1-Line Bi-directional Ultra Low Capacitance ESD

Features

- Transient protection to:
  - IEC 61000-4-2 (ESD) ±20kV (Air), ±15kV (Contact)
  - IEC 61000-4-5 (Lightning) 4A (8/20μs)
- AEC-Q101 Qualified
- Bi-directional ESD protection of one line
- Reverse working voltage, V_{RWM}: ±5V
- Ultra-low capacitance: 0.35pF (typical)
- Low clamping voltage: 20V (max)

DFN1006-2

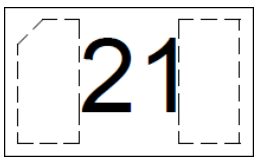
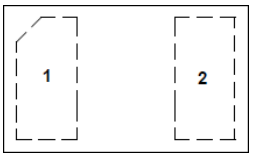
Applications

- Portable electronics
- Communication systems
- High-speed data lines
- Computers and peripherals
- Audio and video equipment
- Cellular handsets and accessories

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)
- Weight: 0.001g (approximate)

Body Marking and Pin Layout

Marking Code	Simplified Outline	Internal Structure
		

Ordering Information

Product Name	Packing info
ESDSLC5V0LBHE3-TP	10Kpcs/reel

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

Maximum Ratings (T_A=25°C unless otherwise specified)

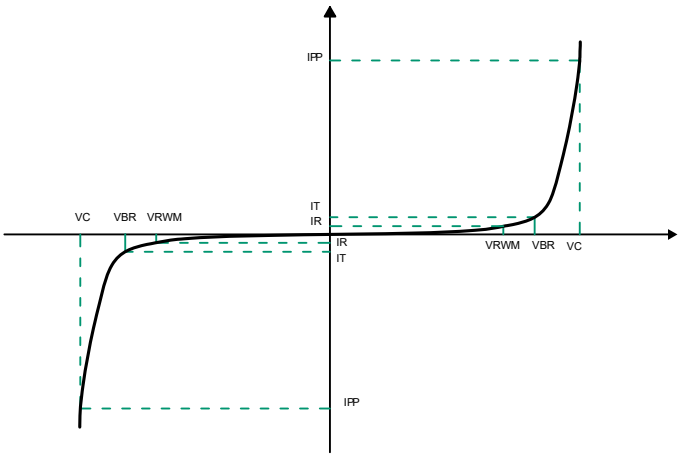
Parameter		Symbol	Rating	Unit
IEC61000-4-2(ESD)	Air	V_{ESD}	±20	kV
	Contact	V_{ESD}	±15	kV
Peak Pulse Current (8/20μs) (Note 2)		I_{PPM}	4	A
Peak Pulse Power (8/20μs) (Note 2)		P_{PPM}	80	W
Operating Temperature Range		T_J	-55 to +125	°C
Storage Temperature Range		T_{STG}	-55 to +150	°C

Note:

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

Parameter Definition

Symbol	Parameter
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
P_{PPM}	Peak Pulse Power
C_J	Junction Capacitance



Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}		-5		+5	kV
Reverse Breakdown Voltage	V_{BR}	I_T =1mA	6	8	9	kV
Reverse Leakage Current	I_R	V_{RWM}=5V			0.5	W
Clamping Voltage (Note3)	V_C	I_{PP}=1A, t_P=8/20μs			12	V
		I_{PP}=4A, t_P=8/20μs			20	
Junction Capacitance	C_J	V_R=0V, f=1MHz		0.35	0.5	pF
Dynamic Resistance (Note4)	R_{DYN}	TLP, t_P =100ns		1.7		Ω

Note:
3. I/O to Ground, TLP parameter: z0=50Ω, tp=100ns, tr=2ns, averaging window from 60ns to 80ns.
4. R_{DYN} is calculated from 4A to 16A.

