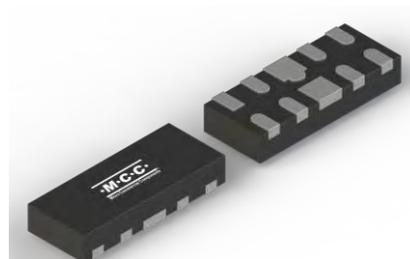


4-Line Uni-directional Ultra Low Capacitance ESD

Features

- Transient protection:
 - IEC 61000-4-2 (ESD) $\pm 15\text{kV}$ (Air), $\pm 10\text{kV}$ (Contact)
 - IEC 61000-4-5 (Lightning) 5A (8/20 μs)
- Uni-directional ESD protection of four lines
- Reverse working voltage, V_{RWM} : 3.3V
- Capacitance: 0.5pF (typical)
- Clamping voltage: 13V (max)
- Reverse leakage current: 1 μA max at $V_R = 3.3\text{V}$
- Solid-state silicon-avalanche



DFN-10



Applications

- HDMI2.0
- USB 2.0 / USB 3.0
- Digital Visual Interface(DVI)

Mechanical Data

- Package: DFN-10
- 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
ESDLC3324DFN10-TP	7"	Tape & Reel	3,000

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

4-Line Uni-directional Ultra Low Capacitance ESD

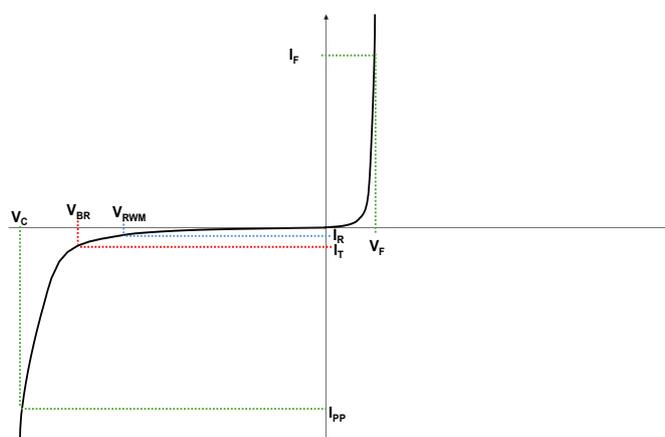
Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter		Symbol	Rating	Unit
IEC61000-4-2(ESD)	Air	V _{ESD}	±15	kV
	Contact	V _{ESD}	±10	kV
Peak Pulse Current (8/20μs) (Note 2)		I _{PP}	5	A
Peak Pulse Power (8/20μs) (Note 2)		P _{PK}	65	W
Operating Junction Temperature Range		T _J	-55 to +125	°C
Storage Temperature Range		T _{STG}	-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 _{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 _{PK}	Peak Pulse Power
C _J	Junction Capacitance
I _F	Forward Current
V _F	Forward Voltage @ I _F



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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Working Voltage	V _{RWM}				3.3	V
Reverse Breakdown Voltage	V _{BR}	I _T = 1mA	5		8	V
Reverse Leakage Current	I _R	V _{RWM} = 3.3V			1	μA
Forward Voltage	V _F	I _F = 15mA			1.25	V
Clamping Voltage (Note3)	V _C	I _{PP} = 1A, t _p = 8/20μs			9	V
		I _{PP} = 5A, t _p = 8/20μs			13	
Junction Capacitance	C _J	V _R = 0V, f = 1MHz		0.5	0.65	pF
Dynamic Resistance (Note4)	R _{DYN}	TLP, t _p = 100ns		0.55		Ω

- Note:
- Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.
 - TLP parameter: Z₀ = 50Ω, t_p = 100ns, t_r = 2ns, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.

