

## Features

- ◆ Transient protection for high speed data lines to IEC 61000-4-2 (ESD)  $\pm 15\text{kV}$  (air),  $\pm 8\text{kV}$  (contact) IEC 61000-4-4 (EFT) 40A (5/50ns)

## Mechanical Characteristics

- ◆ Package: SOT23
- ◆ Lead Finish: Matte Tin
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Pb-Free, Halogen Free, RoHS/WEEE Compliant

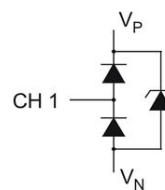
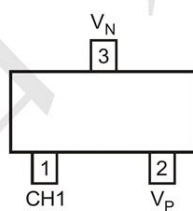
## Ordering Information

Part Number	Qty per Reel	Reel Size
TPCM1213A-01SO	3000	7"

## Applications

- ◆ USB Power & Data Line Protection
- ◆ Monitors and Flat Panel Displays
- ◆ I<sup>2</sup>C Bus Protection
- ◆ Portable Instrumentation
- ◆ Set Top Box

## Dimensions and Pin Configuration



marking: 231\*

231= Device code

\* = Month code

**Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$  unless otherwise specified)**

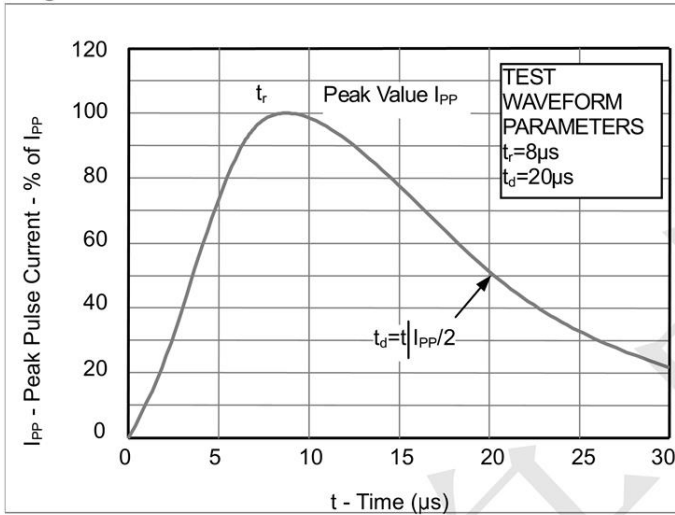
Characteristic	Symbol	Value	Unit	Conditions
Operating Supply Voltage	$V_P - V_N$	6.0	V	—
DC Voltage at any Channel Input	-	$(V_N - 0.5)$ to $(V_P + 0.5)$	V	—
Peak Pulse Current	$I_{PP}$	4	A	8/20 $\mu$ s, Per Figure 3
ESD Protection – Contact Discharge	$V_{ESD\_Contact}$	$\pm 8$	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	$V_{ESD\_Air}$	$\pm 15$	kV	Standard IEC 61000-4-2

**Electrical Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise specified)**

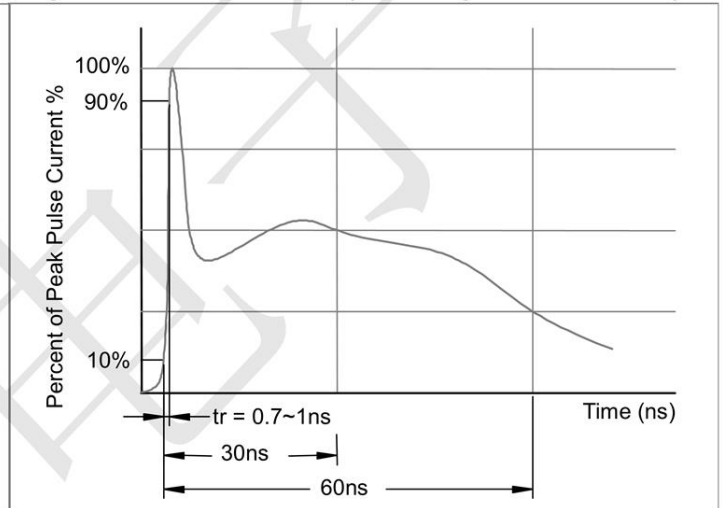
Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Operating Supply Voltage	$V_P$	—	3.3	5.5	V	-
Operating Supply Current (Note 6)	$I_P$	—	—	8.0	$\mu$ A	$(V_P - V_N) = 3.3\text{V}$
Channel Leakage Current (Note 6)	$I_R$	—	$\pm 0.1$	$\pm 1.0$	$\mu$ A	$V_P = 5\text{V}, V_N = 0\text{V}$
Reverse breakdown voltage	$V_{BR}$	6.0	—	—	V	$I_R = 1\text{mA}$
Clamping Voltage, Positive Transients	$V_{CL1}$	—	10.0	—	V	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$
Clamping Voltage, Negative Transients	$V_{CL2}$	—	-1.7	—	V	$I_{PP} = -1\text{A}, t_p = 8/20\mu\text{s}$
Forward Voltage for Top Diode	$V_{FD1}$	0.60	0.80	0.95	V	$I_F = 8\text{mA}, \text{CH1 to } V_P$
Forward Voltage for Bottom Diode	$V_{FD2}$	0.60	0.80	0.95	V	$I_F = 8\text{mA}, V_N \text{ to CH1}$
Dynamic Resistance	$R_{DYN}$	—	0.9	—	$\Omega$	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$
Channel Input Capacitance	$C_T$	—	0.85	1.2	pF	$V_{IN} = 1.65\text{V}, V_P = 3.3\text{V}, V_N = 0\text{V}, f = 1\text{MHz}$

