



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



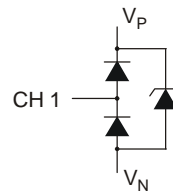
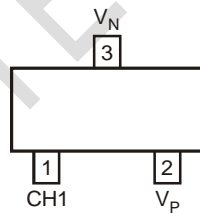
Ordering Information

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

Applications

- ◆ USB Power & Data Line Protection
- ◆ Monitors and Flat Panel Displays
- ◆ I²C Bus Protection
- ◆ Portable Instrumentation
- ◆ Set Top Box

Dimensions and Pin Configuration



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 μs , Per Figure 3
ESD Protection – Contact Discharge	$V_{ESD_Contact}$	± 8	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	V_{ESD_Air}	± 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	μA	$(V_P - V_N) = 3.3\text{V}$
Channel Leakage Current (Note 6)	I_R	—	± 0.1	± 1.0	μA	$V_P = 5\text{V}, V_N = 0\text{V}$
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	—	Ω	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$
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 μ s Pulse Waveform

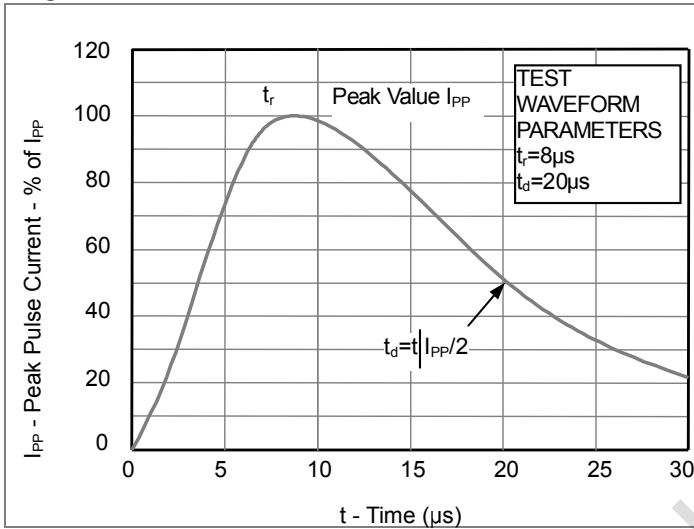


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

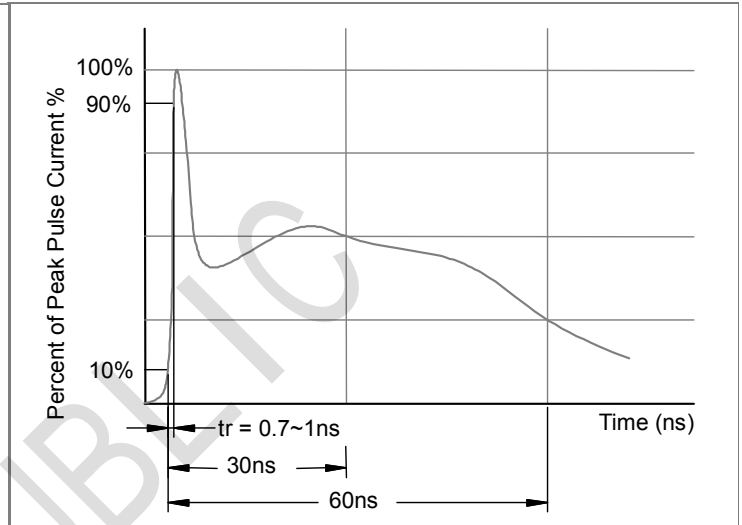
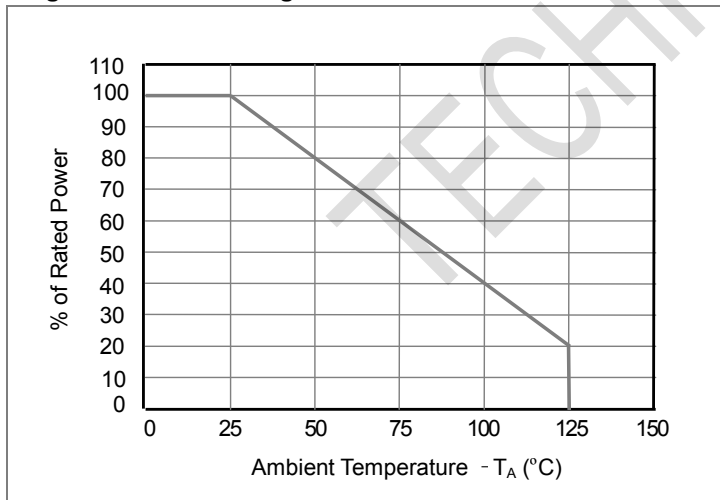
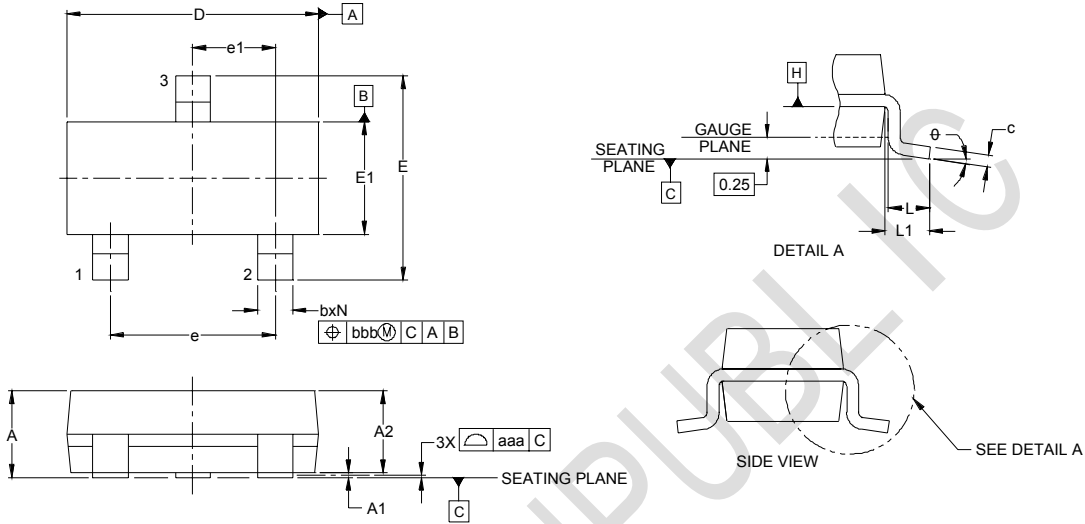


Fig3. Power Derating Curve

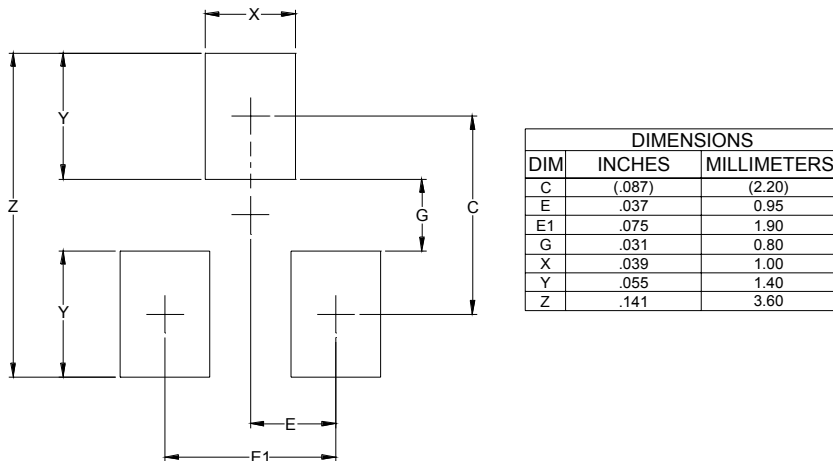


Outline Drawing - SOT23



DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.035	-	.044	0.89	-	1.12
A1	.000	-	.004	0.01	-	0.10
A2	.035	.037	.040	0.88	0.95	1.02
b	.012	-	.020	0.30	-	0.51
c	.003	-	.007	0.08	-	0.18
D	.110	.114	.120	2.80	2.90	3.04
E	.082	.093	.104	2.10	2.37	2.64
E1	.047	.051	.055	1.20	1.30	1.40
e	.075			1.90 BSC		
e1	.037			0.95 BSC		
L	.015	.020	.024	0.40	0.50	0.60
L1	.022			(0.55)		
N	3			3		
φ	0°	-	8°	0°	-	8°
aaa	.004			0.10		
bbb	.008			0.20		

Land Pattern - SOT23



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