Curve Characteristics

Fig. 1 - 8/20μs Pulse Waveform

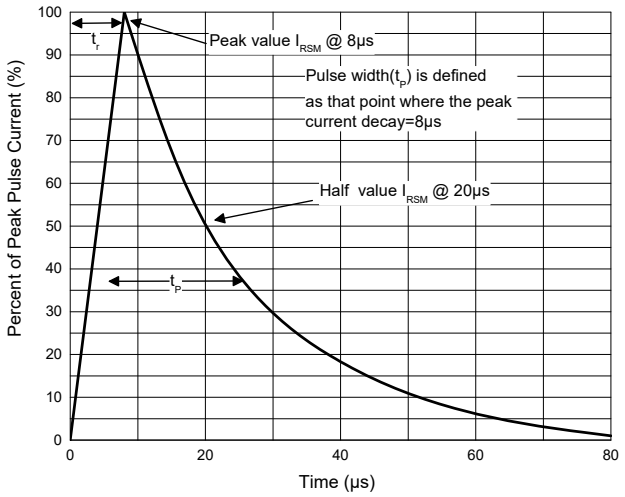


Fig. 2 - Non-Repetitive Peak Pulse Power

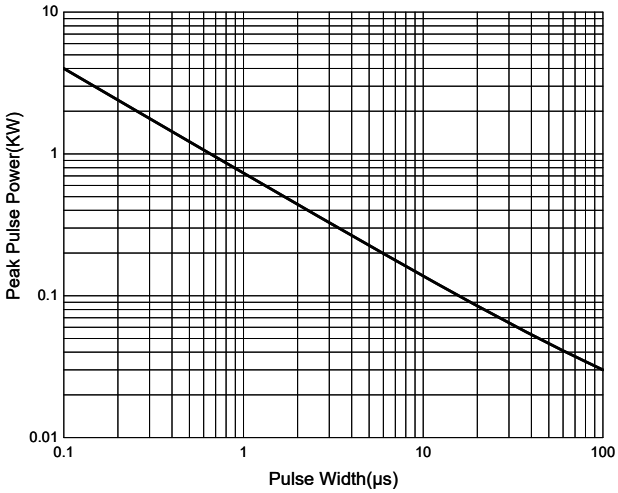


Fig. 3 - Capacitance Characteristics

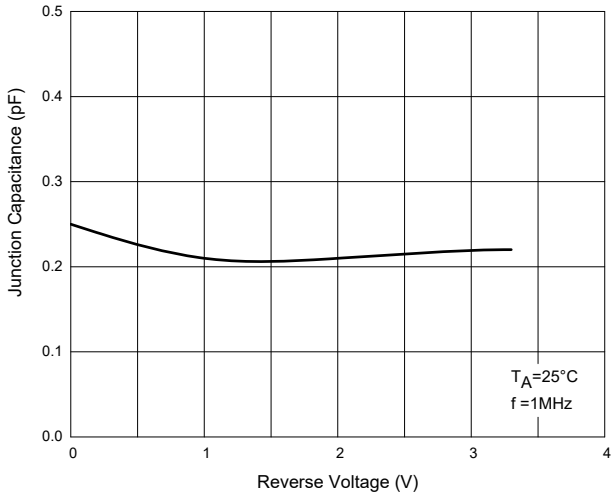


Fig. 4 - Clamping Voltage Characteristics

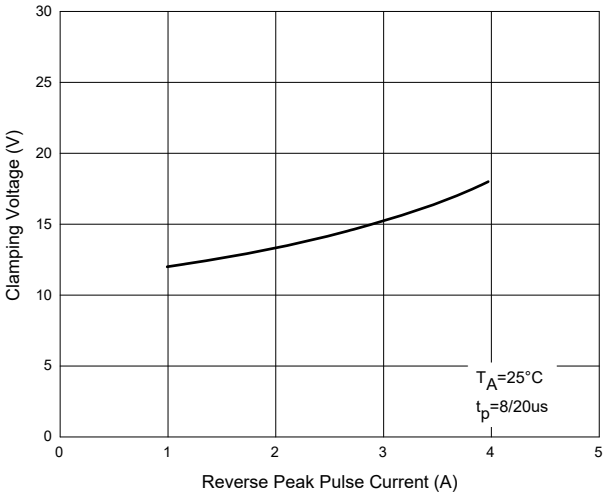


Fig. 5 - TLP Measurement

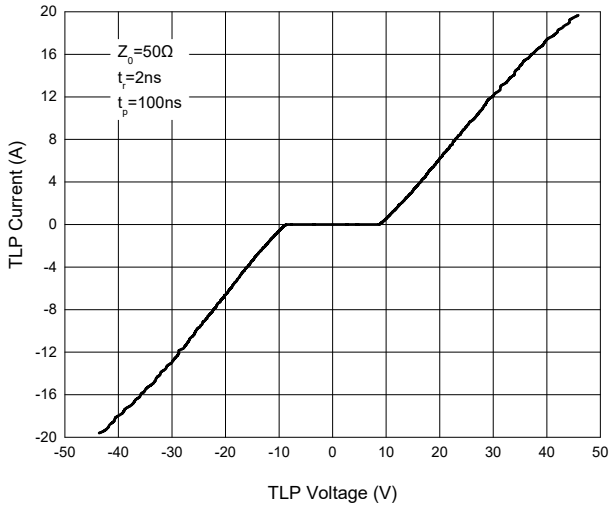
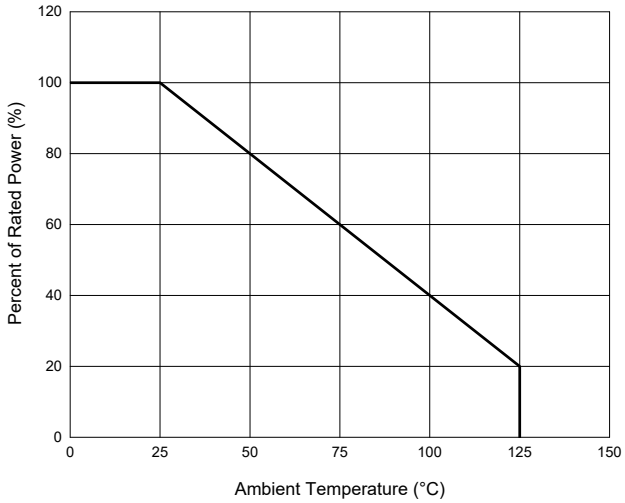
