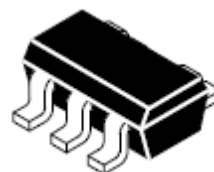


Transient Voltage Suppressor

Features

- IEC 61000-4-2(ESD)±27KV(air), ±25KV(contact)
- IEC 61000-4-4 (EFT) 40A
- IEC61000-4-5(Lightning MAX) 6A (8/20 μ S)
- 72Watts max peak pulse power
- Low leakage current 1uA (Max) at 5V
- Small package: SOT23-6
- Moisture sensitivity level: level 1

Exterior

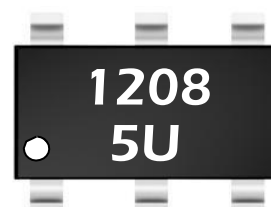


SOT23-6

Application Information

- USB 2.0
- Video Graphics Cards
- DVI
- IEEE 1394
- Monitors and Flat Panel Displays
- Notebooks
- 10/100 Ethernet

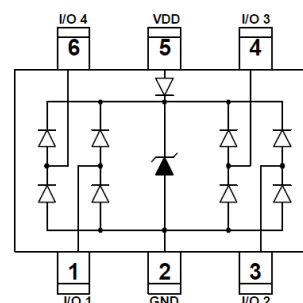
Package (top view)



Agency Approvals

Icon	Description
RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

Schematic Symbol



Part Number and Electrical Parameter

Pin 1,3,4,6 to Pin 2

Part Number	$I_{DRM}@V_{DRM}$		$V_{BR}@I_R$		$V_C@I_{pp} \ 8/20\mu S$			R_{DYN} @TLP ^①	$V_C@I_{pp} \ TLP^{\textcircled{1}}$		$Co^{\textcircled{2}}$	$Co^{\textcircled{3}}$
	μA	V	V	mA	V	V	A	Ω	V	A	pF	pF
	MAX		MIN		TYP	MAX		TYP	TYP		MAX	MAX
BV-T605U4CE	1.0	5.0	7.0	1	10	12	6	0.31	11	16	1.6	0.8

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Pin 5 to Pin 2

Part Number	$I_{DRM}@V_{DRM}$		$V_{BR}@I_R$		$V_C@I_{PP} \ 8/20\mu S$			$R_{DYN}@$ TLP ^①	ESD Contact mode		$V_C@I_{PP}$ TLP ^①	
	μA	V	V	mA	V	V	A	Ω	V	KV	V	A
	MAX		MIN		TYP	MAX		TYP	TYP		TYP	
BV-T605U4CE	1.0	6.0	6.5	1	9.5	12	9	0.2	10	8	9.5	16

Absolute maximum ratings measured at T= 25°C RH = 45%-75% (unless otherwise noted).

- ① TLP parameter: $Z_0 = 50\Omega$, $t_p = 100ns$, $t_r = 2ns$, averaging window from 60ns to 80ns. RDYN is calculated from 4A to 16A.
- ② Off-state capacitance is measured in $V_{DC}=0V, V_{RMS}=0.3V, f=1MHz$, Pin 1,3,4,6 to Pin 2.
- ③ Off-state capacitance is measured in $V_{DC}=0V, V_{RMS}=0.3V, f=1MHz$, any I/O to I/O.

Part Numbering System

BV T6 05 U 4 C E
(1) (2) (3) (4) (5) (6) (7)

- (1) Bencent Transient Voltage Suppressor
- (2) Package:SOT23-6
- (3) Off-state Voltage: 5V
- (4) Low capacitance
- (5) 4 Lines protection
- (6) Bi-directional
- (7) Bencent intenal code

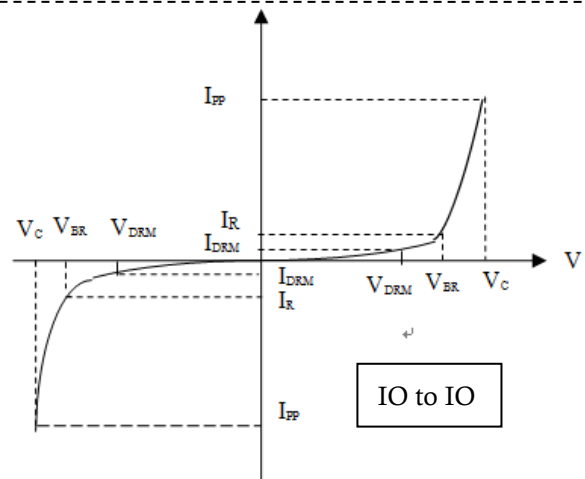
Mark



1208 5U :Part Number

V-I Curve

Parameters	Definition
V_C	Clamping Voltage
I_{PP}	Surge Waveform 8/20 μs
V_{DRM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
I_{DRM}	Reverse Leakage Current
I_R	Test Current
P_{pp}	Peak Pulse Power Dissipation

