

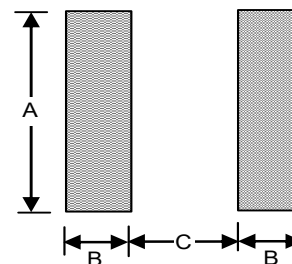
The MADP-SD0053-10790T is designed for high power switching applications used in MIL-Com and Public Safety Radio systems.

## Case Style ODS 1079



Size Inches (mm)		
A (sq) Min./Max.	B Min./Max.	C Min./Max.
0.098/0.118 (2.49/3.00)	0.185/0.205 (4.70/5.21)	0.028/0.038 (0.711/0.965)

## Circuit Pad Layout



Dimension	inches	mm
A	0.110	2.79
B	0.050	1.27
C	0.140	3.56

## Ordering Information

Part Number	Package
MADP-DS0053-10790T	750 piece reel

1 \* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

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

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Forward Voltage	$I_F = 100\text{ mA}$	V	0.800	—	0.900
Breakdown Voltage	$I_R = 10\text{ }\mu\text{A}$	V	800	—	—
Capacitance	50 V, 1 MHz 100 V, 1 MHz	pF	0.60 0.69	— —	1.00 0.81
Series Resistance <sup>1</sup>	20 mA, 100 MHz	$\Omega$	—	—	1.3
Nominal Carrier Lifetime	$I_F = 10\text{ mA}$ , $I_R = -6\text{ mA}$ , 90%	$\mu\text{s}$	—	5.7	6

1. Series Resistance is measured on an HP4191A Impedance Analyzer.

**Absolute Maximum Ratings<sup>2,3,4</sup>**

Parameter	Absolute Maximum
Reverse Voltage	-800 V
Operating & Storage Temperature	$-55^\circ\text{C}$ to $+150^\circ\text{C}$
Mounting Temperature	$+260^\circ\text{C}$ for 90 seconds

2. Exceeding any one or combination of these limits may cause permanent damage to this device.

3. MACOM does not recommend sustained operation near these survivability limits.

4. Values will de-rate over temperature.

**Handling Procedures**

Please observe the following precautions to avoid damage:

Device can be handled with tweezers or vacuum pickups and are suitable for use with automatic pick-and-place equipment.

**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 Class 1 devices.

**Cleanliness and Storage**

These devices should be handled and stored in a clean environment. Ends of the device are tin plated for greater solderability. Continuous exposure to high humidity (>80%) for extended periods may cause the surface to oxidize. Caution should be taken when storing devices for long periods.

**Mounting Techniques****Solder Attach**

Typical wave soldering or reflow techniques may be used to mount MACOM's SMQ packages to circuit boards using Sn63/Pb37 alloy or RoHS compliant solders. For more information visit the MACOM website and read application note M538.

**RoHS**

The MADP-SD0053-10790T is fully RoHS compliant meaning it contains less than the maximum allowable concentration of 0.1% by weight in homogenous materials for lead, hex chrome, mercury, PBB, PBDE, and 0.01% for cadmium.

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