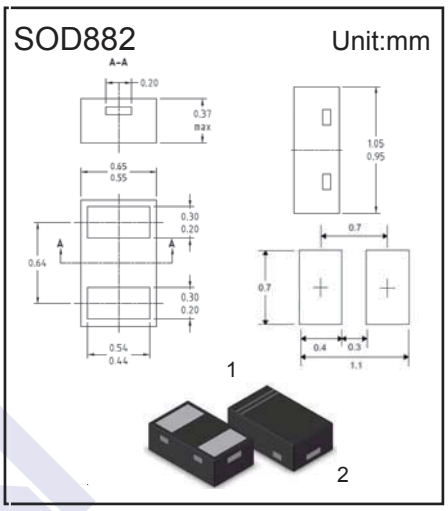
ESD Protection Diodes

1KE5I5V0C

■ Features

1KE5I5V0C is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.35pF only, 1KE5I5V0C is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ,IEC 61000-4-4 very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

1KE5I5V0C uses ultra-small SOD-882 package. Each 1KE5I5V0C device can protect one high-speed data line. It offers system designers flexibility to protect single data line where space is a premium concern. The combined features of low capacitance, ultra-small size and high ESD robustness make 1KE5I5V0C ideal for high-speed data port and high-frequency line (e.g., USB 2.0 & antenna line) applications, such as cellular phones and HD visual devices.



Electrical Symbol

■ Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
IEC 61000-4-2(ESD) Contact	V_{ESD}	±30	KV
IEC 61000-4-2(ESD) Air		±30	
IEC 61000-4-4	EFT	40	A
Per Human Body Model	V_{ESD}	16	KV
Peak pulse power	Ppp	150	W
Operating temperature range	T_{OP}	-55 ~ 125	℃
Storage temperature range	T_{STG}	-55 ~ 150	
Maximum temperature for soldering during 10S	T_L	260	

Stresses exceeding maximum ratings may damage the device. Maximum ratings are stress ratings only. Functional operation above the recommended operating conditions is not implied. Extended exposure to stresses above the recommended operating conditions may affect device reliability.

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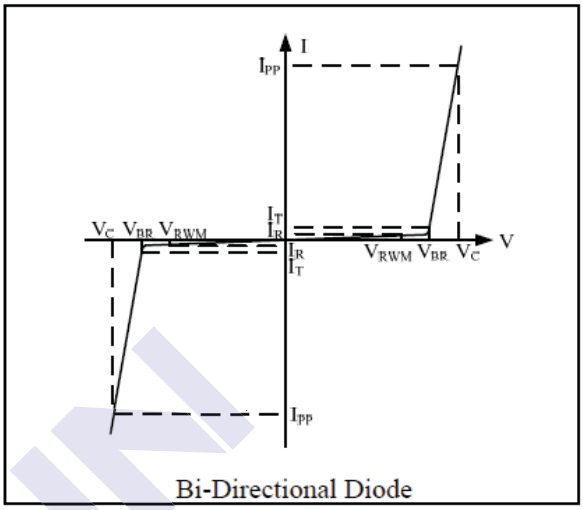
■ Electrical Characteristics (T_A = 25℃ unless otherwise specified)

Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Reverse Breakdown Voltage @ I_T
I_T	Test Current for Reverse Breakdown
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
C_{ESD}	Parasitic Capacitance
V_R	Reverse Voltage
f	Small Signal Frequency



Bi-Directional Diode

■ Electrical Characteristics (T_A = 25℃ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				5	V
Breakdown Voltage	V_{BR}	I_R = 1 mA	6	8.8	11	
Reverse Leakage Current	I_R	V_{RWM} = 5V		0.01	1	μA
Clamping Voltage	V_C	I_{PP}=1A,t_P=8/20μs	8		12	V
		I_{PP}=2A,t_P=8/20μs	10		14	
Junction Capacitance	C_{ESD}	V_R = 0V, f = 1 MHz		0.35	0.5	pF

■ Ordering Information

Device	Marking	Package	Shipping
1KE5I5V0C	N	SOD-882	10,000pcs/Reel

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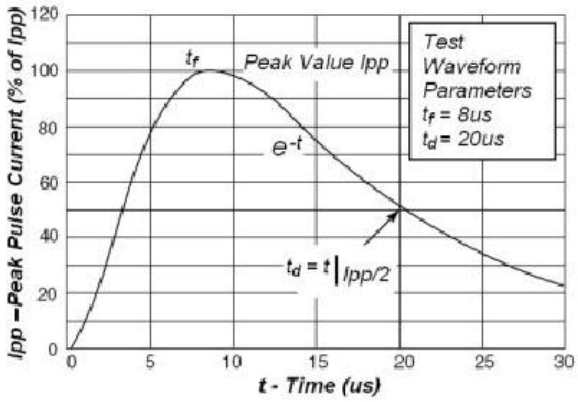


Fig1. Pulse Waveform

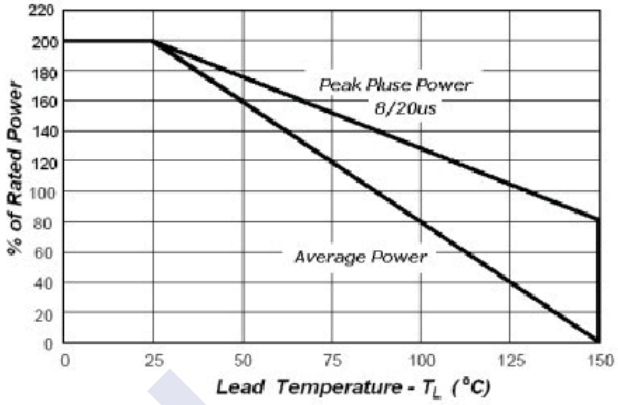
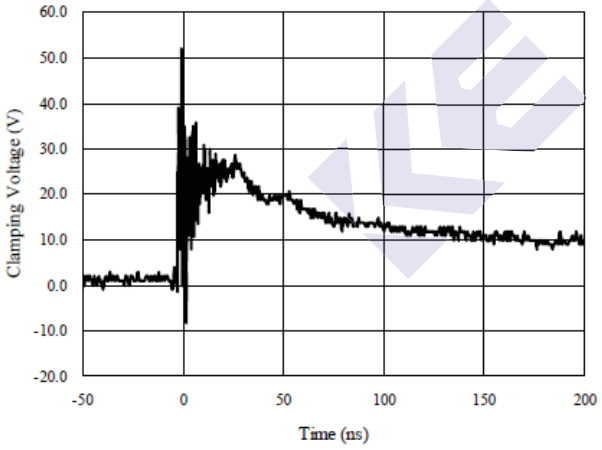


Fig2.Power Derating Curve

ESD Clamping of I/O to I/O (+8kV Contact per IEC 61000-4-2)



ESD Clamping of I/O to I/O (-8kV Contact per IEC 61000-4-2)