



MPTDS3311P

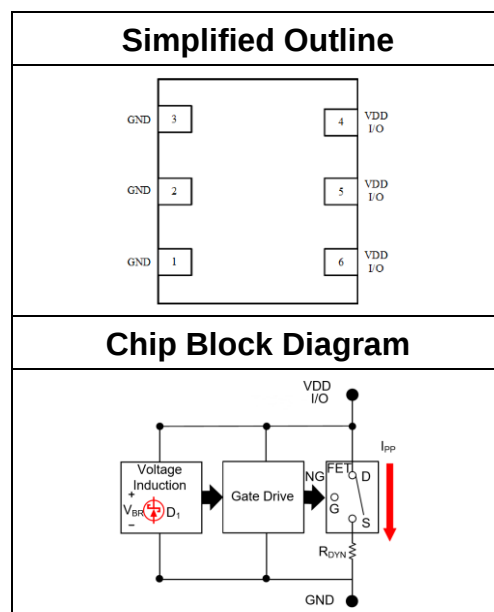
Transient Diverting Suppressors

Features

- ◆ IEC 61000-4-2 Level 4 ESD Protection
 - $\pm 30\text{kV}$ Air Discharge
 - $\pm 30\text{kV}$ Contact Discharge
- ◆ Peak Pulse Current Capability: 50A IEC 61000-4-5
- ◆ Peak Pulse Current Capability: 4A IEC 61643-321
- ◆ Working Voltage: 33V
- ◆ Low Leakage Current: 0.5nA
- ◆ Low Junction Capacitance: 113pF
- ◆ Nearly Constant Clamping Voltage within the Rated Peak Pulse Current Range and Temperature Range

Applications

- ◆ 24V I/O or Power Line
- ◆ USB PD and USB Type-C Vbus
- ◆ Load Switch and PLC I/O Module
- ◆ IoT Devices, Notebooks and Tablet Computer



Ordering Information

Part Number	Marking	Package	Reel	Inner Box	Outer Carton
MPTDS3311P	T33A/LOT	DFN1616-6L	3000 Pcs	10 Reels	4 Boxes

Absolute Maximum Ratings T_A = 25°C Unless Otherwise Noted

Symbol	Parameter		Min.	Max.	Unit
P _{pk}	Peak Pulse Power	IEC 61000-4-5; t _p = 8/20μs	-	2100	W
		IEC 61643-321; t _p = 10/1000μs	-	165	
I _{PP}	Peak Pulse Current	IEC 61000-4-5; t _p = 8/20μs	-	50	A
		IEC 61643-321; t _p = 10/1000μs	-	4.0	
V _{ESD}	ESD	IEC 61000-4-2 Air Discharge	-	±30	kV
		IEC 61000-4-2 Contact Discharge	-	±30	
T _{OP}	Operating Temperature		- 40	125	°C
T _{STG}	Storage Temperature		- 55	150	



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Electrical Characteristics $T_A = 25^\circ\text{C}$ Unless Otherwise Noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_{RWM}	Reverse Stand-off Voltage	-	-0.5	-	33.0	V
V_{BR}	Reverse Breakdown Voltage	$I_T = 1\text{mA}$; VDD I/O to GND	37.0	38.7	40.0	
V_C	Clamping Voltage	$I_{PP} = 24\text{A}$; $t_p = 8/20\mu\text{s}$	-	38.1	40.0	
		$I_{PP} = 35\text{A}$; $t_p = 8/20\mu\text{s}$	-	38.2	41.0	
		$I_{PP} = 50\text{A}$; $t_p = 8/20\mu\text{s}$	-	38.6	42.0	
V_F	Forward Voltage	$I_T = 1\text{mA}$; GND to VDD I/O	0.25	0.50	0.70	
I_R	Reverse Leakage Current	$V_{RWM} = 33\text{V}$; $T_A = 25^\circ\text{C}$	-	0.5	100	nA
		$V_{RWM} = 33\text{V}$; $T_A = 85^\circ\text{C}$	-	20	500	
R_{DYN}	Dynamic Resistance	$I_R = 1\text{A to } 50\text{A}$; $t_p = 8/20\mu\text{s}$	-	30	-	m Ω
C_J	Junction Capacitance	$V_R = 25\text{V}$; $f = 1\text{MHz}$	-	113	-	pF

