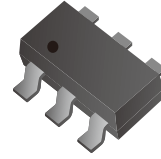


CPDT6-5V0SBPU-HF

RoHS Device
Halogen Free

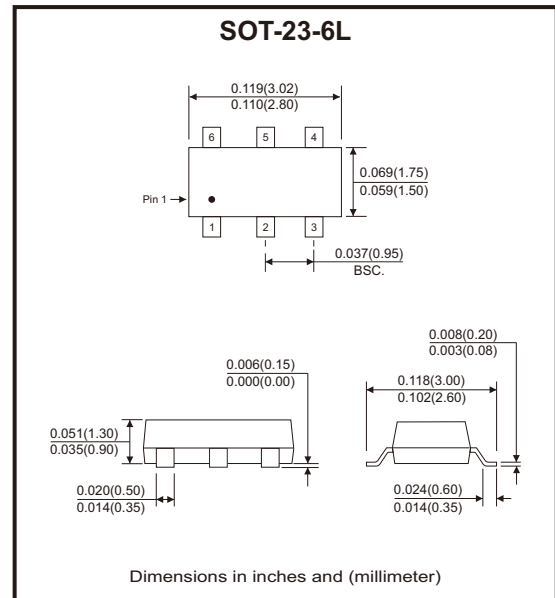


Features

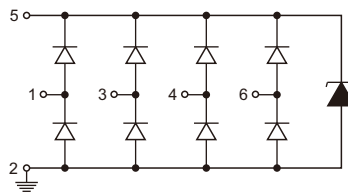
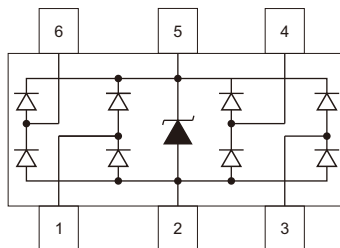
- Low operating voltage: 5V
- Ultra low capacitance.
- Solid-state silicon-avalanche and active circuit triggering technology.
- Up to four I/O lines of protection.
- Low leakage.
- IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air/contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 10A (8/20 μs)

Mechanical data

- Case: SOT-23-6L, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Mounting position: Any.



Circuit Diagram



Maximum Rating (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Value	Unit
Peak pulse power	$T_P = 8/20\mu\text{s}$	P_{PP}	100	W
Peak pulse current	$T_P = 8/20\mu\text{s}$	I_{PP}	10	A
ESD capability	IEC 61000-4-2(air) IEC 61000-4-2(contact)	ESD	± 30	kV
Operating junction temperature range		T_J	-55 to +125	$^\circ\text{C}$
Storage temperature range		T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (at TA=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Reverse stand-off voltage		V_{RWM}			5	V
Reverse breakdown voltage	$I_T = 1\text{mA}$	V_{BR}	6			V
Reverse leakage current	$V_{RWM} = 5\text{V}$	I_R			500	nA
Forward voltage	$I_T = 10\text{mA}$	V_F	0.6		1.2	V
Clamping voltage	$I_{PP} = 10\text{A}$, $T_P = 8/20\mu\text{s}$, I/O Pin to GND	V_C		9	10	V
Dynamic resistance (Note 1, 2)	$TLP = 0.2/100\text{ns}$, I/O Pin to GND	R_{DYN}		0.25		Ω
Clamping voltage (Note 1)	$TLP = 4\text{A}$, $T_P = 0.2/100\text{ns}$	V_C		7.1		V
	$TLP = 16\text{A}$, $T_P = 0.2/100\text{ns}$	V_C		10.1		
Junction capacitance	$V_R = 0\text{V}$, $f = 1\text{MHz}$, I/O Pin to GND	C_J		1.3		pF
	$V_R = 2.5\text{V}$, $f = 1\text{MHz}$, I/O Pin to GND	C_J		1.1	1.5	
	$V_R = 2.5\text{V}$, $f = 1\text{MHz}$, Between I/O Pins	C_J		0.6	0.8	

Notes: 1. TLP setting: $t_p=100\text{ns}$, $t_r=0.2\text{ns}$, I_{TLP} and V_{TLP} sample window: $t_1=70\text{ns}$ to $t_2=90\text{ns}$.

2. Dynamic resistance calculated from $I_{pp}=4\text{A}$ to $I_{pp}=16\text{A}$ using "best fit".

Typical Rating and Characteristic Curves (CPDT6-5V0SBPU-HF)

