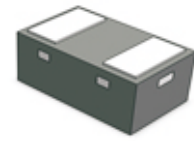


CPDQC4V5MSBA-HF

High-Reliability and High-Performance

RoHS Device

Halogen Free



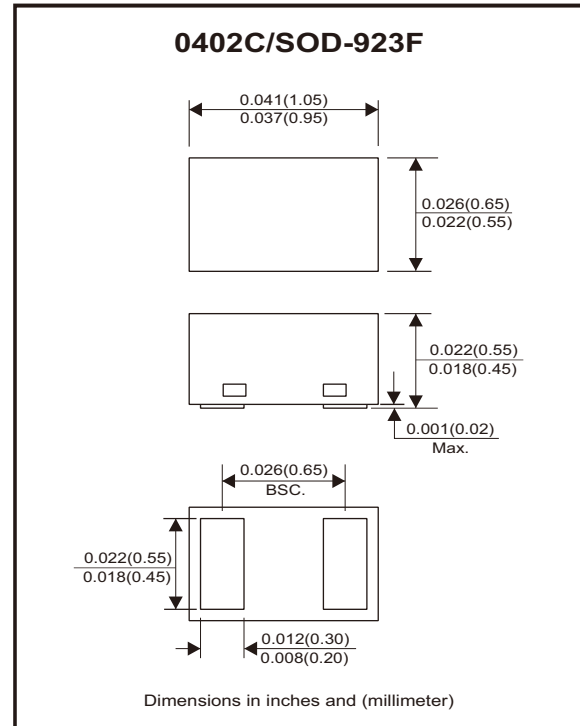
Features

- Bi-directional ESD protection.
- Protect one I/O line or power line.
- Fast turn-on and low clamping voltage.
- IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air/contact)
- IEC 61000-4-4 (EFT) 80A (5/50ns)
- IEC 61000-4-5 (Lightning) 45A (8/20 μs)

Mechanical data

- Case: 0402C/SOD-923F standard package, molded plastic.
- Terminals: Gold plated, 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}	495	W
Peak pulse current	$T_P = 8/20\mu\text{s}$	I_{PP}	45	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 $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Working peak reverse voltage		V_{RWM}			4.5	V
Reverse leakage current	$V_{RWM} = 4.5\text{V}$	I_R			500	nA
Breakdown voltage	$I_T = 1\text{mA}$	V_{BR}	4.5		6.8	V
Clamping voltage	$I_{PP} = 5\text{A}$, $T_P = 8/20\mu\text{s}$	V_C		6		V
Clamping voltage	$I_{PP} = 45\text{A}$, $T_P = 8/20\mu\text{s}$	V_C		9	11	V
Clamping voltage	$TLP = 16\text{A}$, $T_P = 100\text{ns}$	V_C		6.4		V
Junction capacitance	$V_R = 0\text{V}$, $f = 1\text{MHz}$	C_J		122		pF

Typical Rating and Characteristic Curves (CPDQC4V5MSBA-HF)

