



CeraDiode®	CDS4C12GTA
SMD type, case size 1003	B72570D0120A060

Preliminary data

CeraDiode®

**Reliable surface mount ESD protection of single lines
For 1:1 drop in replacement of SOD-323 diode packages
without change of PCB layout**

Description

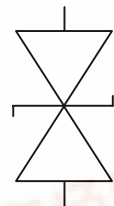
Due to the ongoing miniaturization, today's electronic devices are more and more sensitive to electrostatic discharges (ESD) and overvoltages. Therefore reliable protection components become absolutely necessary to harden your valuable electronics against the impact of ESD.

CeraDiodes are ceramic semiconductors optimized specifically for high performance in Electro Static Discharge (ESD) applications. The device has a non-linear voltage/current characteristic that is highly optimized for effectively suppressing extremely fast voltage transients. The device offers superior parametric stability over the complete operating range of $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$.

CeraDiodes are bi-directional devices. A single CeraDiode® connected from signal/dataline to ground routes both positive and negative ESD transitions safely to the ground plane. This technique eliminates the need to route ESD charge into the power plane, possibility damaging nearby integrated circuits.

Features

- ESD protection according to IEC 61000-4-2 (Level 4)
- High ESD robustness: 3000 ESD pulses minimum (IEC 61000-4-2 Level 4)
- Suitable for uni- and bidirectional lines
- Bidirectional ESD protection in a two-pin device
- Routes all ESD events, both positive and negative, safely to ground
- Suitable for DC working voltages up to 12 V
- No derating of maximum ratings up to $85\text{ }^{\circ}\text{C}$
- Surface mount package in SOD-323 case size (inch case size is 1003)
- Extremely fast response time $< 0.5\text{ ns}$
- Lead free nickel barrier terminations



Application

- Desktop and notebook computers
- Peripherals
- Portable handheld products (e.g. PDA)
- Mobile communication
- Consumer products (set top box, MP3 player, digital cameras,...)
- Liquid crystal displays (LCD) / monitors



ISSUE DATE	16.11.2004	ISSUE	b	PUBLISHER	KB VS PE	PAGE	1/7
------------	------------	-------	---	-----------	----------	------	-----



CeraDiode®

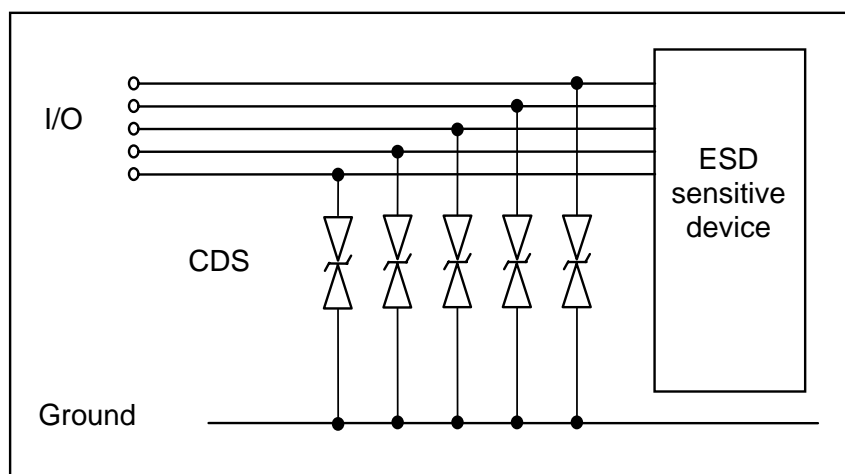
CDS4C12GTA

SMD type, case size 1003

B72570D0120A060

Preliminary data

Application example



Protection of I/O lines with discrete CeraDiodes

Maximum ratings ($T_A = 85\text{ °C}$)

