

## ESD Protection Diode

### Features

- 350 Watts Peak Pulse Power per Line ( $t_p = 8/20\mu s$ )  
Bidirectional Configuration
- Protects One Power or I/O Port
- Low Clamping Voltages
- Ultra Low Capacitance: 1.0 pF Typical
- AEC-Q101 qualified (Automotive grade with suffix "Q".)
- Expsemi electronics

### IEC COMPATIBILITY (EN61000-4)

- **IEC 61000-4-2 (ESD)  $\pm 30kV$  (air),  $\pm 30kV$**
- **(contact) IEC 61000-4-4 (EFT) 40A (5/50ns)**
- **IEC 61000-4-5(Surge): 17A (8/20 $\mu s$ )**



SOD-323

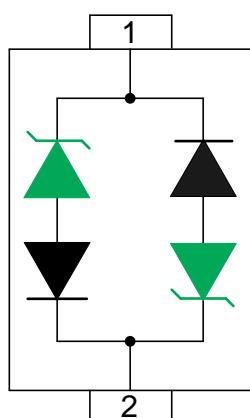
### Mechanical Characteristics

- Molded JEDEC SOD-323 package
- Weight
- 10 milligrams (Approximate) Flammability rating UL 94V-0
- 8mm Tape and Reel Per EIA Standard
- 481 Device Marking: Marking Code
- RoHS Compliant

### Applications

- Ethernet - 10/100/1000 Base
- T Cellular Phones
- Handheld - Wireless Systems
- Personal Digital Assistant
- (PDA) USB Interface

### PIN Configuration



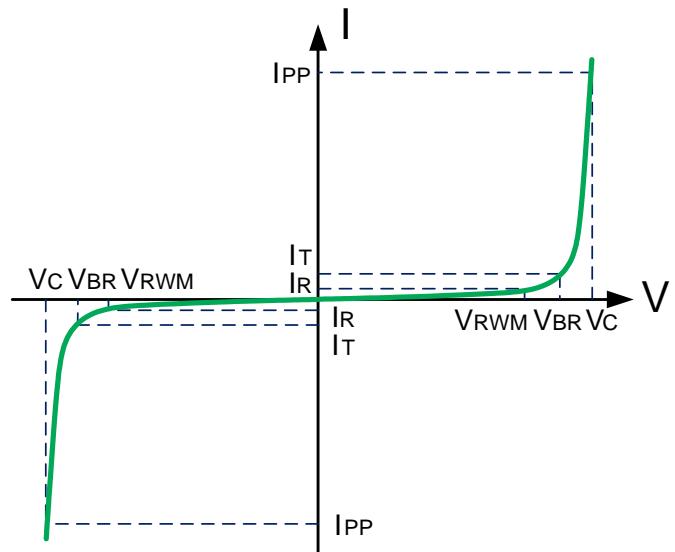
**BIDIRECTIONAL**

## Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p=8/20\mu s$ ) - See Figure 1	$P_{PP}$	350	Watts
Operating Temperature	$T_J$	-55 to + 150	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C

