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DT1446-04TS-7

Low Capacitance High ESD Level Protection Array For High Speed I/O Port

www.sot23.com.tw

Features

- Ultra low capacitance: 0.3pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Low operating voltage: 5V
- Low clamping voltage
- Up to 4 data lines and one power line protects
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±25kV
    - Contact discharge: ±20kV
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) : 4.0A(8/20μs)
- ROHS Compliant

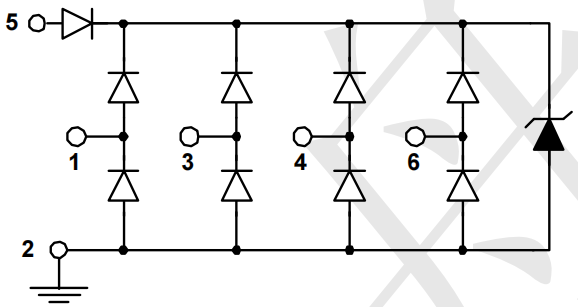
Mechanical Characteristics

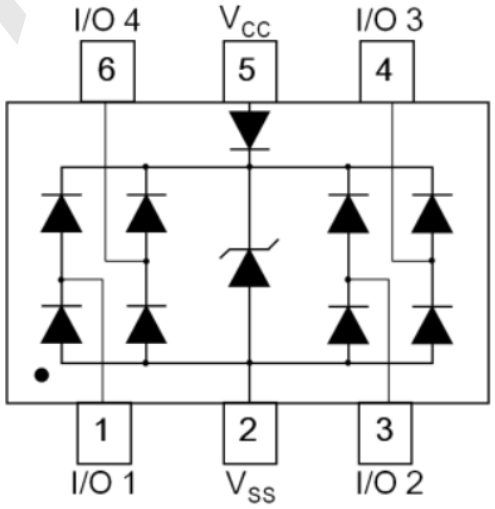
- Package: SOT23-6
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Shipping Qty :3000/7Inch Tape & Reel

Applications

- USB 2.0 and USB 3.0 Ports
- USB OTG
- Digital video interface(DVI)
- Monitor and Flat Panel Displays
- PCI Express and Serial SATA Ports
- Gigabit Ethernet
- IEEE 1394 firewire ports
- Consumer products (STB, DVD, DSC, DVC…)

Dimensions and Pin Configuration





Marking:C16PJ

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

Parameter	Symbol	Value	Unit
Peak Pulse Power（tp=8/20μs）	P_{PP}	80	W
Peak Pulse Current（tp=8/20μs）	I_{PP}	4.0	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±25 ±20	kV
Operating Temperature Range	T_J	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

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

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			5	V	Any I/O pin to ground
Breakdown Voltage	V_{BR}	6			V	I_T = 1mA, any I/O pin to ground
Reverse Leakage Current	I_R			0.08	μA	V_{RWM} = 5V, any I/O pin to ground
Clamping Voltage	V_C			11	V	I_{PP} = 1A (8 x 20μs pulse) any I/O pin to ground
Clamping Voltage	V_C			15	V	I_{PP} = 4.0A (8 x 20μs pulse) any I/O pin to ground
Junction Capacitance	C_J			0.8	pF	VR = 0V, f = 1MHz, any I/O pin to ground
Junction Capacitance	C_J		0.3	0.4	pF	VR = 0V, f = 1MHz, between I/O pins

Typical Performance Characteristics (T_A=25°C unless otherwise Specified)

