

# CPDQC3V3C-HF

## High-Reliability and High-Performance

### RoHS Device Halogen Free



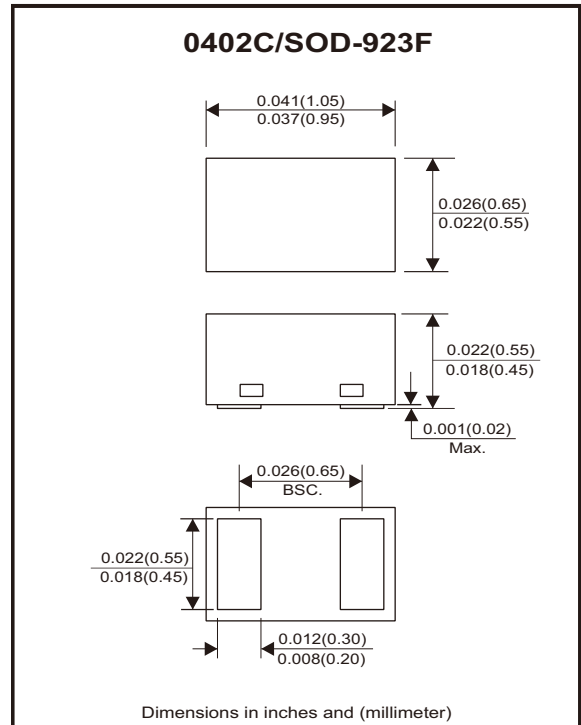
### Features

- Bi-directional ESD protection.
- IEC 61000-4-2 (ESD) ;  $\pm 20$  KV (Contact)
- ESD rating of Class 3B per Human Body Mode.
- Surface mount package.
- Ultra small SMD package:0402.
- High component density.

### Mechanical data

- Case: 0402C/SOD-923F standard package, molded plastic.
- Terminals: Gold plated, solderable per MIL-STD-750, method 2026.
- Marking Code: E3
- Mounting position: Any.
- Weight: 0.001 grams(approx.).

### Circuit Diagram



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

Parameter	Conditions	Symbol	Value	Unit
Peak pulse power	$T_P = 8/20\mu\text{s}$	$P_{PP}$	65	W
Peak pulse current	$T_P = 8/20\mu\text{s}$	$I_{PP}$	5	A
ESD capability	IEC 61000-4-2(Air) IEC 61000-4-2(Contact)	$V_{ESD}$	$\pm 20$	kV
Operating temperature range		$T_J$	-55 to +125	$^{\circ}\text{C}$
Storage temperature range		$T_{STG}$	-55 to +125	$^{\circ}\text{C}$

### Electrical Characteristics ( at $T_A=25^{\circ}\text{C}$ unless otherwise noted )

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Working peak reverse voltage		$V_{RWM}$			3.3	V
Diode breakdown voltage	$I_T = 1\text{mA}$	$V_{BR}$	3.6			V
Punch-through voltage	$I_{PT} = 2\mu\text{A}$	$V_{PT}$	3.5			V
Snap-back voltage	$I_{SB} = 50\text{mA}$	$V_{SB}$	2.8			V
Reverse leakage current	$V_{RWM} = 3.3\text{V}$	$I_R$		0.05	0.5	$\mu\text{A}$
Clamping voltage	$I_{PP} = 1\text{A}$ , $T_P = 8/20\mu\text{s}$	$V_C$		6	8	V
	$I_{PP} = 5\text{A}$ , $T_P = 8/20\mu\text{s}$	$V_C$			13	V
Junction capacitance	$V_R = 0\text{V}$ , $f = 1\text{MHz}$	$C_J$			6	pF

Rating and Characteristic Curves (CPDQC3V3C-HF)