## Electrical Parameters ( $T=25^\circ C$ )

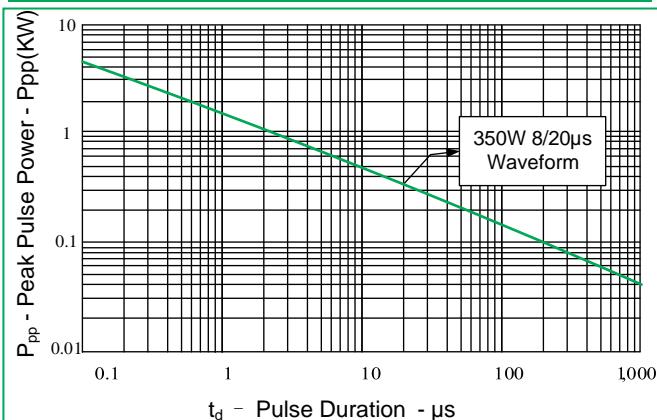
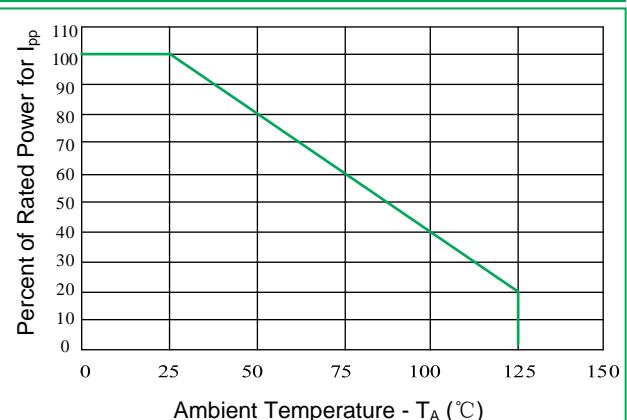
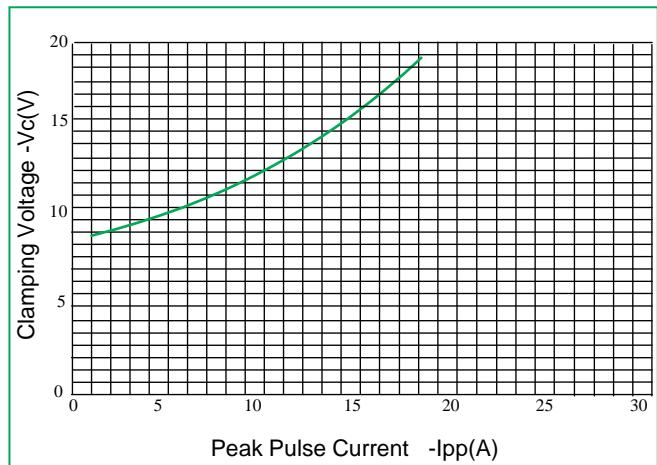
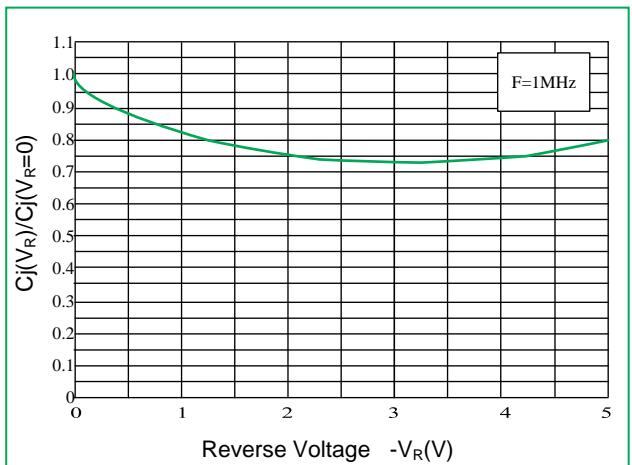
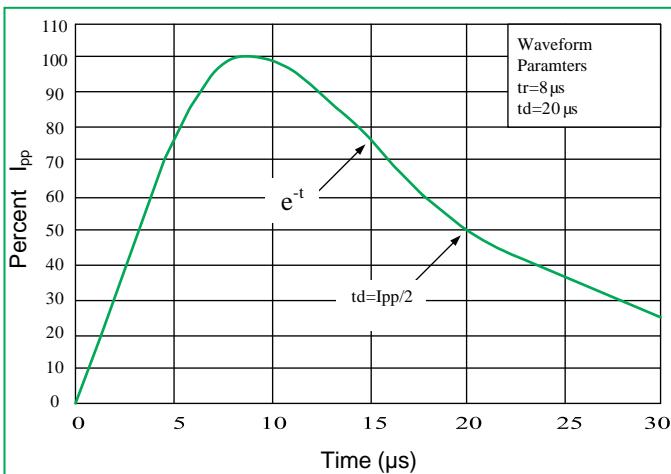
Symbol	Parameter
$I_{PP}$	Reverse Peak Pulse Current
$V_c$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$