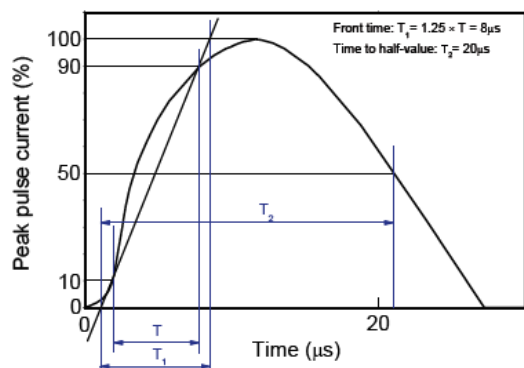
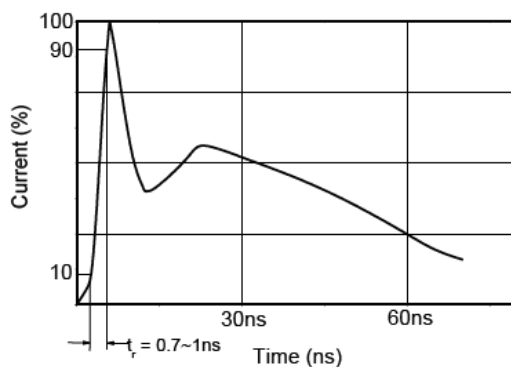
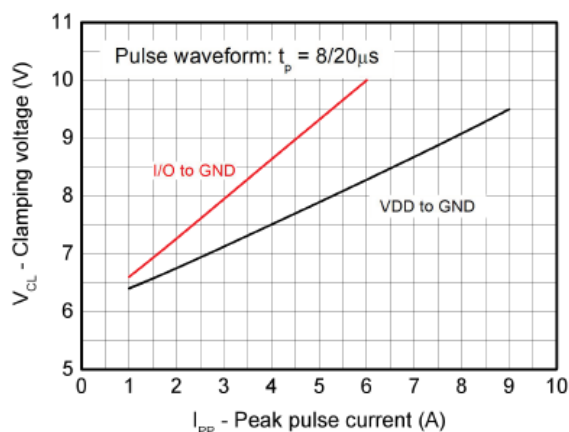
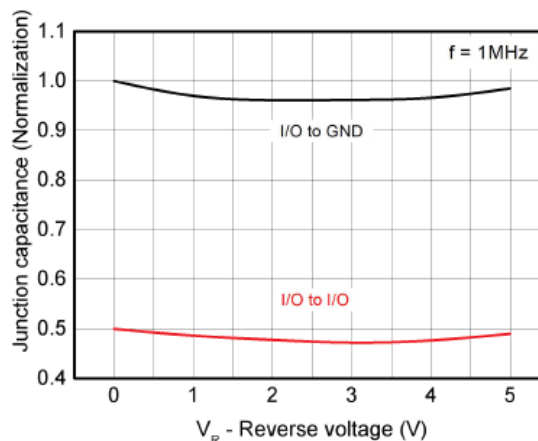
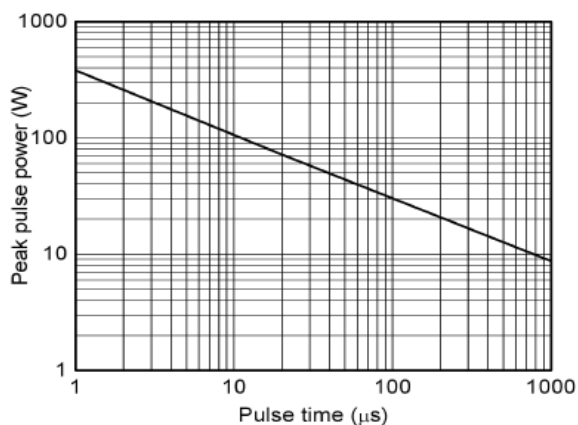
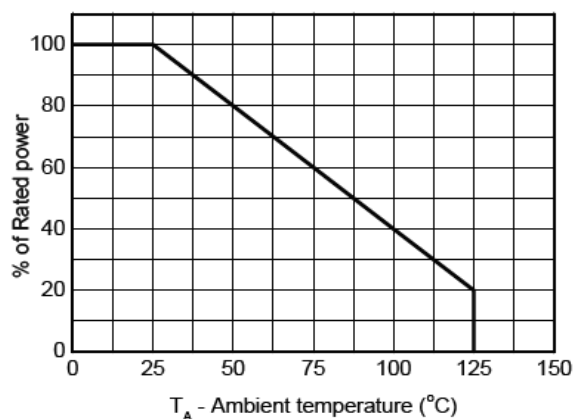