4-Line Uni-directional Ultra Low Capacitance ESD

Curve Characteristics

Fig. 1 - 8 X 20µs Pulse Waveform

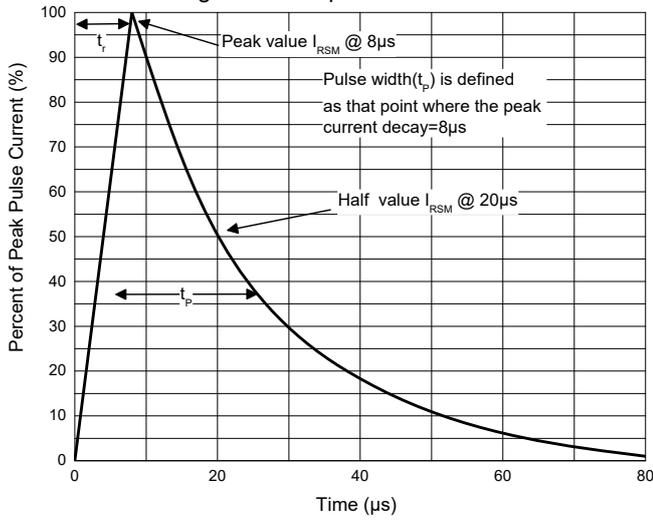


Fig. 2 - Non-Repetitive Peak Pulse Power

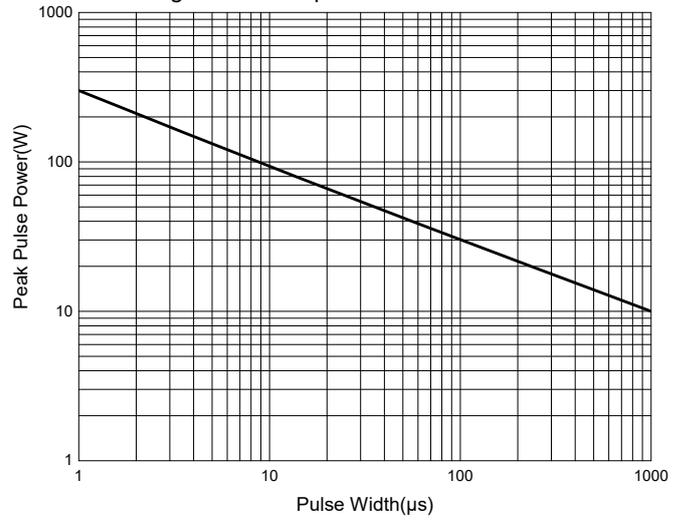