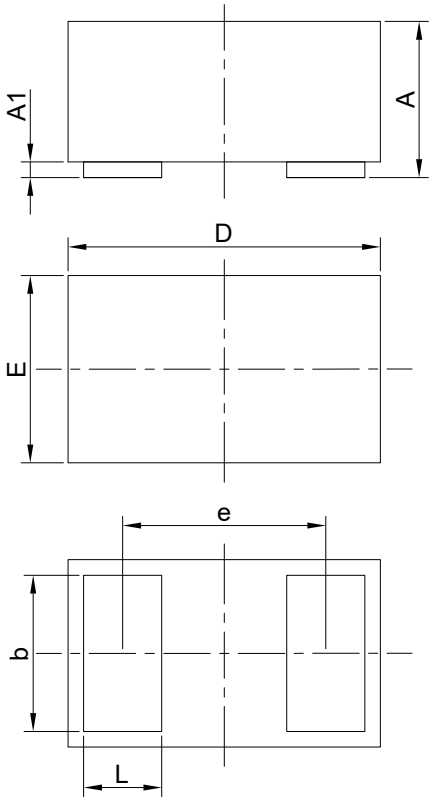


Fig. 6 - Pulse Derating Curve

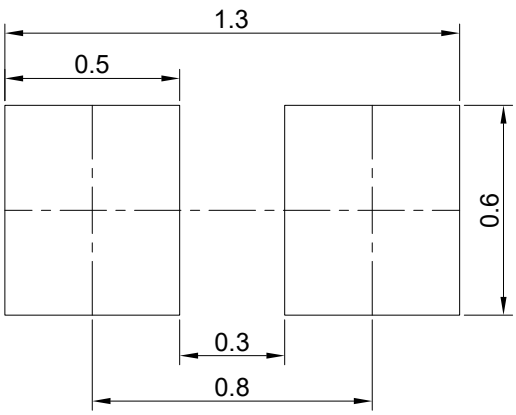


Package Outline



DIM	INCH		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.013	0.022	0.340	0.550	
A1	0.000	0.002	0.000	0.050	
b	0.017	0.022	0.420	0.550	
D	0.037	0.041	0.950	1.050	
E	0.022	0.027	0.550	0.680	
e	0.026		0.650		TYP
L	0.008	0.012	0.200	0.300	

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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