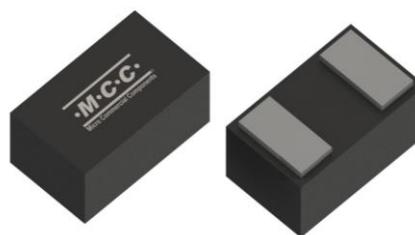


## 1-Line Uni-directional Standard Capacitance ESD

### Features

- Transient protection:
  - IEC 61000-4-2 (ESD)  $\pm 30\text{kV}$  (Air),  $\pm 30\text{kV}$  (Contact)
  - IEC 61000-4-5 (Lightning) 30A (8/20 $\mu\text{s}$ )
- Uni-directional ESD protection of single line
- Reverse working voltage,  $V_{RWM}$ : 6.3V
- Capacitance: 220pF (typical)
- Clamping voltage: 15V (max)
- Reverse leakage current: 1 $\mu\text{A}$  max at  $V_R = 6.3\text{V}$
- Solid-state silicon-avalanche



DFN1006-2



### Applications

- Power Supply Protection
- Power Management

### Mechanical Data

- Package: DFN1006-2
- Moisture Sensitivity Level 1, per J-STD-020
- Halogen Free. "Green" Device (Note1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

### Body Marking and Pin Layout

Marking Code	Simplified Outline	Internal Structure
	<p>Transparent top view</p>	

### Ordering Information

Product Name	Reel Size	Packing Type	Qty/Reel
ESD6V3LA-TP	7"	Tape & Reel	10,000

For packaging details, visit our website at <https://www.mccsemi.com/Package/List>

## 1-Line Uni-directional Standard Capacitance ESD

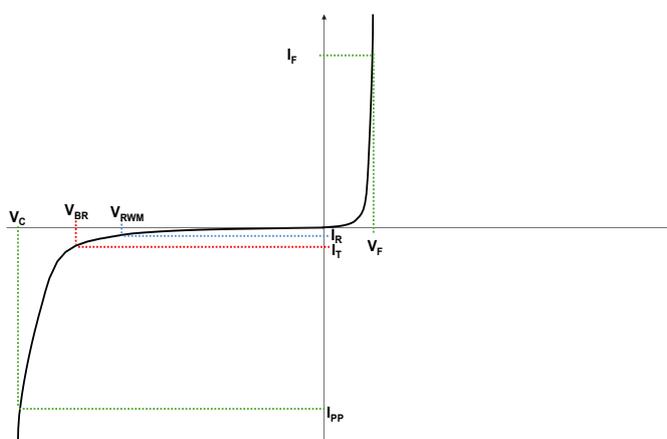
### Maximum Ratings (T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit	
IEC61000-4-2(ESD)	Air	V <sub>ESD</sub>	±30	kV
	Contact	V <sub>ESD</sub>	±30	kV
Peak Pulse Current (8/20μs) (Note 2)	I <sub>PP</sub>	30	A	
Peak Pulse Power (8/20μs) (Note 2)	P <sub>PK</sub>	450	W	
Operating Junction Temperature Range	T <sub>J</sub>	-55 to +125	°C	
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C	

- Note:
- Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and 1000ppm antimony compounds.
  - Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.

### Parameter Definition

Symbol	Parameter
V <sub>RWM</sub>	Peak Reverse Working Voltage
I <sub>R</sub>	Reverse Leakage Current @ V <sub>RWM</sub>
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
I <sub>T</sub>	Test Current
I <sub>PP</sub>	Maximum Reverse Peak Pulse Current
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
P <sub>PK</sub>	Peak Pulse Power
C <sub>J</sub>	Junction Capacitance
I <sub>F</sub>	Forward Current
V <sub>F</sub>	Forward Voltage @ I <sub>F</sub>



### Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Working Voltage	V <sub>RWM</sub>				6.3	V
Reverse Breakdown Voltage	V <sub>BR</sub>	I <sub>T</sub> = 1mA	6.6		9	V
Reverse Leakage Current	I <sub>R</sub>	V <sub>RWM</sub> = 6.3V			1	μA
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 10mA			1.2	V
Clamping Voltage (Note3)	V <sub>C</sub>	I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20μs			11	V
		I <sub>PP</sub> = 30A, t <sub>p</sub> = 8/20μs			15	
Junction Capacitance	C <sub>J</sub>	V <sub>R</sub> = 0V, f = 1MHz		220	260	pF
Dynamic Resistance (Note4)	R <sub>DYN</sub>	TLP, t <sub>p</sub> = 100ns		0.04		Ω

- Note:
- Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.
  - TLP parameter: Z<sub>0</sub> = 50Ω, t<sub>p</sub> = 100ns, t<sub>r</sub> = 2ns, averaging window from 60ns to 80ns. R<sub>DYN</sub> is calculated from 4A to 16A.