## Electrical characteristics

PART NUMBER (See Note 1 & Note 2)	RATED STAND-OFF VOLTAGE	MINIMUM BREAKDOWN VOLTAGE @ 1mA $V_{BR}$ (Volts)	MAXIMUM CLAMPING VOLTAGE @ $I_P = 1A$ $V_c$ (Volts)	MAXIMUM CLAMPING VOLTAGE @8/20μs $V_c$ @ $I_{PP}$	MAXIMUM LEAKAGE CURRENT @ $V_{WM}$ $I_d$ (μA)	TYPICAL CAPACITANCE @0V, 1 MHz $C$ (pF)
EPD03CL	3.3	4.0	8.0	19.0V @ 20.0A	1	1
EPD05CL	5.0	6.0	9.8	18.3V @ 17.0A	1	1
EPD08CL	8.0	8.5	13.4	26.8V @ 20.0A	1	1
EPD12CL	12.0	13.3	19.0	28.6V @ 11.0A	1	1
EPD15CL	15.0	16.7	23.5	40.0V @ 10.0A	1	1
EPD24CL	24.0	26.7	33.0	54.0V @ 9.0A	1	1

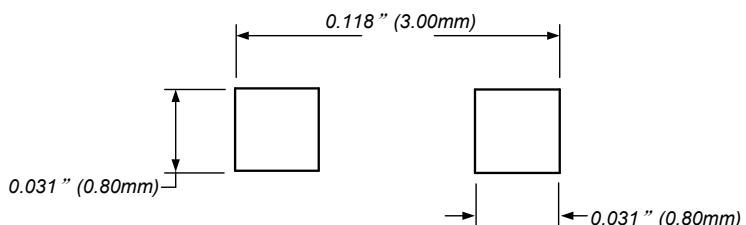
## Typical Characteristics

**Figure 1: Peak Pulse Power vs. Pulse Time**

**Figure 2: Power Derating Curve**

**Figure 3: Clamping Voltage vs. Peak Pulse Current**

**Figure 4: Normalized Junction Capacitance vs. Reverse Voltage**

**Figure 5: Pulse Waveform**


## PACKAGE OUTLINE

<b>Outline Drawing – SOD-323</b>		<b>SOD-323</b>				
<b>SYMBOL</b>	<b>DIMENSIONS</b>		<b>MILLIMETER</b>		<b>INCHES</b>	
	<b>MIN</b>	<b>MAX</b>	<b>MIN</b>	<b>MAX</b>	<b>MIN</b>	<b>MAX</b>
<i>A</i>	1.60	1.80	0.063	0.071		
<i>B</i>	0.25	0.35	0.010	0.014		
<i>C</i>	2.50	2.70	0.098	0.106		
<i>D</i>	0.00	1.20	0.000	0.039		
<i>E</i>	1.20	1.40	0.047	0.055		
<i>F</i>	0.08	0.15	0.003	0.006		
<i>L</i>	0.475 REF		0.019REF			
<i>L1</i>	0.25	0.40	0.010	0.016		
<i>H</i>	0.00	0.10	0.000	0.004		

<b>MOUNTING PAD</b>


**Notes**

1. Controlling Dimensions in Millimeters.
2. Dimensions are exclusive of mold flash and metal burrs.

## Package Information

Qty: 3k/Reel

## Marking

<b>Part Number</b>	<b>Marking</b>
<i>EPD03CL</i>	CC
<i>EPD05CL</i>	AC
<i>EPD08CL</i>	BC
<i>EPD12CL</i>	DC
<i>EPD15CL</i>	EC
<i>EPD24CL</i>	HC