■ Characteristic Curve

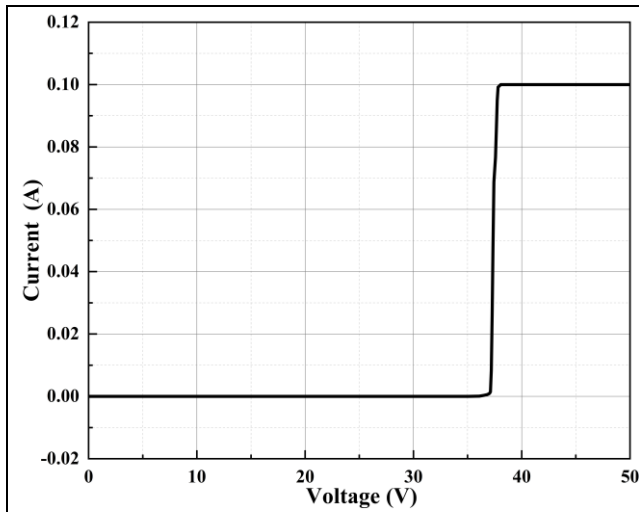


Figure 1. Current vs. Voltage

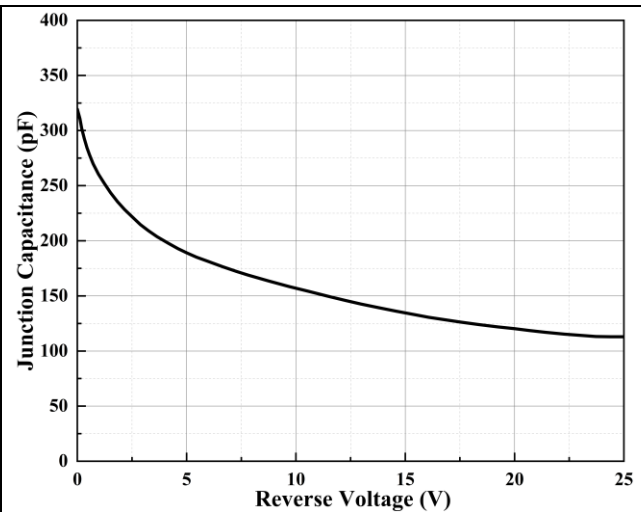


Figure 2. Junction Capacitance vs. Reverse Voltage

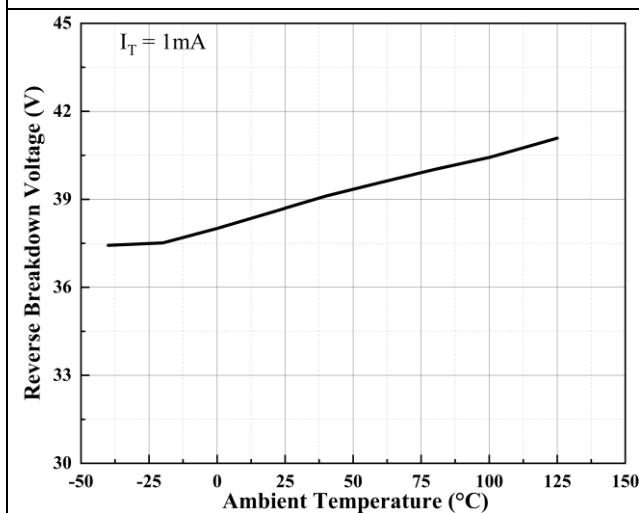


Figure 3. Reverse Breakdown Voltage vs. Ambient Temperature

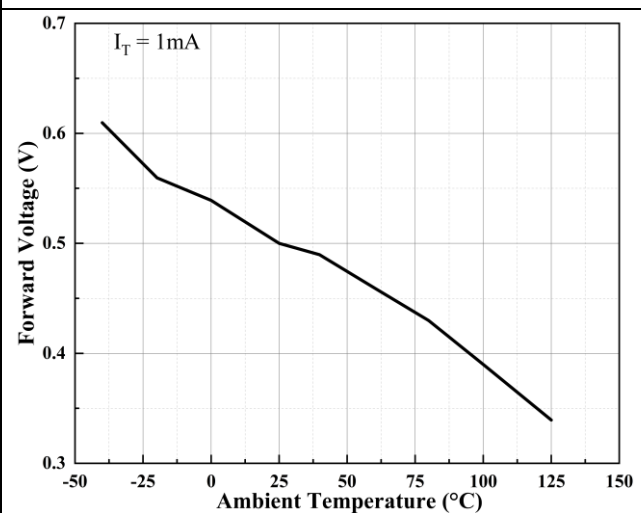