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

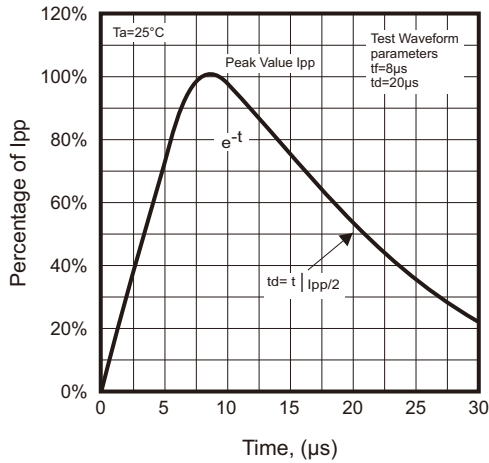


Fig.2 - Power Rating Derating Curve

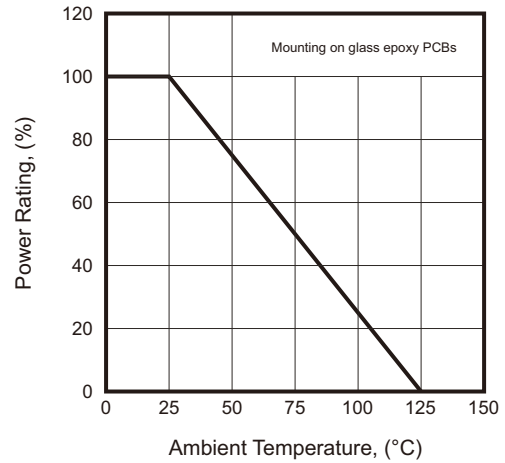


Fig.3 - Typical Clamping Voltage vs. Peak Pulse Current

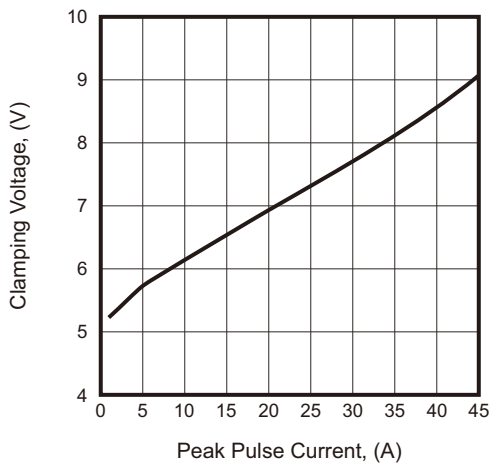


Fig.4 - Typical Capacitance Between Terminals Characteristics

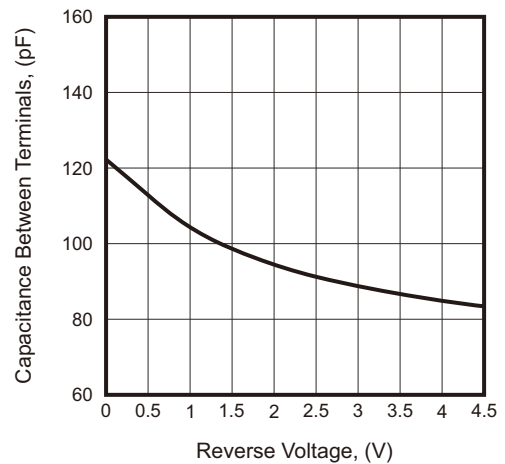


Fig.5 - TLP- Positive Pulse

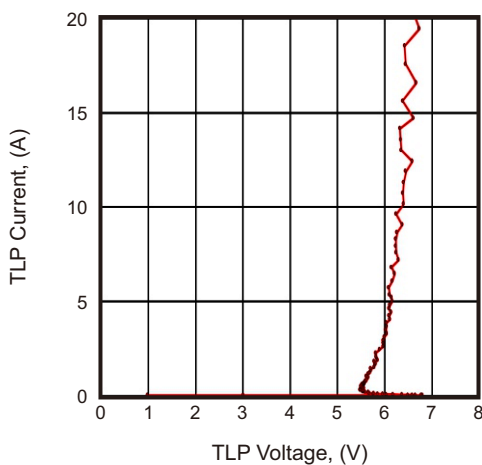
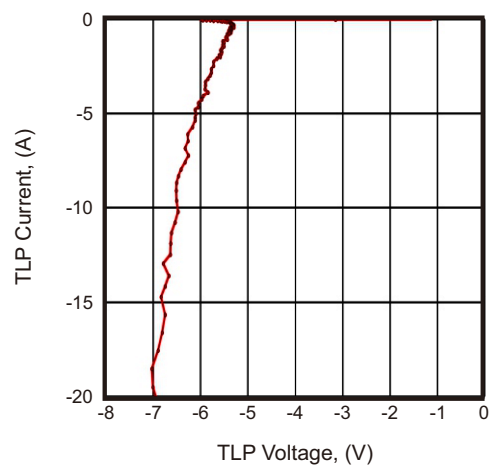
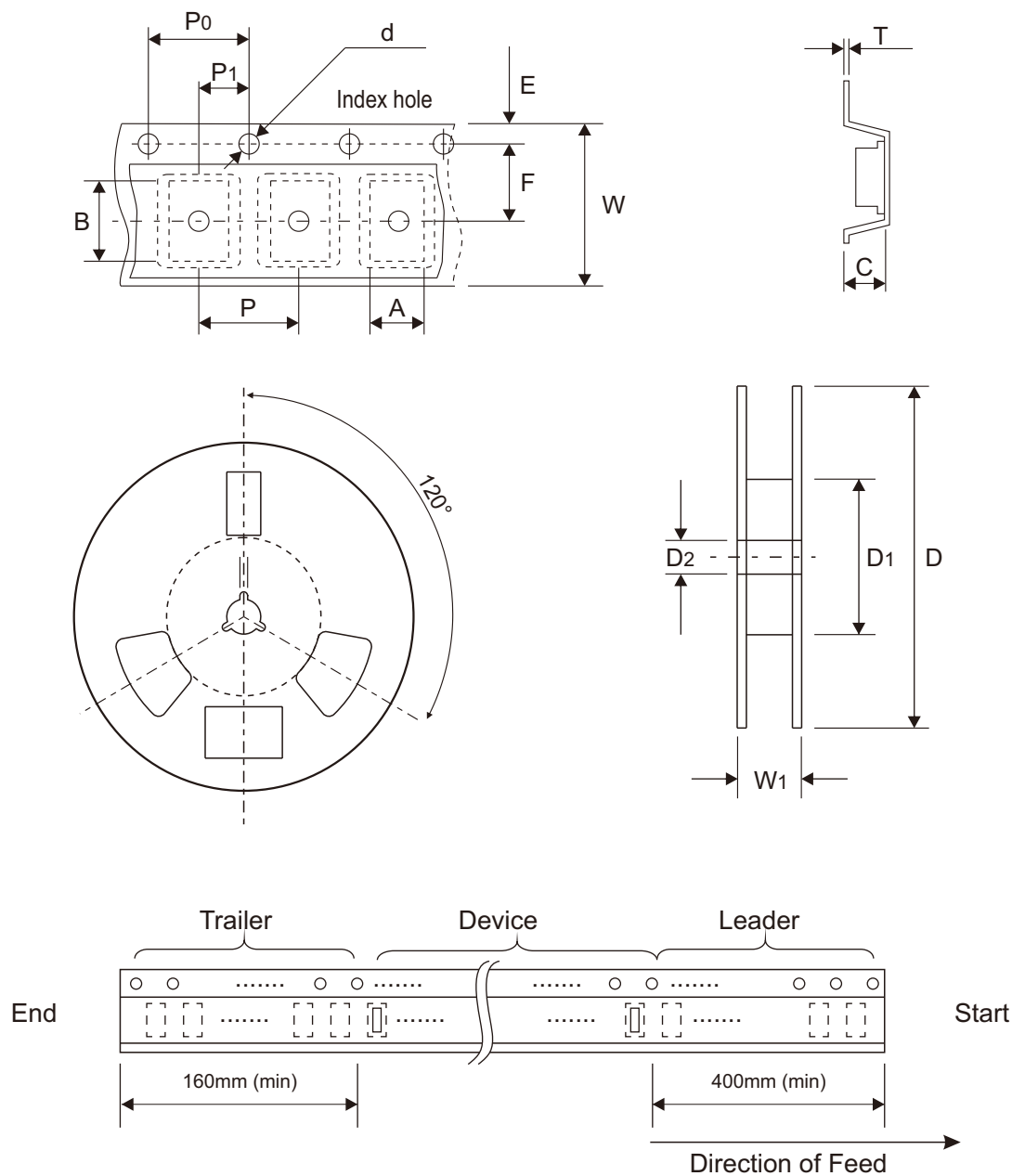


Fig.6 - TLP- Negative Pulse



Reel Taping Specification



0402C (SOD-923F)	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	0.78 ± 0.05	1.25 ± 0.05	0.65 ± 0.05	$1.50 + 0.10 - 0.00$	178.00 ± 1.00	60.00 ± 0.50	13.50 ± 0.20
	(inch)	0.031 ± 0.002	0.049 ± 0.002	0.026 ± 0.002	$0.059 + 0.004 - 0.000$	7.008 ± 0.039	2.362 ± 0.020	0.531 ± 0.008

0402C (SOD-923F)	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	$0.20 + 0.03 - 0.05$	8.00 ± 0.20	$12.00 + 0.50 - 0.00$
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	$0.008 + 0.001 - 0.002$	0.315 ± 0.008	$0.472 + 0.020 - 0.000$

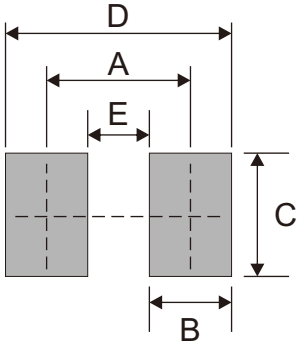
Marking Code

Part Number	Marking Code
CPDQC4V5MSBA-HF	WW



Suggested P.C.B. PAD Layout

SIZE	0402C/SOD-923F	
	(mm)	(inch)
A	0.70	0.028
B	0.40	0.016
C	0.60	0.024
D	1.10	0.043
E	0.30	0.012



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
0402C/SOD-923F	5,000	7