1-Line Uni-directional Standard Capacitance ESD

Curve Characteristics

Fig. 1 - 8 X 20µs Pulse Waveform

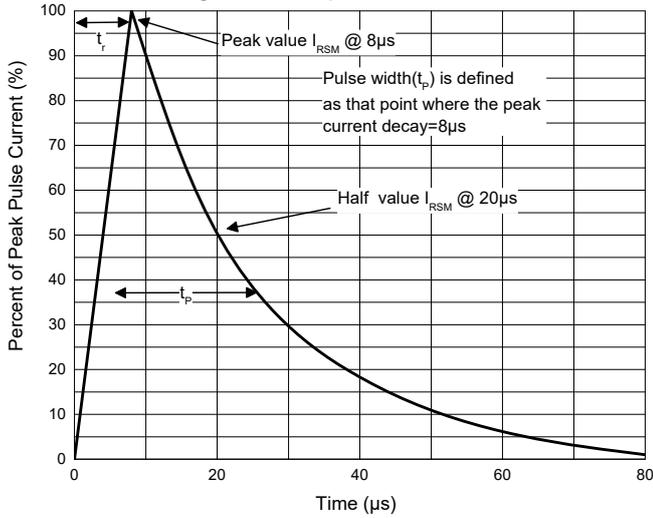


Fig. 2 - Non-Repetitive Peak Pulse Power

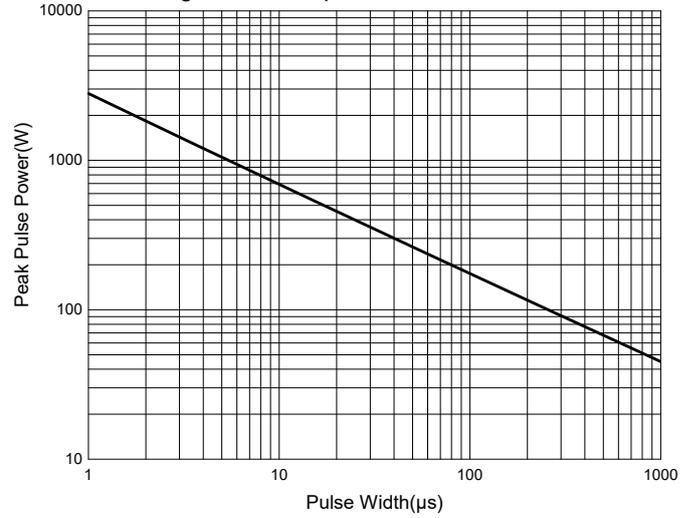


Fig. 3 - Capacitance Characteristics

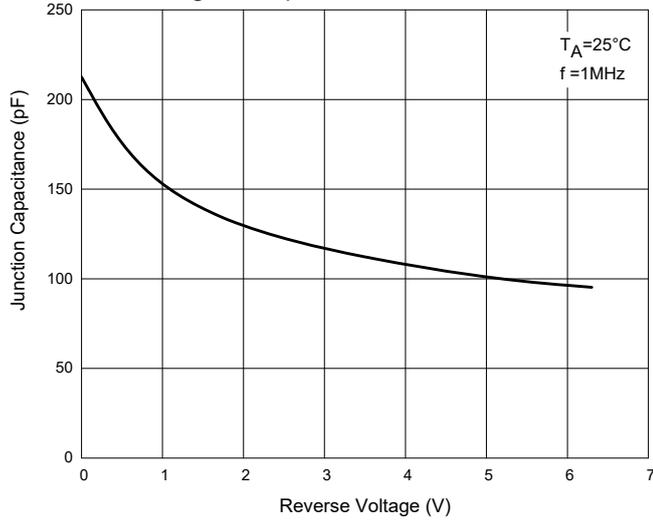


Fig. 4 - Clamping Voltage Characteristics

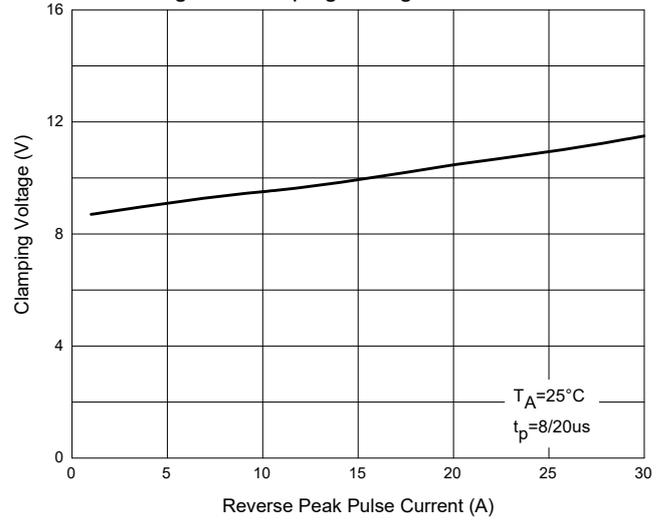


Fig. 5 - TLP Curve

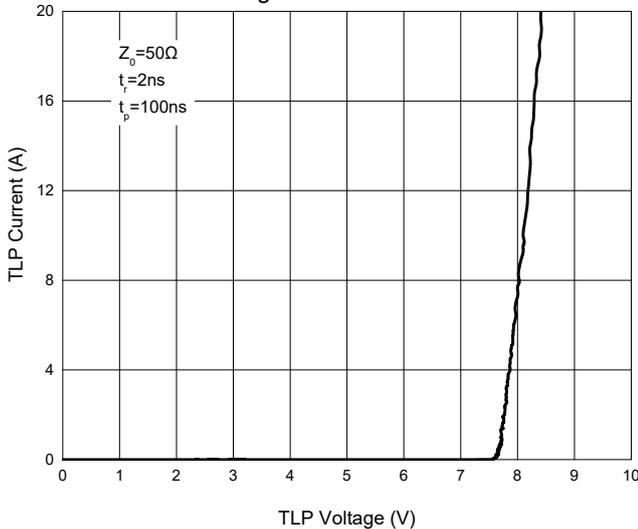
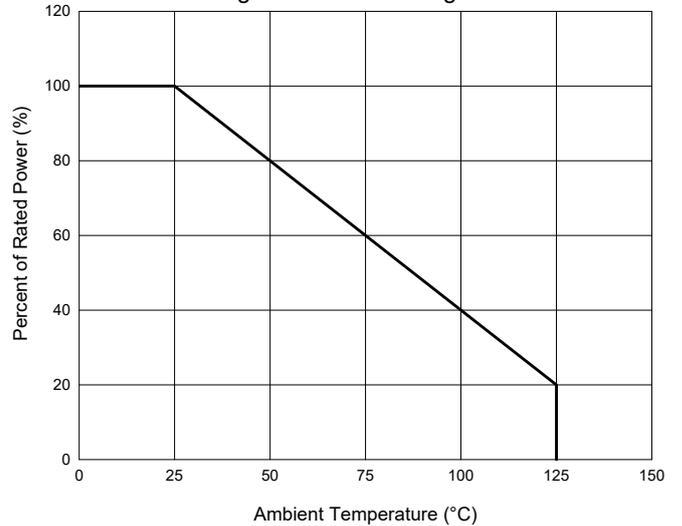
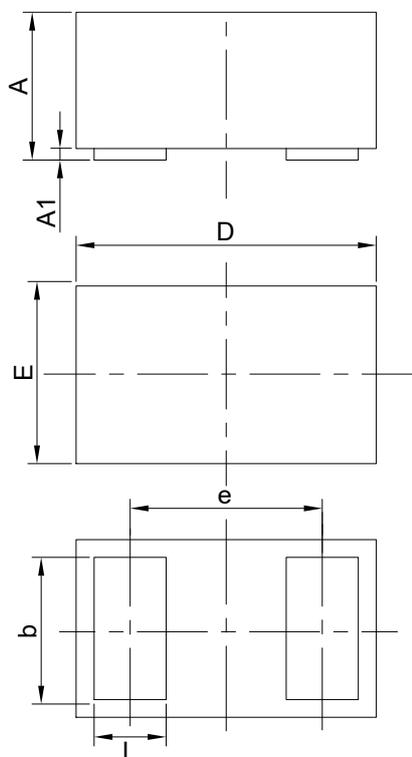


Fig. 6 - Pulse Derating Curve

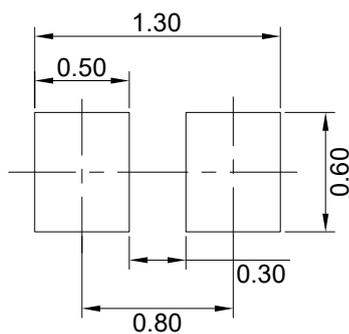


## Package Outline



DIM	INCH		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.013	0.022	0.34	0.55	
A1	0.000	0.002	0.00	0.05	
b	0.016	0.022	0.40	0.55	
D	0.037	0.042	0.95	1.08	
E	0.022	0.027	0.55	0.68	
e	0.026		0.65		TYP
L	0.008	0.012	0.20	0.30	

## Suggested Pad Layout (Unit:mm)



### Notes:

1. The suggested land pattern dimensions have been provided for reference only.
2. For further information, please refer to document IPC-7351A.

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