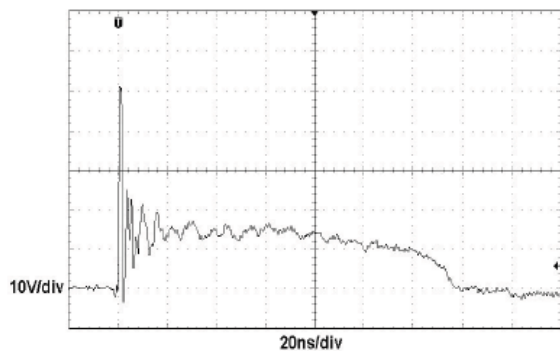
Transient Voltage Suppressor

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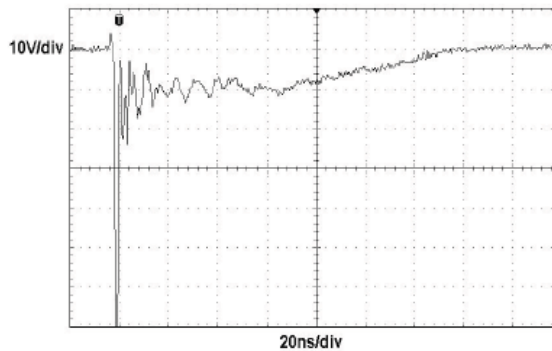
Thermal Considerations

symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-55 to +125	°C
T_S	Storage Temperature Range	-55 to +150	°C

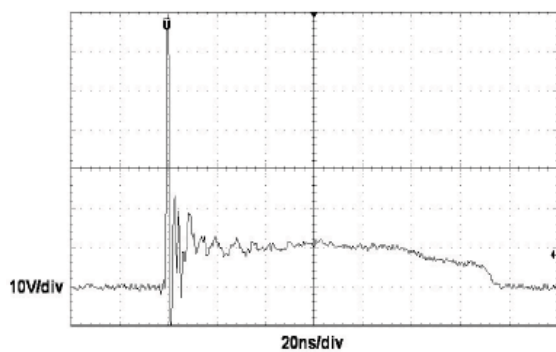
Typical Characteristics

8/20μs waveform per IEC61000-4-5

Contact discharge current waveform per IEC61000-4-2

Clamping voltage vs. Peak pulse current

Capacitance vs. Reverse voltage

Non-repetitive peak pulse power vs. Pulse time

Power derating vs. Ambient temperature



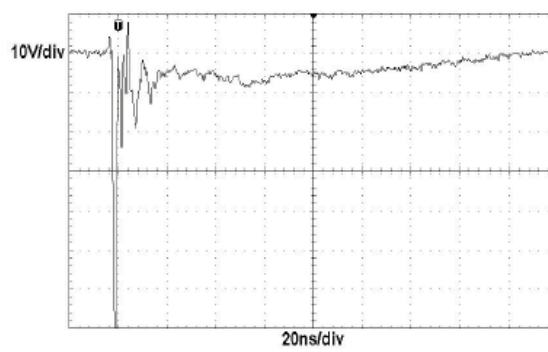
ESD clamping - I/O to GND
(+8kV contact discharge per IEC61000-4-2)