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

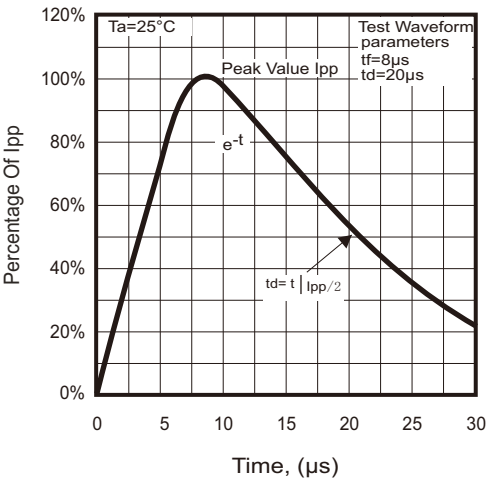


Fig.2 - Power Rating Derating Curve

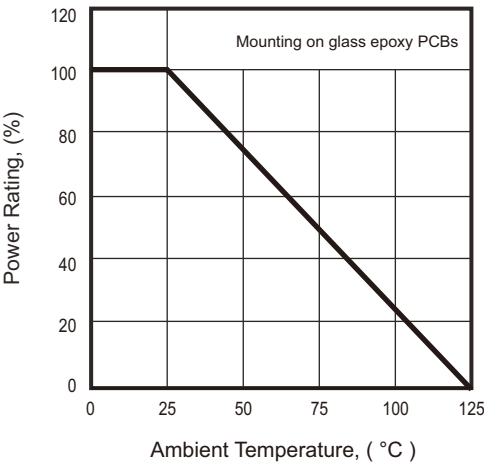