Figure 4. Forward Voltage vs. Ambient Temperature

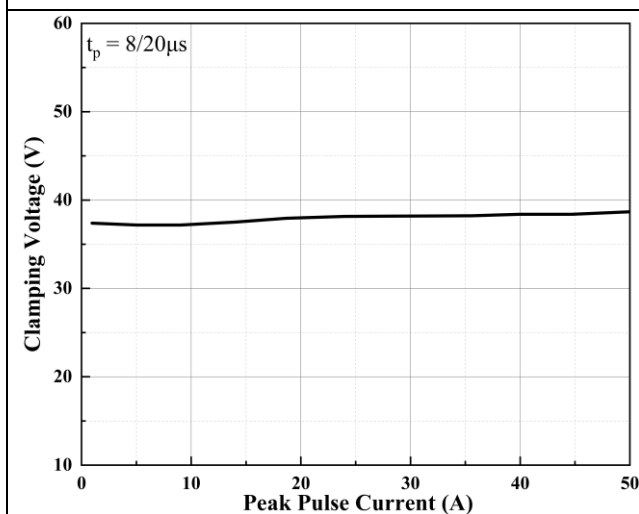


Figure 5. Clamping Voltage vs. Peak Pulse Current

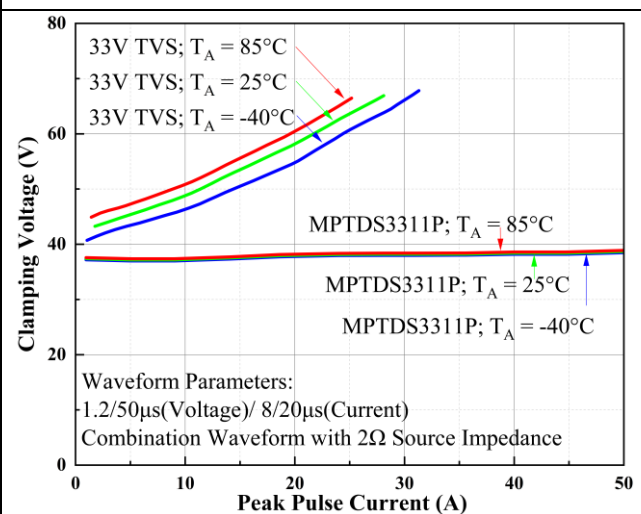
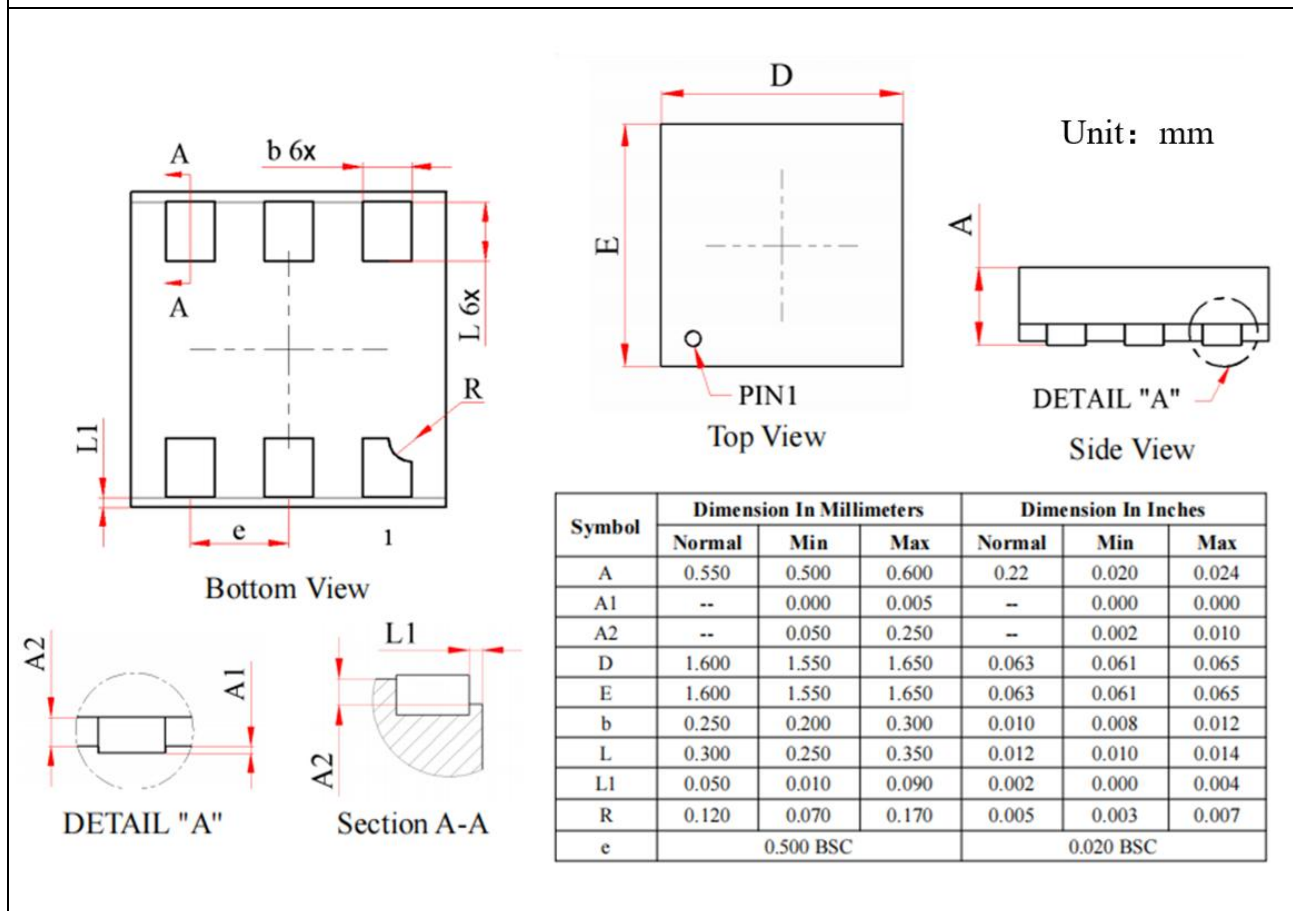


Figure 6. Clamping Voltage vs. Peak Pulse Current at Different Temperature

Package Information

DFN1616-6L



Recommended Soldering Footprint

