

## ESD PROTECTION DIODE

### Discription

The CPDQC12VE is designed to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space is at a premium.

### Applications

- | Cellular phones audio
- | MP3 players
- | Digital cameras
- | Portable applications
- | mobile telephone

### Features

- | Small Body Outline Dimensions: 1.00 mm x 0.60 mm
- | Low Body Height: 0.50 mm
- | Low Leakage
- | Response Time is Typically < 1 ns
- | ESD Rating of Class 3 (> 16 kV) per Human Body Model
- | IEC61000-4-2 Level 4 ESD Protection
- | We declare that the material of product compliance with RoHS requirements.



SOD882

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
IEC 61000-4-2 (ESD) Air Contact Contact discharge		±16 ±16	kV kV
ESD Voltage Per Human Body Model		16	kV
Total Power Dissipation on FR-5 Board (Note 1) @ T <sub>A</sub> =25°C	PD	200	mW
Junction and Storage Temperature Range	T <sub>J</sub> ,T <sub>STG</sub>	-55 to 150	°C
Lead Solder Temperature – Maximum (10 Second Duration)	TL	260	°C

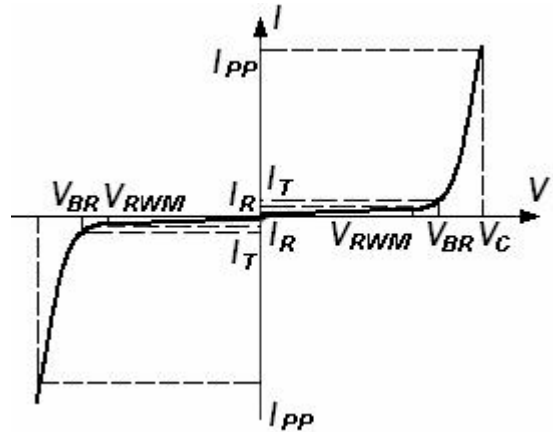
Stresses exceeding Maximum Ratings may damage the device. Maximum Rating are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. FR-5 = 1.0\*0.75\*0.62 in.

## ELECTRICAL CHARACTERISTICS

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

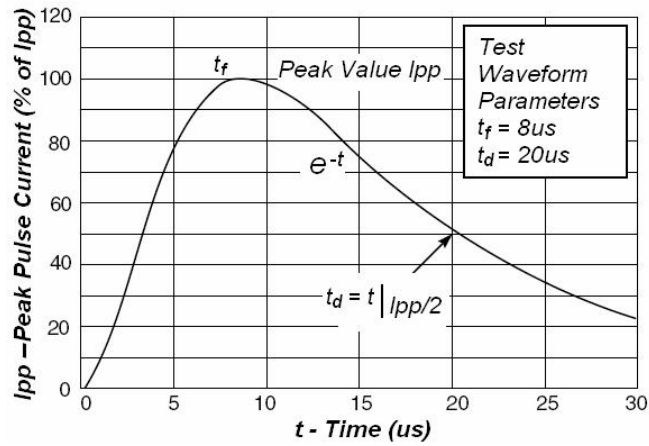
Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$
$P_{pk}$	Peak Power Dissipation
C	Max. Capacitance @ $V_R = 0$ and $f = 1$ MHz



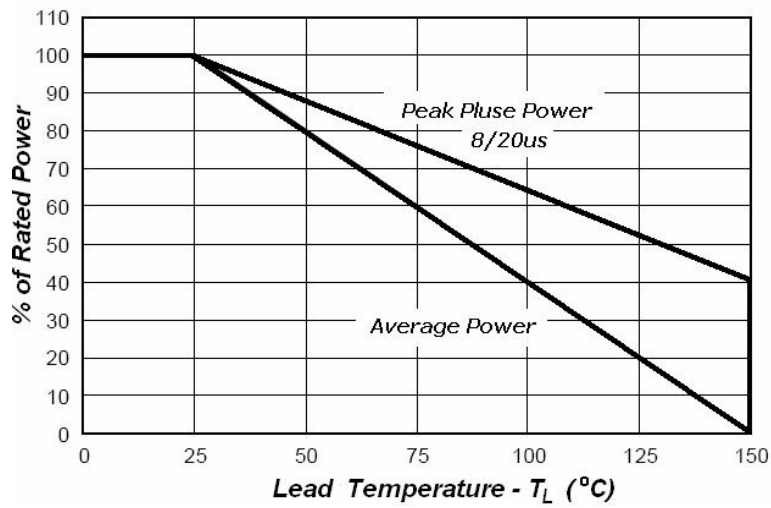
ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$  unless otherwise noted,  $V_F=0.9\text{V}$  Max. @  $I_F=10\text{Ma}$  for all types)

Device	$V_{RWM}$ (V)	$I_R$ ( $\mu\text{A}$ ) @ $V_{RWM}$	$V_{BR}$ (V) @ $I_T$ (Note 2)	$I_T$ (mA)	$I_{PP}$ (A) (Note 3)	$V_C$ (V) @ Max $I_{PP}$ (Note 3)	$P_{PK}$ (W) ( $8 \times 20 \mu\text{s}$ )	C (pF)
	Max	Max	Min		Max	Max	Max	Typ
CPDQC12VE	12	1.0	13.3	1.0	4	18	72	12.5

- $V_{BR}$  is measured with a pulse test current  $I_T$  at an ambient temperature of  $25^\circ\text{C}$
- Surge current waveform per Figure 3.



**Fig1. Pulse Waveform**

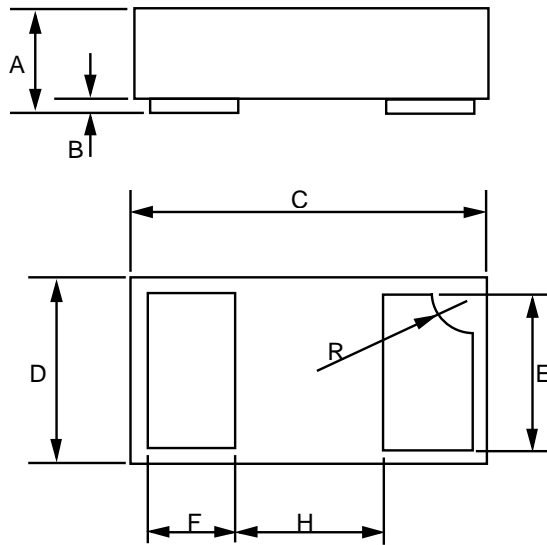


**Fig2 Power Derating**

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DIMENSION OUTLINE

Unit:mm



Dim	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.013	0.020	0.34	0.50
B	0.000	0.002	0.00	0.05
C	0.037	0.042	0.95	1.075
D	0.021	0.026	0.55	0.675
E	0.017	0.021	0.45	0.55
F	0.007	0.011	0.20	0.30
H	0.015Typ.		0.40Typ.	
R	0.001	0.005	0.05	0.15

