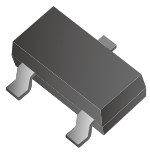
SMD ESD Protection Diode

CPDT-3V3A-HF

RoHS Device
Halogen Free



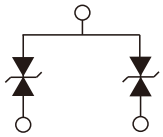
Features

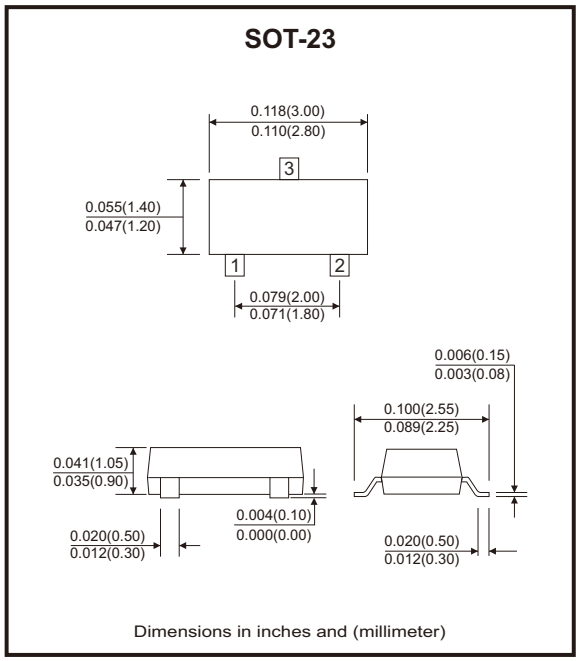
- Bi-directional ESD protection diode.
- High ESD protection level.
- Working voltage: 3.3V.
- Low clamping voltage.
- Low leakage current.

Mechanical data

- Case: SOT-23 standard package, molded plastic.
- Terminals: Tin plated, Solderable per MIL-STD-750, method 2026.
- Mounting position: Any.

Circuit Diagram





Maximum Rating (at T_A=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Value	Unit
Peak pulse power	T_P = 8/20μs	P_{PP}	92	W
Peak pulse current	T_P = 8/20μs	I_{PP}	4	A
ESD capability	IEC 61000-4-2(air) IEC 61000-4-2(contact)	ESD	±20	kV
Operating temperature range		T_J	-55 to +125	°C
Storage temperature range		T_{STG}	-55 to +150	°C

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

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Working peak reverse voltage		V_{RWM}			3.3	V
Breakdown voltage	I_T = 1mA	V_{BR}	4.5			V
Reverse leakage current	V_{RWM} = 3.3V	I_R			100	nA
Clamping voltage	I_{PP} = 1A, T_P = 8/20μs	V_C		11	13	V
	I_{PP} = 4A, T_P = 8/20μs	V_C		21	23	
Junction capacitance	V_R = 0V, f = 1MHz	C_J		0.22		pF

Typical Rating and Characteristic Curves (CPDT-3V3A-HF)