Rating	Symb.	Value	Unit
Max. DC working voltage	V_{DC}	12	V
Max. RMS working voltage	V_{RMS}	9	V
Peak current @ 8/ 20 μ s	I_{PP}	20	A
Air discharge ESD capability (according to IEC 61000-4-2 method)	V_{ESD}	15	kV
Contact discharge ESD capability (according to IEC 61000-4-2 method)	V_{ESD}	8	kV
Operating temperature (without derating)	T_{op}	-40 to +85	°C
Storage temperature	T_{stg}	-40 to +125	°C



CeraDiode®

CDS4C12GTA

SMD type, case size 1003

B72570D0120A060

Preliminary data

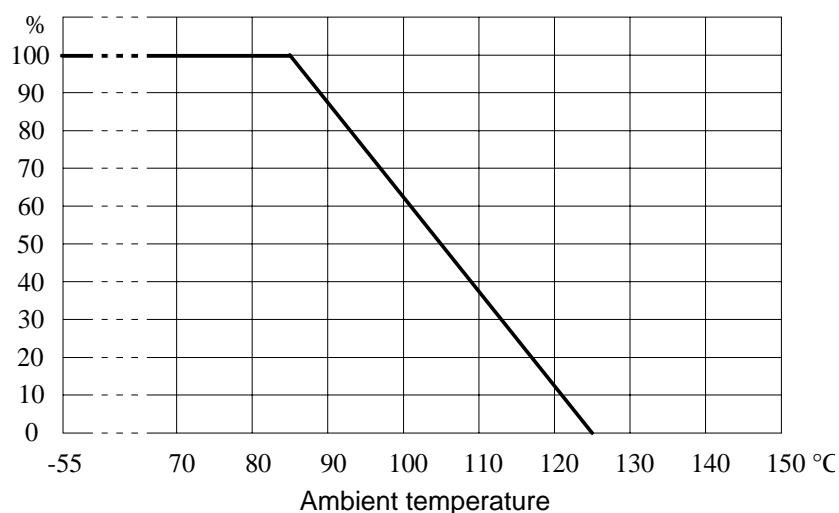
Characteristics ($T_A = 25\text{ °C}$)

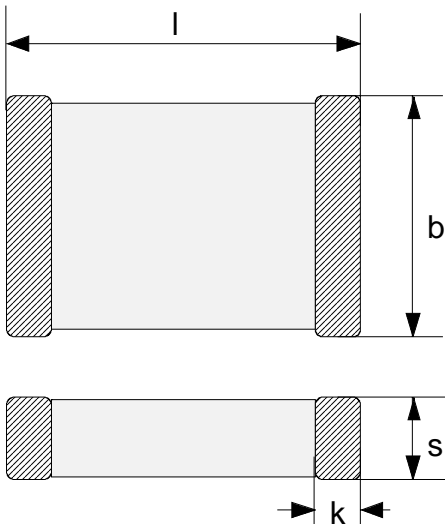
Parameter	Symb.	Conditions	Minimum	Typical	Maximum	Unit
Breakdown voltage	V_{BR}	$I_{BR} = 1\text{ mA}$	18	-	-	V
Leakage current ^{*)}	I_{leak}	$V_{leak} = 12\text{ V}$	-	-	10	μA
Clamping voltage	V_{clamp}	$I_{PP} = 1\text{ A}$, 8/20 μs	-	-	46	V
Capacitance	C	$V = 1\text{ V}$, $f = 1\text{ MHz}$	-	68	-	pF

^{*)} Any lower operating voltage than 12 V results in a lower leakage current

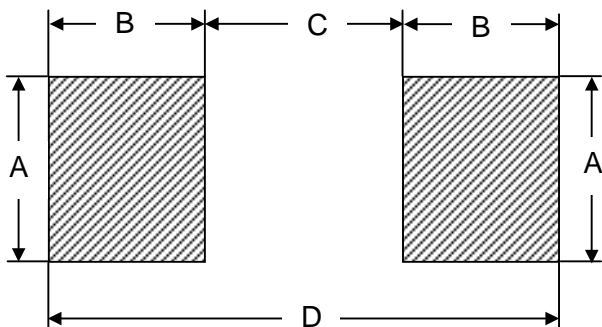
Typical characteristics

Max. current, energy and average power dissipation
depending on ambient temperature