Fig1. 8/20μs Pulse Waveform

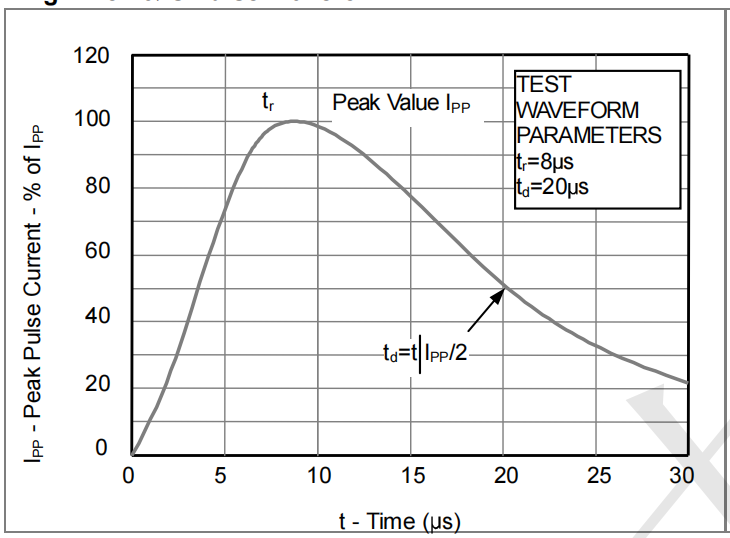


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

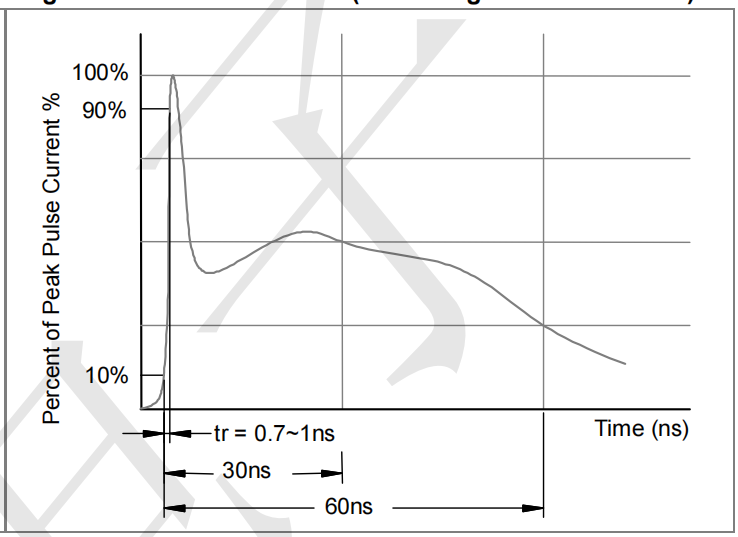
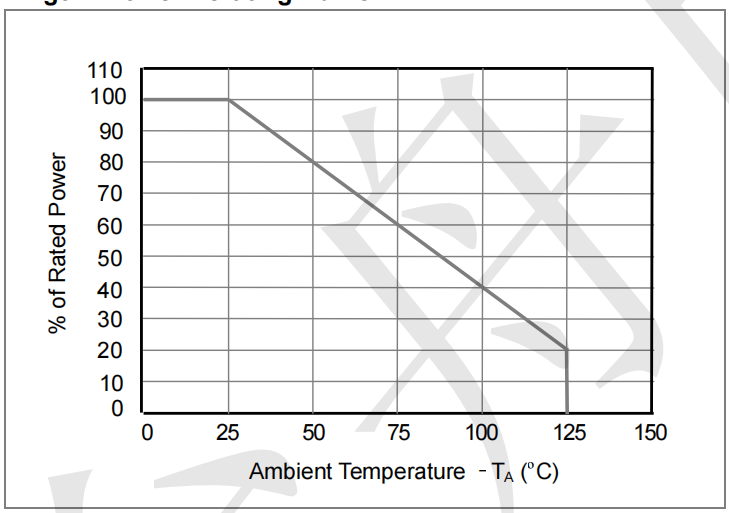
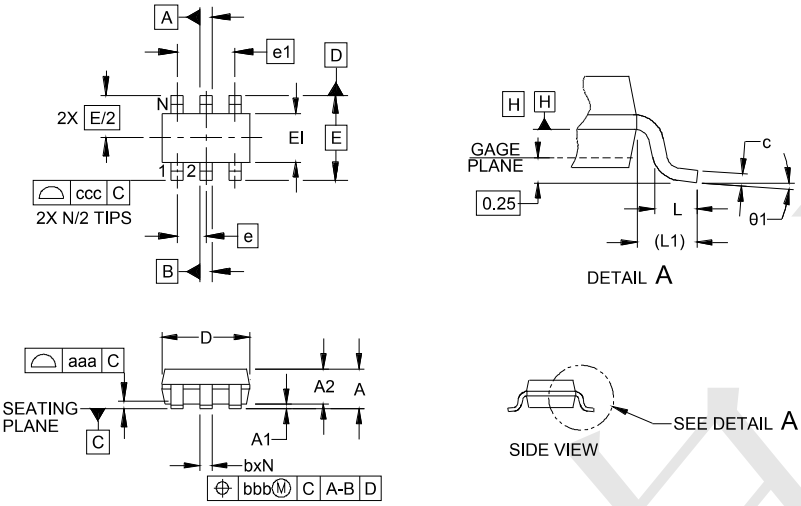


Fig3. Power Derating Curve

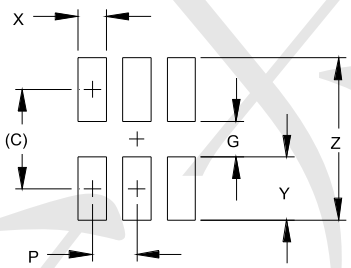


Outline Drawing - SOT23-6



DIM	DIMENSIONS					
	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		
θ1	0°	-	10°	0°	-	10°
aaa	.004			0.10		
bbb	.008			0.20		
ccc	.008			0.20		

Land Pattern - SOT23-6



DIMENSIONS		
DIM	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