Fig.1 - 8/20μs Peak Pulse Current Waveform Acc. IEC 61000-4-5

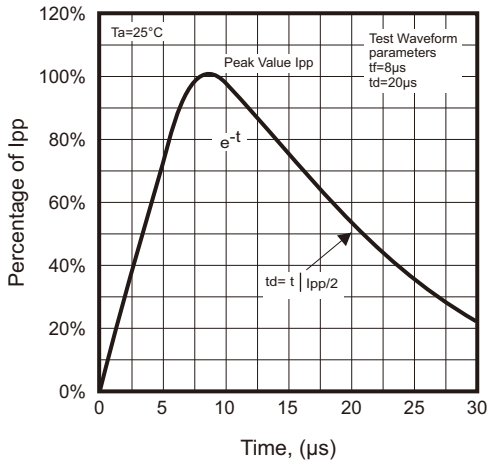


Fig.2 - Power Rating Derating Curve

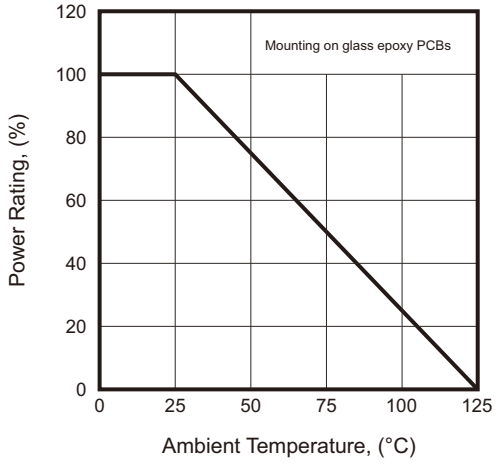


Fig.3 - Typical Clamping Voltage vs. Peak Pulse Current

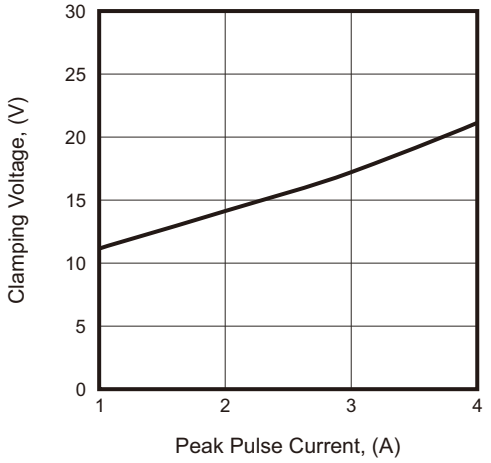
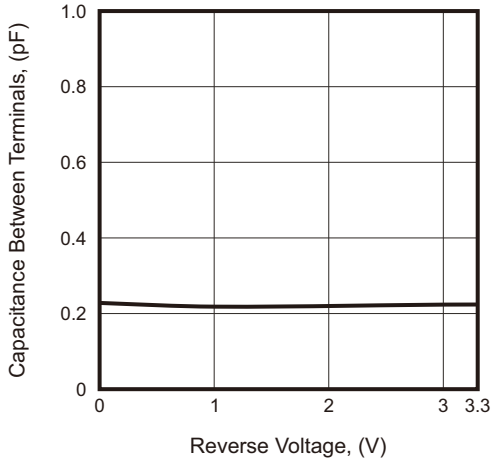
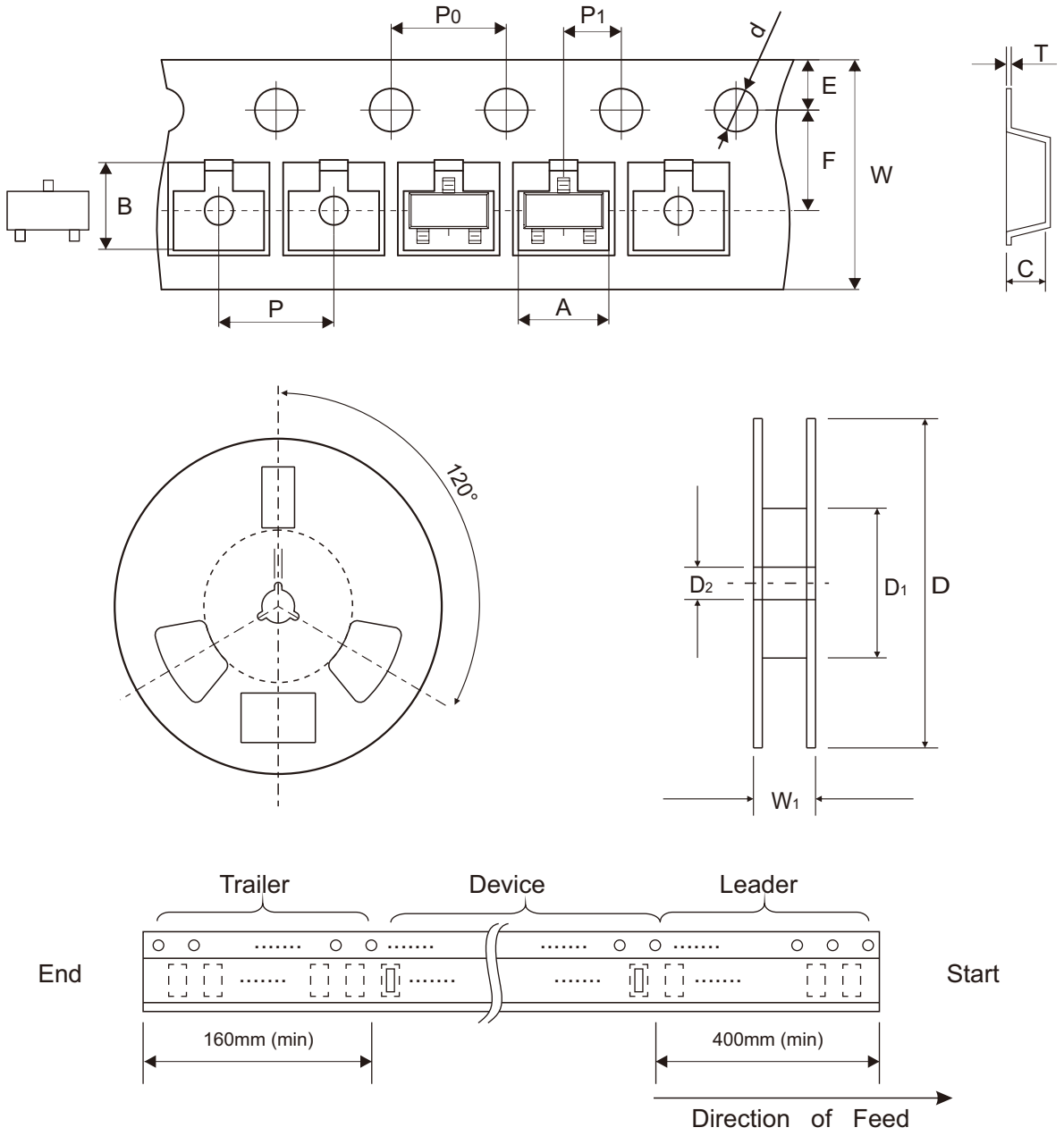