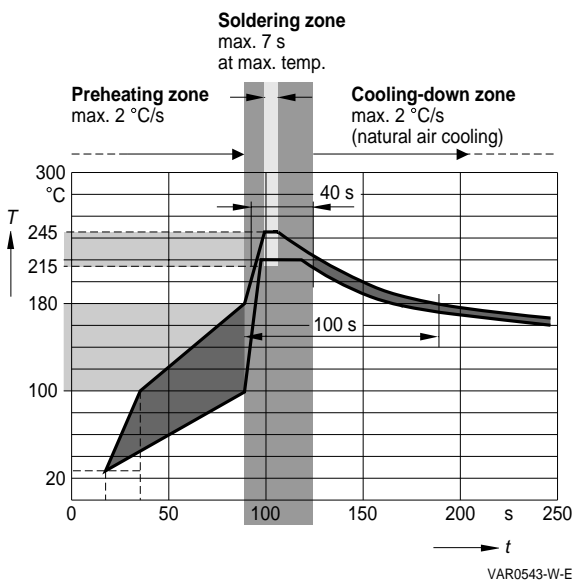
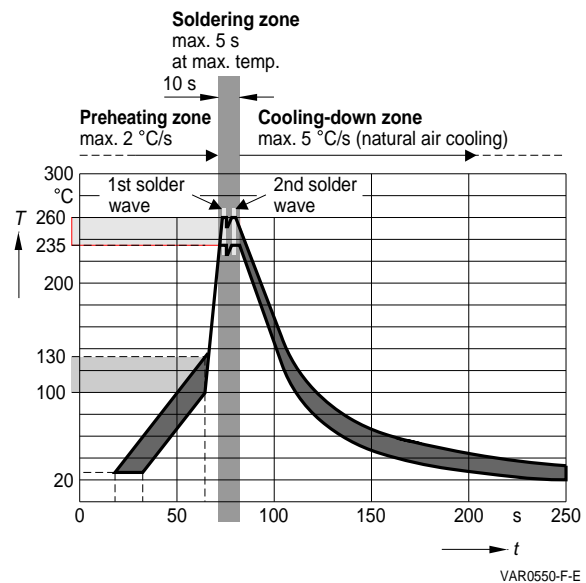


Preliminary data
Dimensional drawing


Symb.	Min.	Max.	Unit
l	2.34	2.74	mm
b	0.7	0.9	mm
s	0.7	0.9	mm
k	0.1	0.3	mm

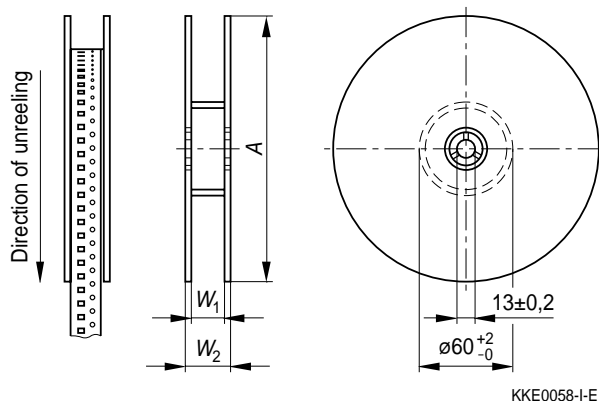
Recommended SOD-323 solder pad


Symb.	Dim.	Unit
A	0.8	mm
B	0.8	mm
C	1.45	mm
D	3.05	mm

Preliminary data
Recommended soldering profiles
Reflow soldering

Wave soldering


As far as possible, the components shall be employed within 12 months. They should be left in their original packings to avoid soldering problems due to oxidized contacts. Storage temperature: -25 to 45 °C. Relative humidity: <75 % annual average, <95 % on max. 30 days in a year.