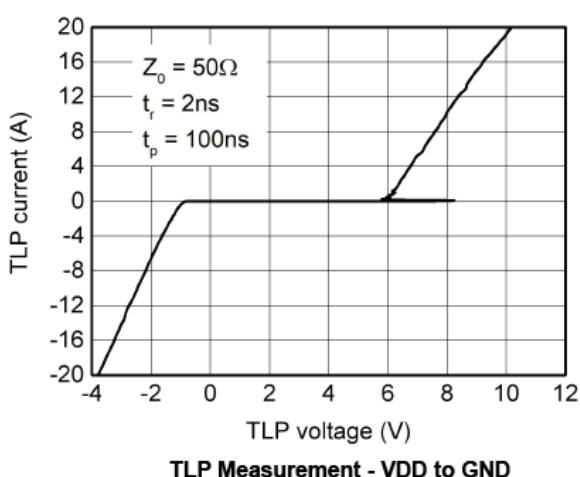
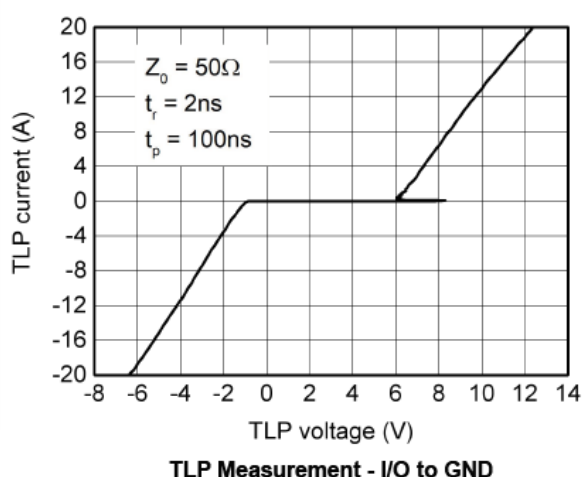
ESD clamping - I/O to GND
(-8kV contact discharge per IEC61000-4-2)



ESD clamping - VDD to GND
(+8kV contact discharge per IEC61000-4-2)



ESD clamping - VDD to GND
(-8kV contact discharge per IEC61000-4-2)



Transient Voltage Suppressor

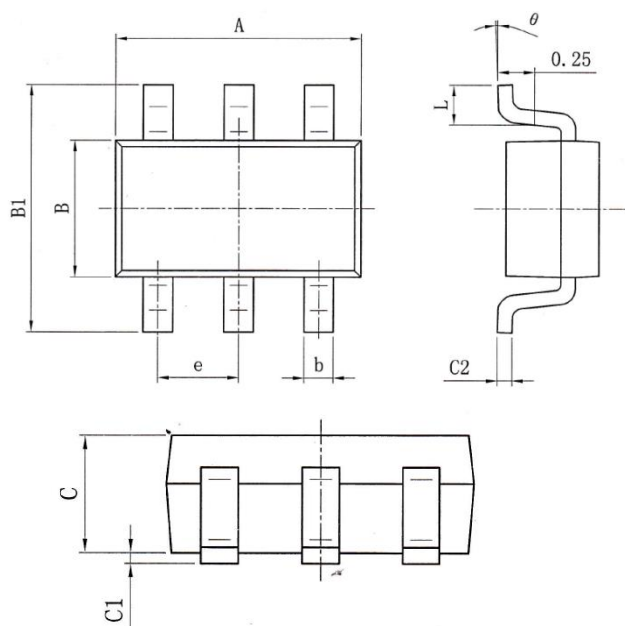
Version: A3 2023-07-10

Environmental Characteristics

Testing items	Technical standards
High Temperature Reverse Bias Test	Temperature: $150\pm5^{\circ}\text{C}$ Bias= $80\%V_{\text{DRM}}$. Time:168H
High Temperature Storage Test	Temperature: 150°C Time:168H
High-low Temperature Cycle test	Temperature: From -55°C to 125°C Dwell time : 30min,100cycles
High Temperature &High Humidity Test	Temperature: 85°C Humidity:85% Time:168H
Pressure cooker Test	Temperature: 121°C , 2atm. Humidity:100% Time:24H
Resistance of soldering heat	Temperature: $260\pm5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

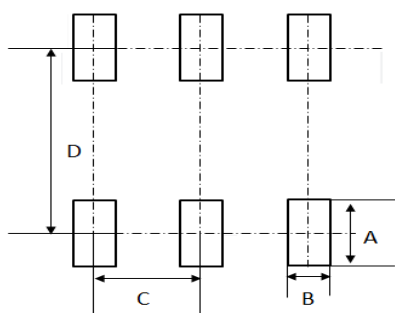
Note: The above testing items can be specified by customer's special request

Product Dimensions



REF	mm	inch
A	2.80~3.02	0.110~0.119
B	1.50~1.73	0.059~0.068
B1	2.60~3.05	0.102~0.120
C	1.00~1.20	0.039~0.047
C1	0.00~0.15	0.000~0.006
C2	0.08~0.20	0.003~0.008
L	0.30~0.60	0.012~0.024
b	0.30~0.50	0.012~0.020
e	0.95BSC	0.037BSC
θ	0°~8°	0°~8°