**PROTECTION PRODUCTS**  
Typical characteristics

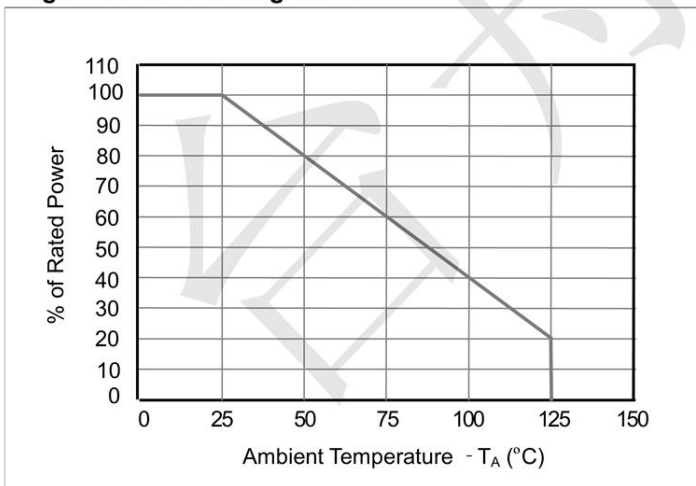
**Fig1. 8/20 $\mu$ s Pulse Waveform**



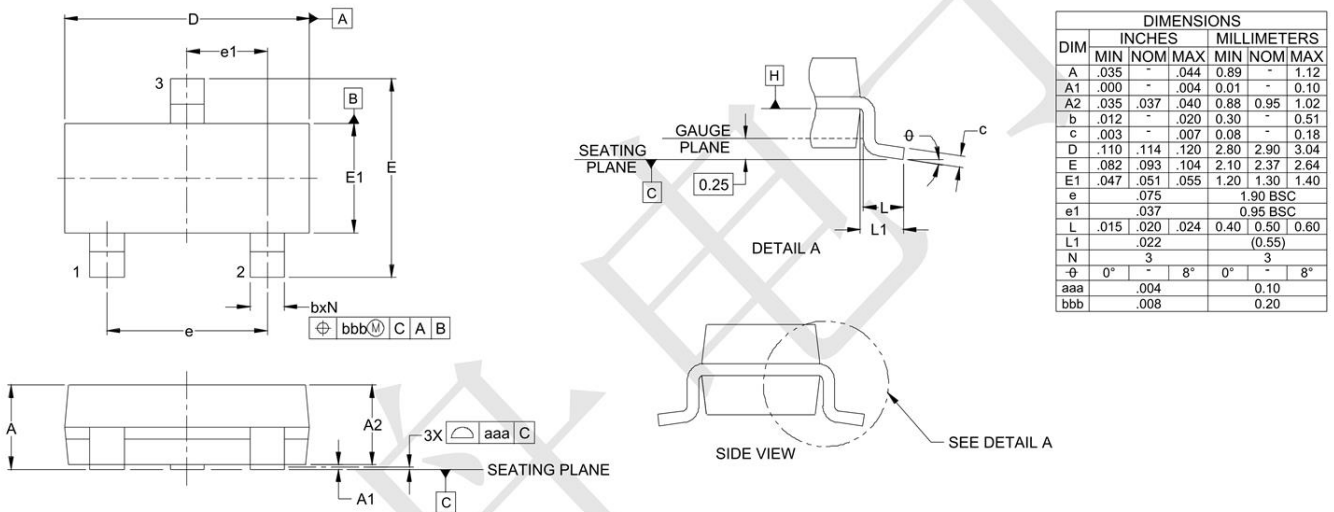
**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**



**Fig3. Power Derating Curve**



**Outline Drawing - SOT23**



**Land Pattern - SOT23**