Fig.1 - Peak Pulse Power vs. Pulse Time

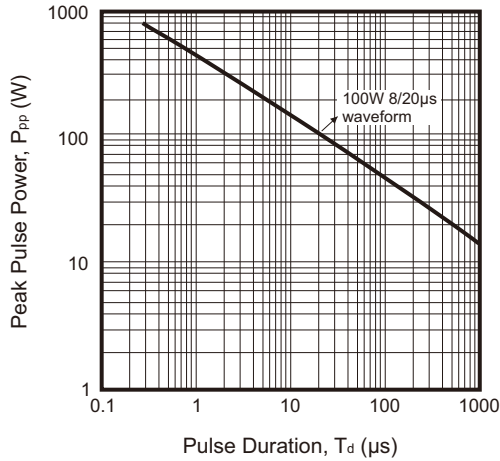


Fig.2 - Power Derating Curve

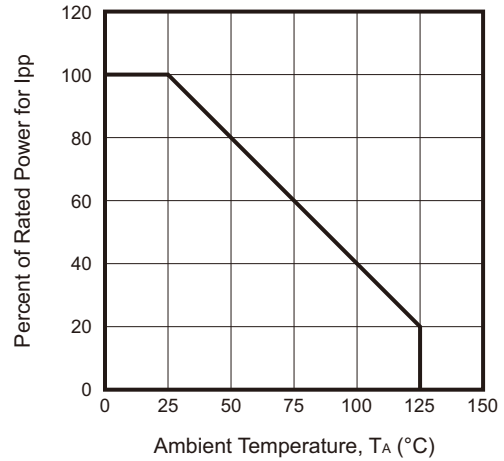


Fig.3 - Clamping Voltage vs. Peak Pulse Current

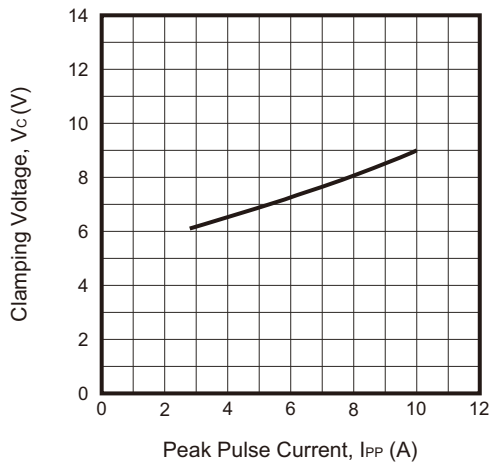


Fig.4 - Typical Capacitance Between Terminals Characteristics

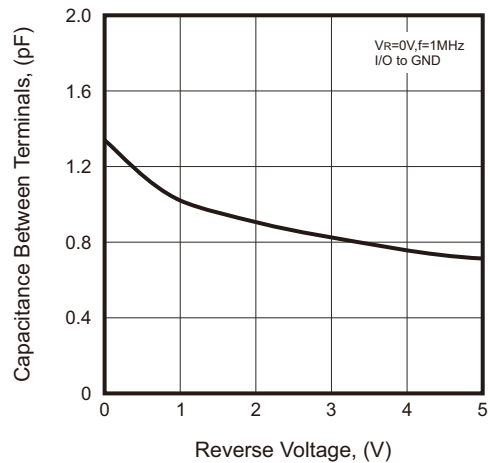


Fig.5 - 8/20μs Peak Pulse Current Waveform Acc. IEC 61000-4-5

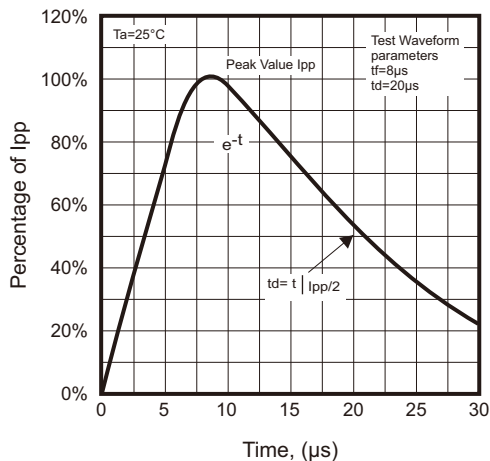
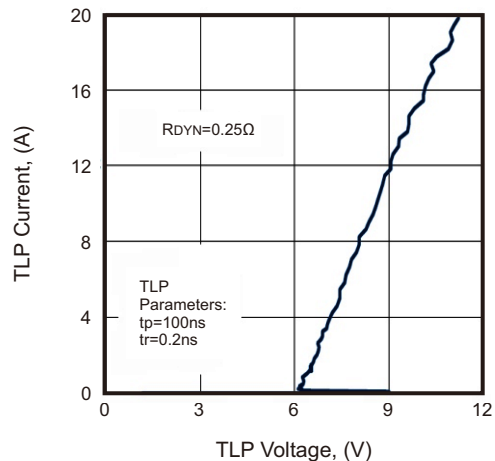
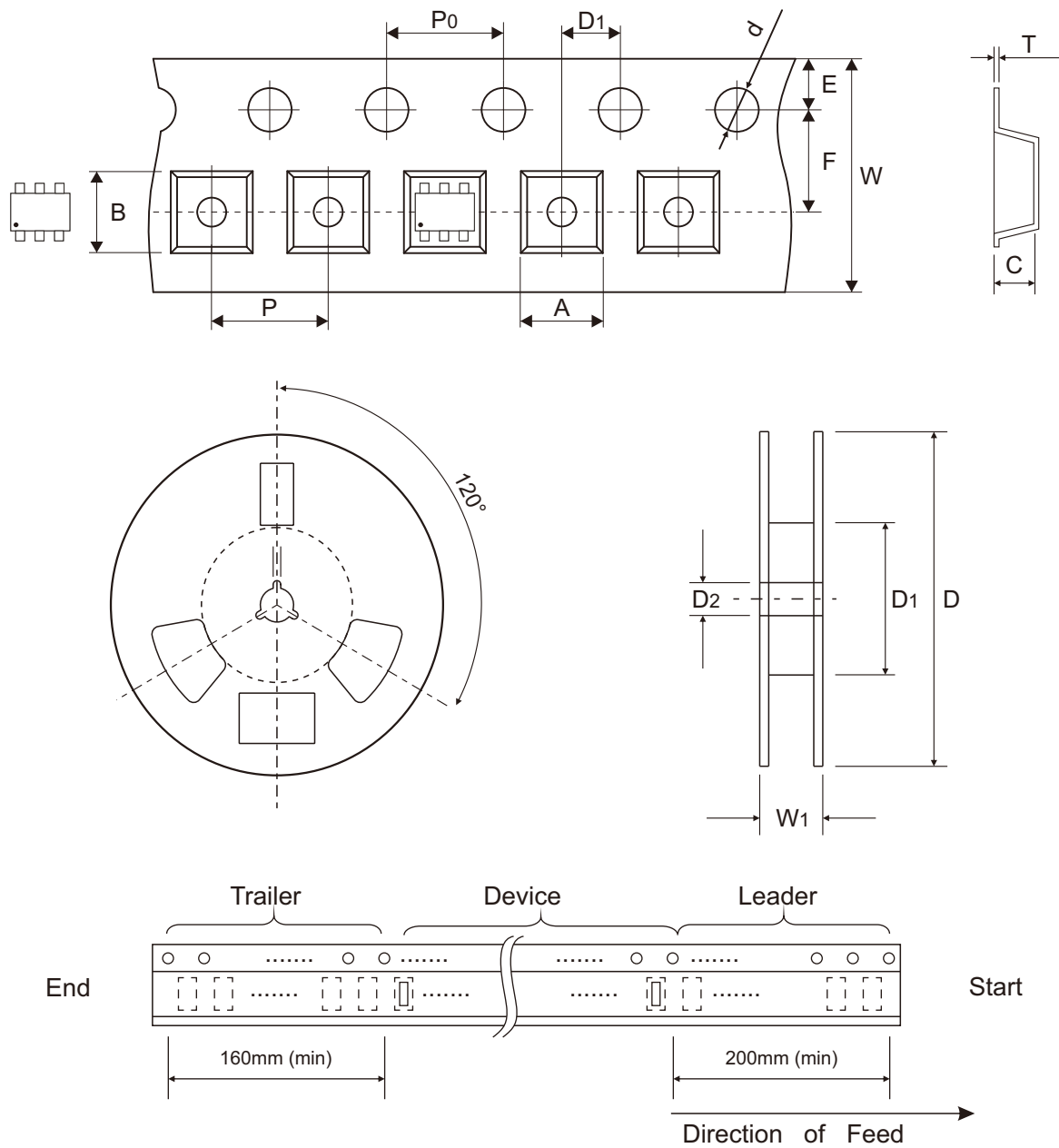


Fig.6 - TLP- Positive Pulse



Reel Taping Specification

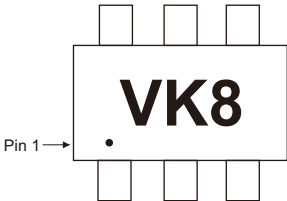


