

Features

- Reverse stand-off voltage: 5V max.
- Transient protection for each line according to IEC61000-4-2 (ESD): $\pm 30\text{kV}$ (contact discharge)
IEC61000-4-5 (surge): 5A (8/20 μs)
- Low capacitance: $C_{I/O-GND} = 0.65\text{pF}$ typ. ($V_{CC} = \text{floated}$)
 $C_{I/O-GND} = 0.35\text{pF}$ typ. ($V_{CC} = 5\text{V}$)
- Ultra-low leakage current: $I_R < 1\text{nA}$ typ.
- Low clamping voltage: $V_{CL} = 16.5\text{V}$ @ $I_{PP} = 16\text{A}$ (TLP)
- Solid-state silicon technology

Mechanical Characteristics

- JEDEC SOT23-6L package
- Molding compound flammability rating: UL 94V-0



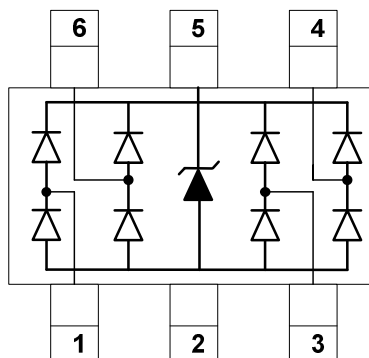
Applications

- USB 2.0
- HDMI 1.3
- SATA and eSATA
- DVI
- IEEE 1394
- PCI Express
- Portable Electronics
- Notebooks

Ordering Information

Part Number	Qty per Reel	Reel Size
TPESD0504S6	3000	7"

Dimensions and Pin Configuration



Absolute Maximum Ratings (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Peak pulse power ($t_p = 8/20\mu s$)	P_{pk}	150	W
Peak pulse current ($t_p = 8/20\mu s$)	I_{PP}	5	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 30	kV
ESD according to IEC61000-4-2 contact discharge		± 30	
Junction temperature	T_J	125	°C
Operating temperature	T_{OP}	-40~85	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-55~150	°C

Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				5.0	V
Reverse leakage current	I_R	$V_{RWM} = 5V$			1	μA
Reverse breakdown voltage	V_{BR}	$I_{BR} = 1mA$	7.0	8.0	9.0	V
Forward voltage	V_F	$I_F = 10mA$	0.6	0.9	1.2	V
Clamping voltage ¹⁾	V_{CL}	$I_{PP} = 16A, t_p = 100ns$		16.5		V
Dynamic resistance ¹⁾	R_{DYN}			0.45		Ω
Clamping voltage ²⁾	V_{CL}	$I_{PP} = 1A, t_p = 8/20\mu s$			10	V
		$I_{PP} = 5A, t_p = 8/20\mu s$			15	V.
Junction capacitance	$C_{I/O-GND}$	$V_R = 0V, f = 1MHz, V_{CC} = \text{floated},$ Any I/O to GND		0.65	1.0	pF
		$V_R = 0V, f = 1MHz, V_{CC} = 5V,$ Any I/O to GND		0.35	0.50	pF
	$C_{I/O-I/O}$	$V_R = 0V, f = 1MHz,$ Any I/O to I/O		0.35	0.50	pF

