RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

TEP05D6M

Low Capacitance Transient Voltage Suppressors for ESD protection

DESCRIPTION

TEP05D6M is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for data, control or power lines. With maximum capacitance of 18pF, TEP05D6M 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 (±15kV air, ±8kV contact discharge), IEC 61000-4-4 (electrical fast transient - EFT) (40A, 5/50 ns), very fast charged device model (CDM) ESD and cable discharge event (CDE) etc.

TEP05D6M uses ultra-small DFN0603 package. Each TEP05D6M device can protect one data line. It offers system designers flexibility to protect single data line where space is a premium concern.

FEATURES

✧Transient protection for high-speed data lines
IEC 61000-4-2 (ESD) ±30kV (Contact)
±30kV (Air)
IEC 61000-4-4 (EFT) 40A (5/50 ns)
✧Peak power dissipation: 72W (8/20μs)
✧Working voltages :5V
✧Ultra-small package (0.6mm×0.3mm×0.3mm)
✧Protects one I/O line
✧Low clamping voltage
✧Low leakage current

MACHANICAL DATA

✧DFN0603 package
✧Flammability Rating: UL 94V-0
✧High temperature soldering guaranteed: 260℃/10s
✧Packaging: Tape and Reel
✧Reel size: 7 inch

ORDERING INFORMATION

✧ Device: TEP05D6M
✧Package: DFN0603
✧Marking: 5BN
✧Material: Halogen free
✧Packing: Tape & Reel
✧Quantity per reel: 15,000pcs

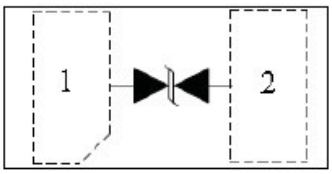
APPLICATIONS

✧Personal digital assistants (PDA's)
✧Notebooks, Desktops, and Servers
✧Cell phone Handsets and Accessories
✧Portable Electronics
✧IOT Terminal Equipment/Device
✧Smart Wearable Device

PIN CONFIGURATION



CIRCUIT DIAGRAM



ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Contact) ESD per IEC 61000-4-2 (Air)	±30 ±30	kV
P_{PP}	Peak Pulse Power (8/20μs)	72	W
T_{OPT}	Operating Temperature	-55~125	°C
T_{STG}	Storage Temperature	-55~150	°C

ELECTRICAL CHARACTERISTICS (Tamb=25 °C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				5.0	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	5.6			V
I_R	Reverse Leakage Current	V_{RWM} = 5V			1.0	μA
V_C	Clamping Voltage	I_{PP} = 1A, t_p = 8/20μs		6.5	8.0	V
		I_{PP} = 6A, t_p = 8/20μs		10.0	12.0	V
V_{CTLP}	TLP Clamping Voltage	I_{PP} = 16A IEC61000-4-2 Level 4 equivalent (±8kV Contact, ±15kV Air)		9.5		V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz		14.0	18.0	pF

RATING AND CHARACTERISTICS CURVES (TEP05D6M)

Fig 1 8/20μs Waveform per IEC61000-4-5

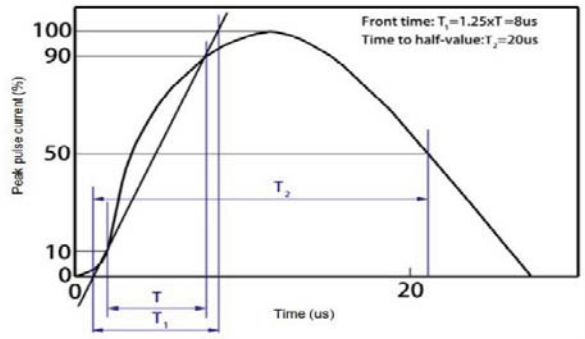


Fig 2 Contact Discharge Current Waveform per IEC 61000-4-2)