SOT-23-6L	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.24 ± 0.16	3.275 ± 0.225	1.41 ± 0.19	$1.50 + 0.10 - 0.00$	178.50 ± 2.50	56.25 ± 4.25	13.00 ± 0.20
	(inch)	0.128 ± 0.006	0.129 ± 0.009	0.056 ± 0.007	$0.059 + 0.004 - 0.000$	7.028 ± 0.098	2.215 ± 0.167	0.512 ± 0.008

SOT-23-6L	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	0.215 ± 0.065	$8.00 + 0.30 - 0.10$	11.50 ± 0.50
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.008 ± 0.003	$0.315 + 0.012 - 0.004$	0.453 ± 0.020

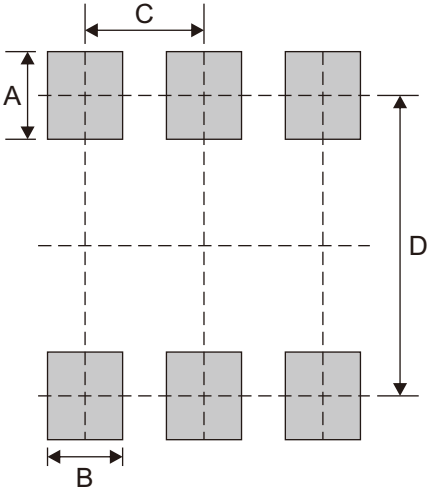
Marking Code

Part Number	Marking Code
CPDT6-5V0SBPU-HF	VK8



Suggested P.C.B. PAD Layout

SIZE	SOT-23-6L	
	(mm)	(inch)
A	1.10	0.043
B	0.60	0.024
C	0.95	0.037
D	2.50	0.098



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23-6L	3,000	7