Fig.3 - Clamping Voltage Vs.  
Peak Pulse Current

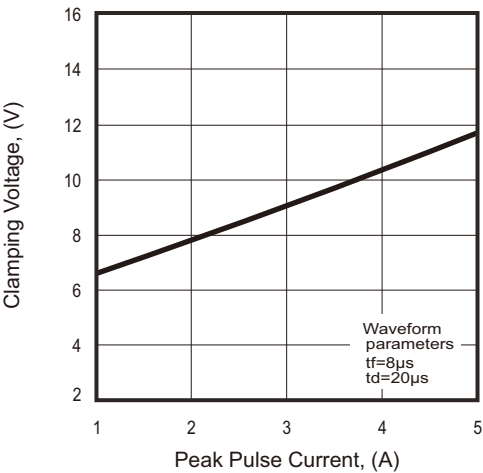
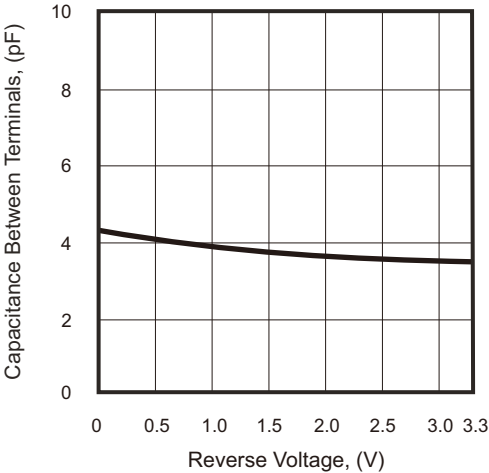
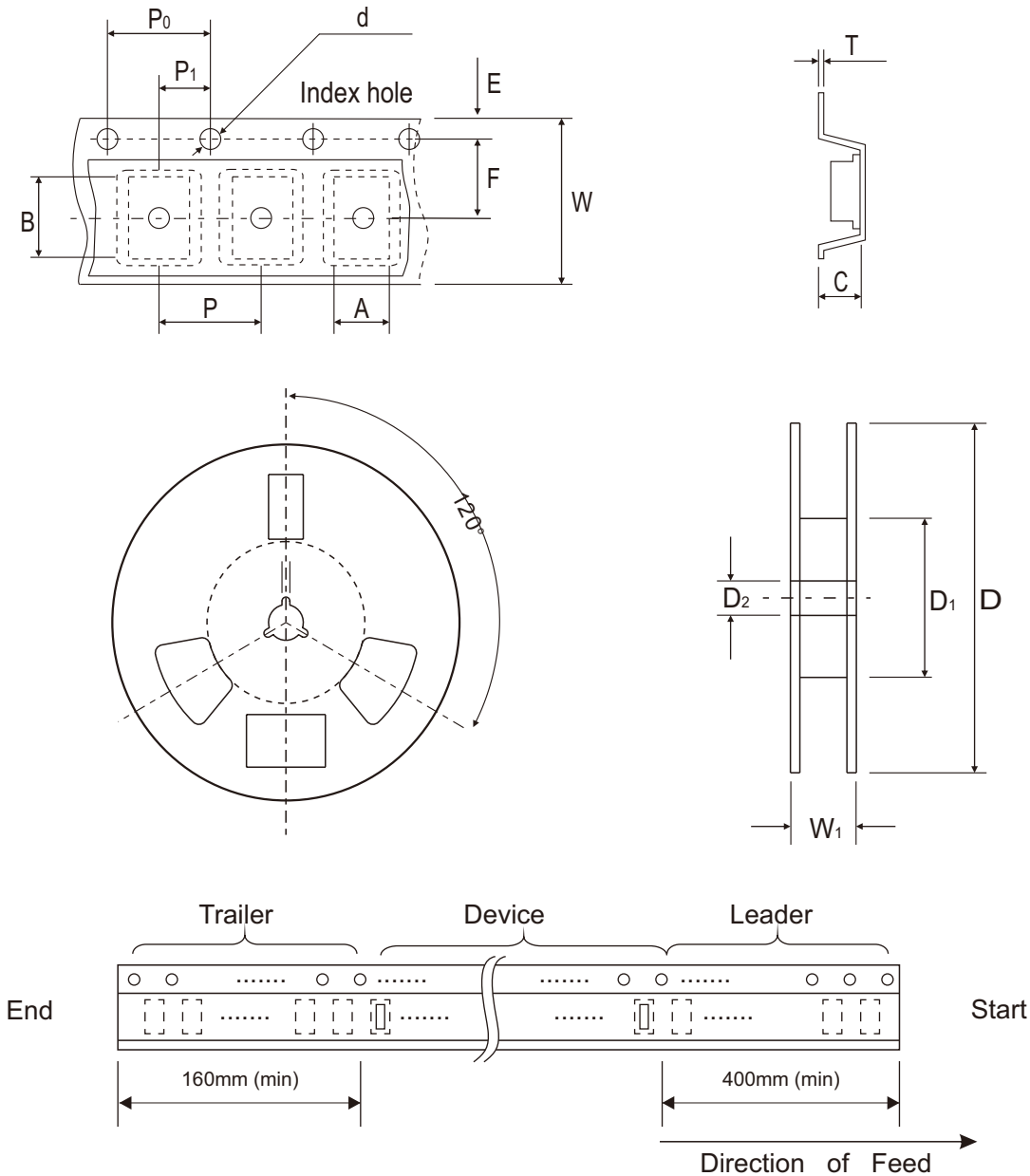