Fig. 3 - Capacitance Characteristics

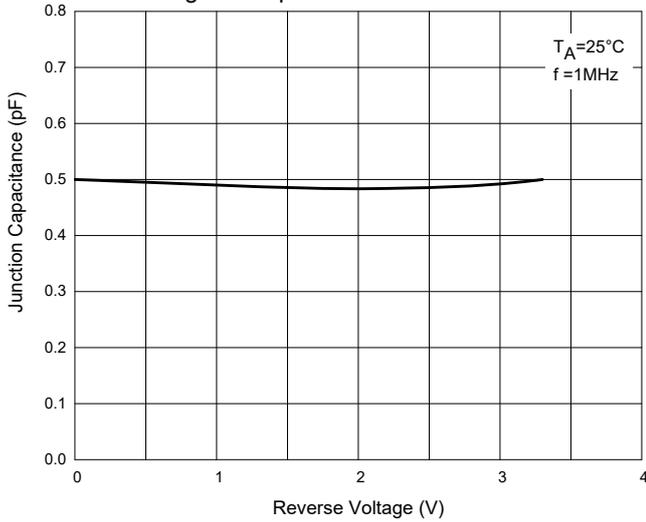


Fig. 4 - Clamping Voltage Characteristics

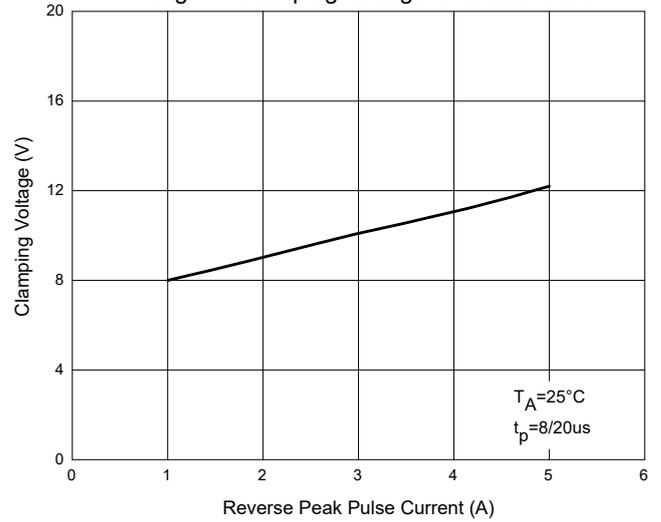


Fig. 5 - TLP Curve

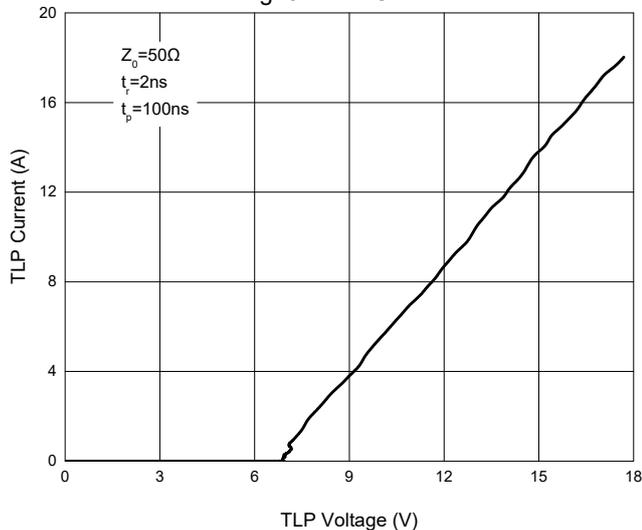
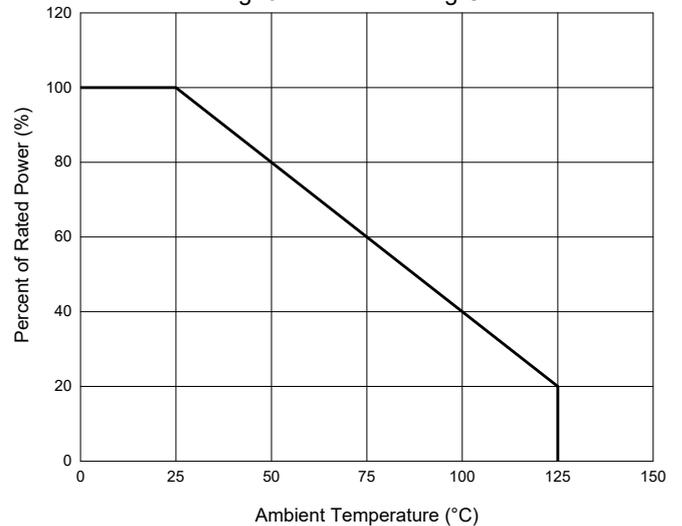