Fig1. 8/20 μ s Pulse Waveform

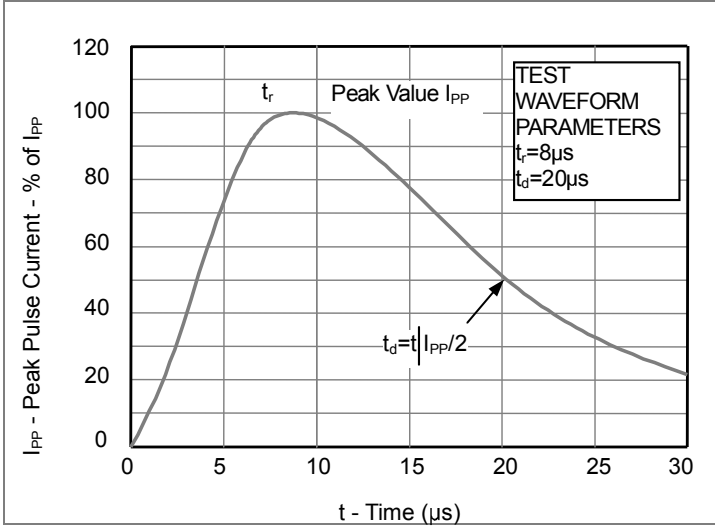


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

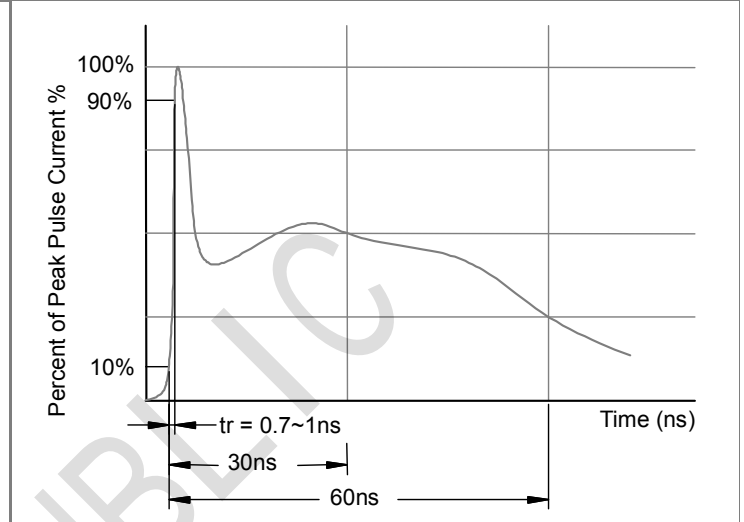
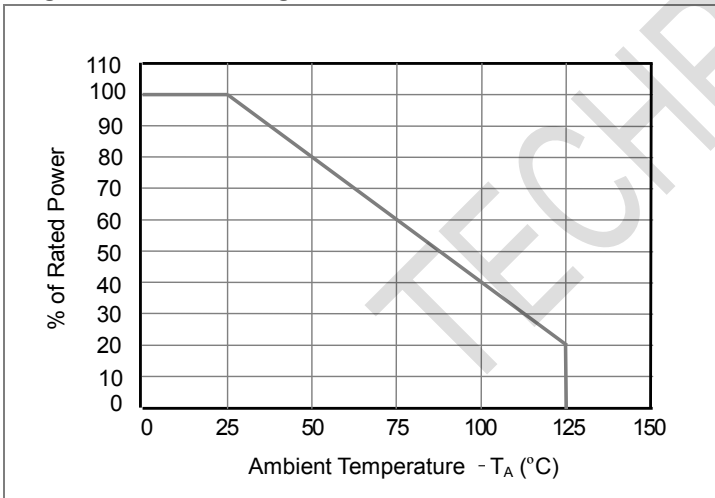
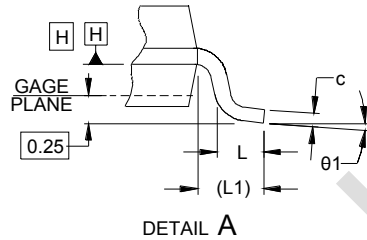
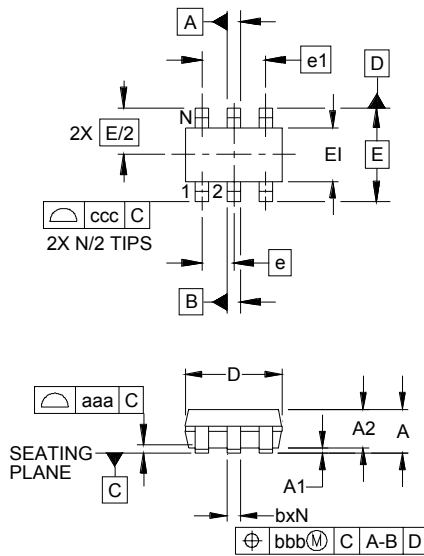


Fig3. Power Derating Curve

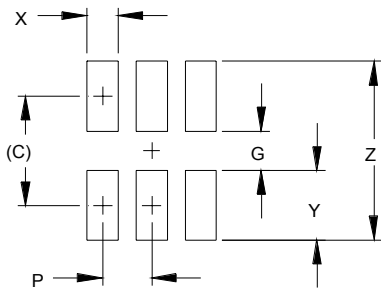


Outline Drawing - SOT23-6



DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.035	-	.057	0.90	-	1.45
A1	.000	-	.006	0.00	-	0.15
A2	.035	.045	.051	.90	1.15	1.30
b	.010	-	.020	0.25	-	0.50
c	.003	-	.009	0.08	-	0.22
D	.110	.114	.118	2.80	2.90	3.00
E1	.060	.063	.069	1.50	1.60	1.75
E	.110 BSC			2.80 BSC		
e	.037 BSC			0.95 BSC		
e1	.075 BSC			1.90 BSC		
L	.012	.018	.024	0.30	0.45	0.60
L1	(.024)			(0.60)		
N	6			6		
theta1	0°	-	10°	0°	-	10°
aaa	.004			0.10		
bbb	.008			0.20		
ccc	.008			0.20		

Land Pattern - SOT23-6



DIM	DIMENSIONS	
	INCHES	MILLIMETERS
C	(.098)	(2.50)
G	.055	1.40
P	.037	0.95
X	.024	0.60
Y	.043	1.10
Z	.141	3.60

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