Fig.4 - Capacitance Between  
Terminals Characteristics



Reel Taping Specification

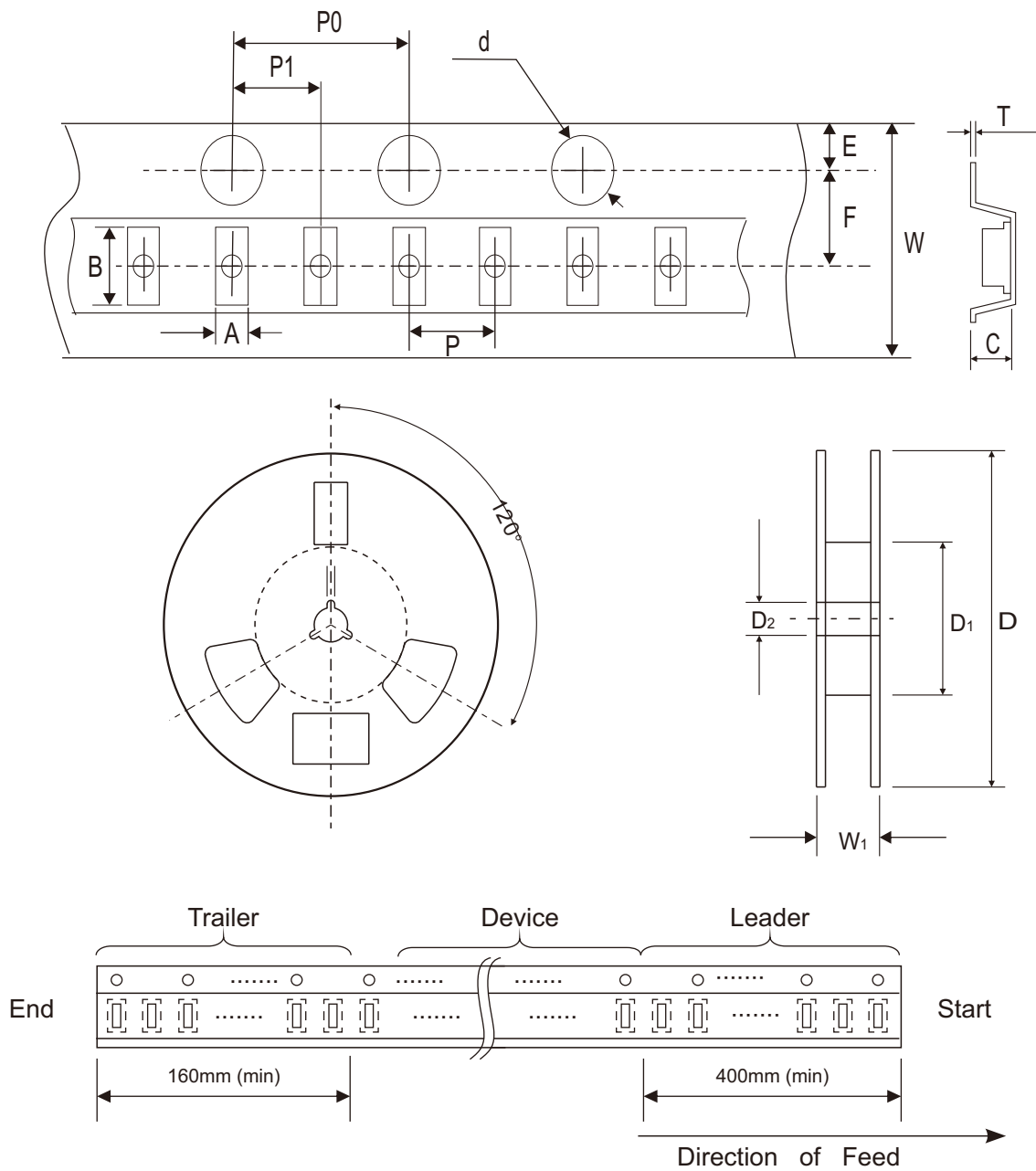


(5,000pcs/ Reel)

	SYMBOL	A	B	C	d	D	D <sub>1</sub>	D <sub>2</sub>
0402C (SOD-923F)	(mm)	0.75 ± 0.05	1.17 ± 0.05	0.65 ± 0.05	1.50 + 0.10 - 0	178.00 ± 1.00	60.00 ± 0.50	13.50 ± 0.20
	(inch)	0.030 ± 0.002	0.046 ± 0.002	0.026 ± 0.002	0.059 + 0.004 - 0	7.008 ± 0.039	2.362 ± 0.020	0.531 ± 0.008

	SYMBOL	E	F	P	P <sub>0</sub>	P <sub>1</sub>	T	W	W <sub>1</sub>
0402C (SOD-923F)	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	0.20 + 0.02 - 0.05	8.00 ± 0.20	12.00 + 0.50 - 0
	(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

Reel Taping Specification



(10,000pcs/ Reel )

	SYMBOL	A	B	C	d	D	D <sub>1</sub>	D <sub>2</sub>
0402C (SOD-923F)	(mm)	0.70 ± 0.05	1.17 ± 0.05	0.60 ± 0.05	1.50 + 0.10 - 0	178.00 ± 1.00	60.00 ± 0.50	13.50 ± 0.20
	(inch)	0.028 ± 0.002	0.046 ± 0.002	0.024 ± 0.002	0.059 + 0.004 - 0	7.008 ± 0.039	2.362 ± 0.020	0.531 ± 0.008

	SYMBOL	E	F	P	P <sub>0</sub>	P <sub>1</sub>	T	W	W <sub>1</sub>
0402C (SOD-923F)	(mm)	1.75 ± 0.10	3.50 ± 0.05	2.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.05	8.00 ± 0.20	12.00 + 0.50 - 0
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.079 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 + 0.002	0.315 ± 0.008	0.472 + 0.020 - 0

Company reserves the right to improve product design , functions and reliability without notice.

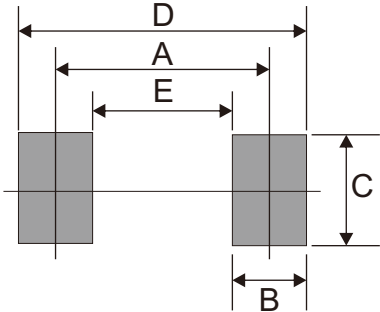
Marking Code

Part Number	Marking Code	Packaging
CPDQC3V3C-HF	E3	5,000pcs/Reel
CPDQC3V3C-HFT	E3	10,000pcs/Reel

E3

Suggested 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
	10,000	7