Fig. 6 - Pulse Derating Curve



4-Line Uni-directional Ultra Low Capacitance ESD

Curve Characteristics

Fig. 7 - Insertion Loss VS Frequency

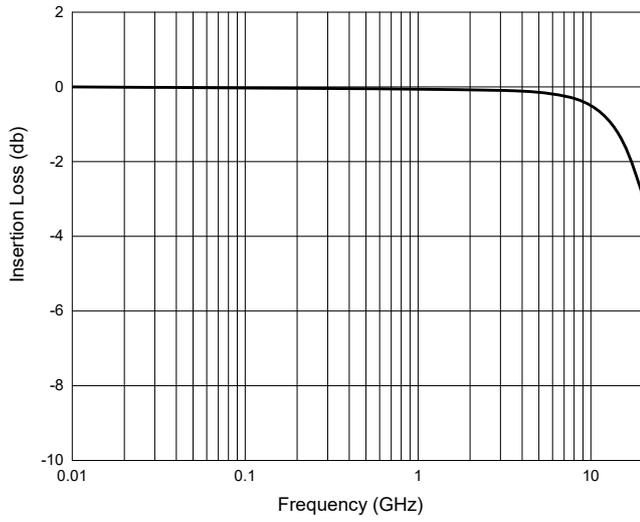
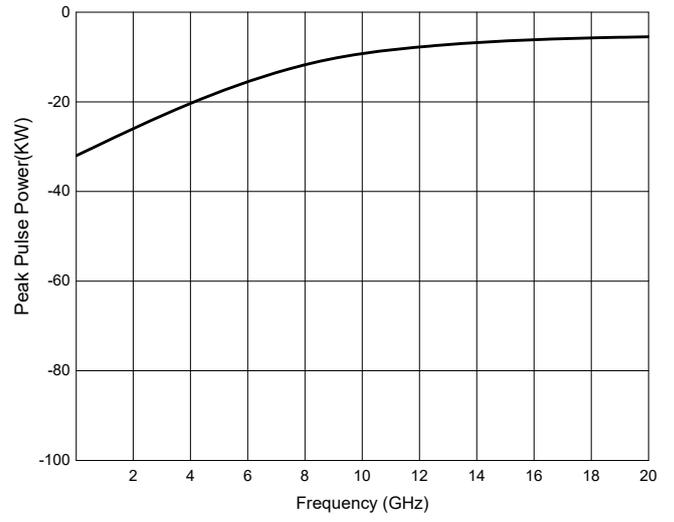
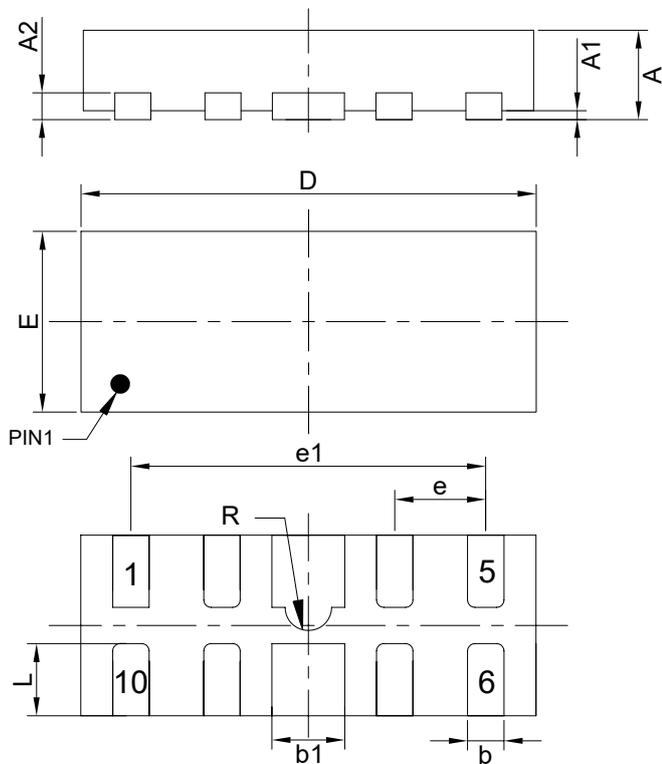


Fig. 8 - Return Loss VS Frequency

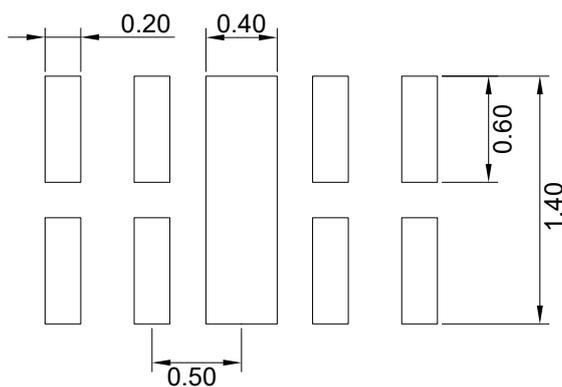


Package Outline



DIM	INCH		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.016	0.024	0.40	0.60	
A1	0.000	0.002	0.00	0.05	
A2	0.006		0.15		TYP
b	0.006	0.010	0.15	0.25	
b1	0.012	0.020	0.30	0.50	
D	0.094	0.102	2.40	2.60	
e	0.020		0.50		TYP
e1	0.079		2.00		TYP
E	0.035	0.043	0.90	1.10	
L	0.011	0.020	0.28	0.50	
R	0.005		0.125		TYP

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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