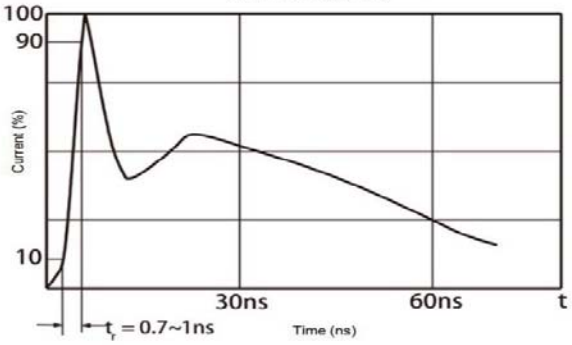


Fig 3 Power Derating Curve

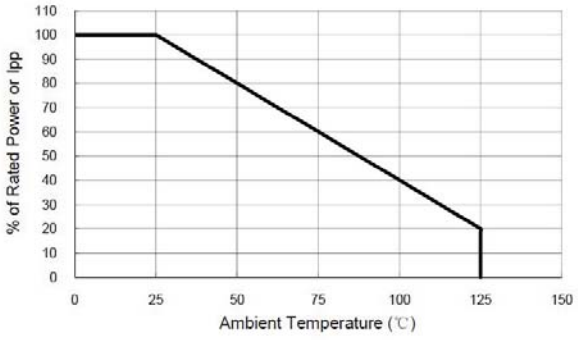


Fig 4 Voltage vs Capacitance

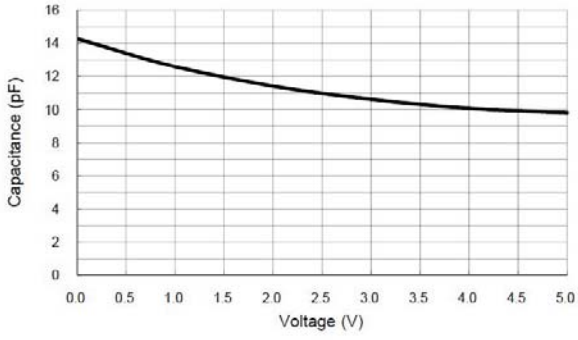


Fig 5 Transmission Line Pulsing (TLP) Measurement

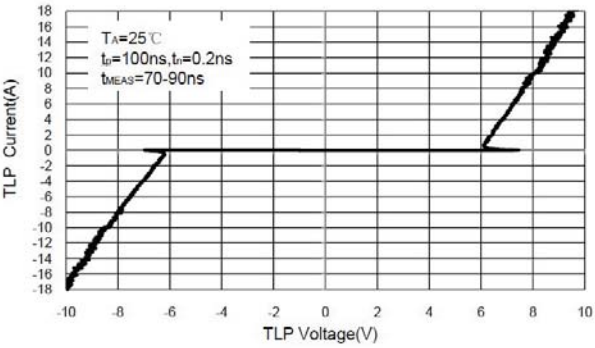
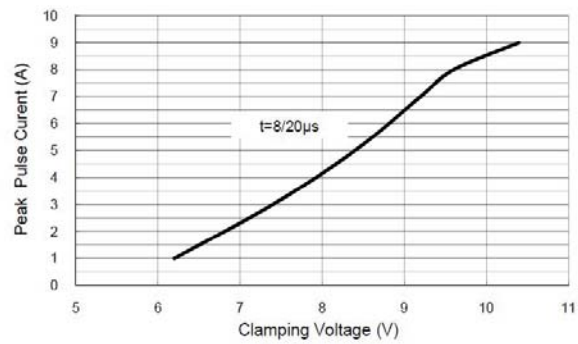
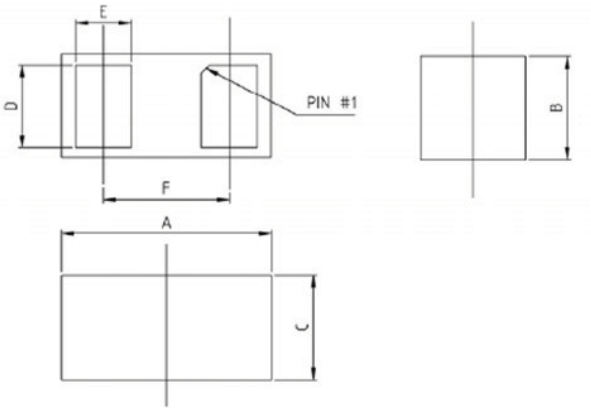


Fig 6 Clamping Voltage vs Peak Pulse Current



DFN0603 PACKAGE OUTLINE DIMENSIONS



Dimensions in Millimeter			
Symbol	Min.	Typ.	Max.
A	0.58	0.60	0.65
B	0.28	0.30	0.35
C	0.28	0.30	0.34
D	0.20	0.24	0.26
E	0.13	0.16	0.19
F		0.36	

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