Fig.4 - Typical Capacitance Between Terminals Characteristics



Reel Taping Specification

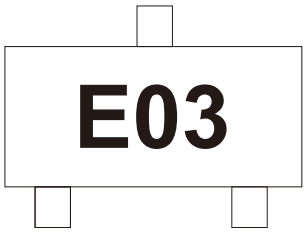


	SYMBOL	A	B	C	d	D	D1	D2
SOT-23	(mm)	3.08 ± 0.10	2.72 ± 0.10	1.22 ± 0.10	1.50 + 0.10 − 0.00	178.00 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.121 ± 0.004	0.107 ± 0.004	0.048 ± 0.004	0.059 + 0.004 − 0.000	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

	SYMBOL	E	F	P	P0	P1	T	W	W1
SOT-23	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.05	8.00 + 0.30 − 0.10	12.30 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.002	0.315 + 0.012 − 0.004	0.484 ± 0.039

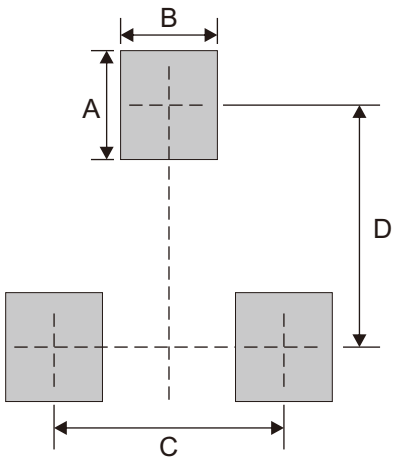
Marking Code

Part Number	Marking Code
CPDT-3V3A-HF	E03



Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.80	0.031
B	0.60	0.024
C	1.90	0.075
D	2.02	0.080



Standard Packaging

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