Recommended Soldering Pad



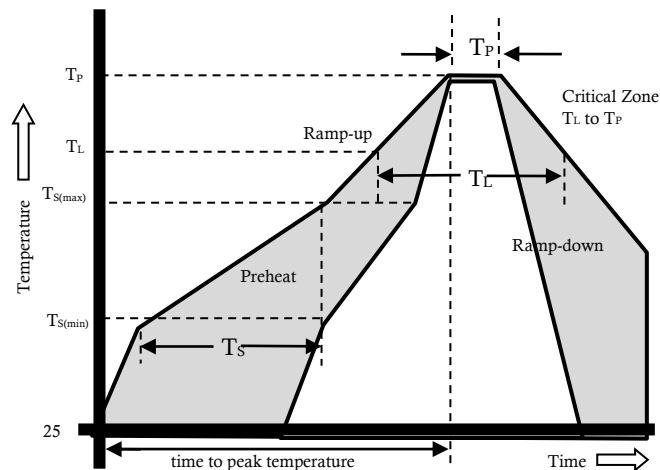
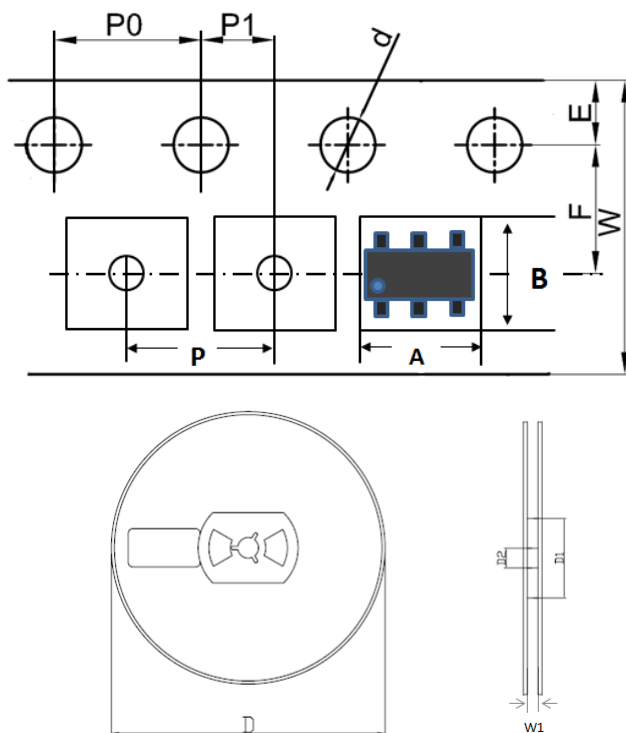
REF	mm	inch
A	1.2	0.047
B	0.6	0.024
C	0.95	0.037
D	2.3	0.091

Transient Voltage Suppressor

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Reflow Profile

Reflow Condition		Pb-Free assembly
Pre Heat	Temperature Min	150°C
	Temperature Max	200°C
	Time (Min to Max)	60 – 180 secs
Average ramp up rate (Liquid)		3°C/s Max
Tamp (T _L) to peal		
T _S (max) to T _L - Ramp-up Rate		3°C/s Max
Reflow	- Temperature (T _L) (Liquid)	217°C
	- Temperature (T _L)	60 – 150 secs
Peak Temperature (T _P)		260+0/-5 °C
Time within 5°C of actual peak Temperature (T _P)		30secs
Ramp-down Rate		6°C/s Max
Time 25°C to peak Temperature (T _P)		8 mins Max.
Do not exceed		260°C


Package Reel Information


REF	mm	inch
A	3.20+/-0.20	0.126+/-0.008
B	3.20+/-0.20	0.126+/-0.008
d	1.50+0.1/-0	0.059+0.004/-0
D	178.00+/-2.00	7.008+/-0.079
D1	55.00+/-3.00	2.165+/-0.118
D2	13.00+/-0.50	0.512+/-0.020
E	1.75+/-0.10	0.069+/-0.004
F	3.50+/-0.20	0.138+/-0.008
P	4.00+/-0.20	0.157+/-0.008
P0	4.00+/-0.20	0.157+/-0.008
P1	2.00+/-0.20	0.079+/-0.008
W	8.00+/-0.20	0.315+/-0.008
W1	9.50+/-1.00	0.374+/-0.039

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)	CARTON SIZE(mm)		
				L	W	H
TAPING	3000	90,000	178	390	370	220