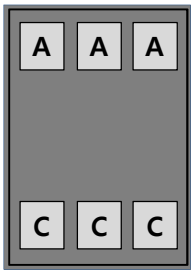
TD Powerchip TVSBDU0317180.0 3-Ch

General description

Unidirectional Electrostatic Discharge (ESD)/Electrical Overstress (EOS) protection device designed to protect one signal line from the damage caused by ESD and other transients.

Features

- ESD protection of one line
- Low capacitance
- Suitable for a 3V signal line
- Low clamping Voltage : V_{CL}= 17.5V (8/20μs)
- Low leakage current : I_{RM}= 87nA @V_{RWM} = 3.2V
- ESD protection (IEC 61000-4-2) : > 30kV
- IEC 61000-4-5 (surge); P_{PPM}= 183W



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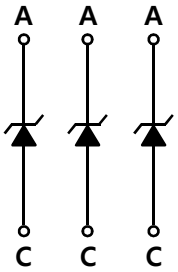
Application

- Computers and peripherals
- Audio and video equipment
- Cellular handsets and accessories
- 10/100/1000 Mbit/s Ethernet
- Portable electronics
- SIM card protection
- High-speed data lines



Device Schematic

Maximum Ratings

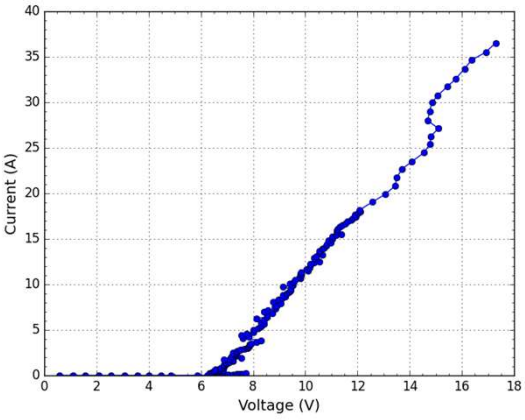
Parameter	Symbol	Values	Unit	Test Conditions
ESD Withstand Voltage	V_{ESD}	±30	kV	IEC 61000-4-2(Contact)
		±30	kV	IEC 61000-4-2(Air)
Peak pulse power	P_{PK}	183	W	t_p = 8/20μs
Peak pulse current	I_{PP}	10.5	A	t_p = 8/20μs
Peak pulse power	P_{PK}	395	W	t_p = 8/20μs 2x parallel connect
Peak pulse current	I_{PP}	21	A	t_p = 8/20μs 2x parallel connect
Junction temperature	T_j	150	℃	
Storage temperature	T_{stg}	-55 to 150	℃	

Electrical Characteristics

Parameter	Symbol	Values	Unit	Test Conditions
Reverse Standoff Voltage	V_{RWM}	3.2	V	$I_R \leq 1\mu A$
Breakdown Voltage	V_{BR}	5.0	V	$I_R = 0.1mA$
Reverse Leakage Current	I_{RM}	87	nA	V_{RWM} = 3.2V
Clamping Voltage(8/20μs)	V_C	17.5	V	$I_{PP} = 10.5A, t_p = 8/20\mu s$
Clamping Voltage(8/20μs)	V_C	18.8	V	$I_{PP} = 21A, t_p = 8/20\mu s$ 2x parallel connect
Dynamic resistance	R_{DYN}	0.3	Ω	TLP, t_p=100ns
Holding Voltage	V_h	6.3	V	$I_{TLP} = 0.28A$
BO Voltage	V_{T1}	7.7	V	TLP, t_p=100ns
Limit Current	I_{T2}	>40 * Exceed measurement limit over 40A	A	TLP, t_p=100ns
Clamping Voltage(TLP)	V_{cl}	6.9	V	$I_{TLP} = 1A$
		8.8		$I_{TLP} = 8A$
		11.2		$I_{TLP} = 16A$
		15.5		$I_{TLP} = 32A$
Diode Capacitance	C_d	31	pF	Reverse Bias=0V, f=1MHz
		14	pF	Reverse Bias=2V, f=1MHz

8/20μs Pulse Waveform

Transmission Line Pulsing(TLP) Plot



Capacitance vs Reverse Voltage