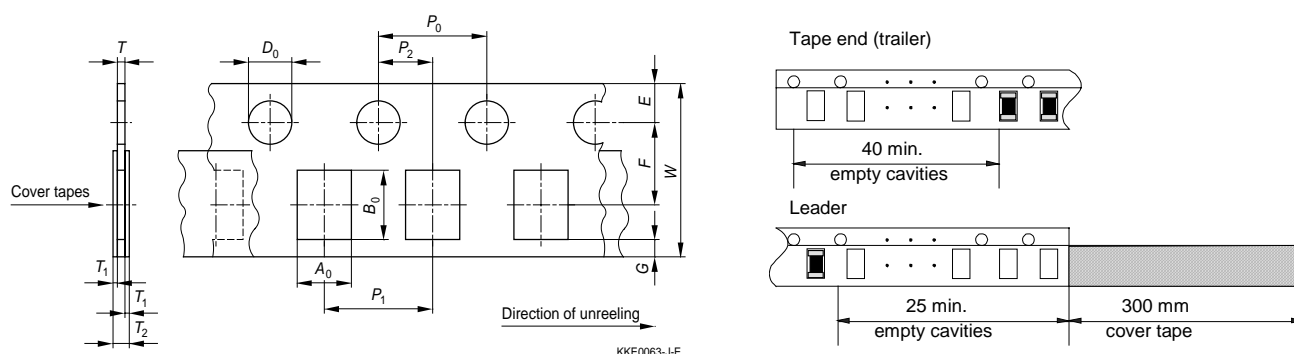
The usage of mild, non activated fluxes for soldering is recommended, as well as proper cleaning of the PCB.

Reel dimensions


Definition	Symb.	Dim.	Tol.	Unit
Reel diameter	A	180	+0 /-3	mm
Reel width (inside)	W ₁	8.4	+1.5/-0	mm
Reel width (outside)	W ₂	14.4	max.	mm

Package: 8 mm tape
Reel material: plastic

Taping according to IEC 60286-3



Tape material: cardboard
Dimensions and tolerances

Definition	Symbol	Dim.	Tolerance
Compartment width	A_0	1.0	± 0.2
Compartment length	B_0	2.85	± 0.2
Sprocket hole diameter	D_0	1.5	$+0.1/-0$
Sprocket hole pitch	P_0	4.0	± 0.1 ¹⁾
Distance center hole to center compartment	P_2	2.0	± 0.05
Pitch of the component compartments	P_1	4.0	± 0.1
Tape width	W	8.0	± 0.3
Distance edge to center of hole	E	1.75	± 0.1
Distance center hole to center compartment	F	3.5	± 0.05
Distance compartment to edge	G	0.75	min.
Thickness of cardboard tape	T	1	max.
Overall thickness	T_2	1.1	max.

¹⁾ $\leq \pm 0.2$ mm over any 10 pitches



CeraDiode®









CDS4C12GTA

SMD type, case size 1003

B72570D0120A060

Preliminary data

Type designation

CD	S	4	C	12	G	T	A
							
Cera Diode	Single type	Chip size 4 = 1003	Chip	DC working voltage	Reel size G = 180 mm	Termination T = Nickel barrier	Suffix

Selection guide

Part number	Ordering code	Maximum DC working voltage	Qty per reel	Reel size
CDS4C12GTA	B72570D0120A060	12 V	4000	180 mm

CeraDiodes are not suitable for switching applications or for voltage stabilization, where static power dissipation is required. CeraDiodes are designed for ESD protection and transient suppression!

© EPCOS AG 2004. Reproduction, publication and dissemination of this data sheet, enclosures hereto and the information contained therein without EPCOS' prior express consent is prohibited.

Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

ISSUE DATE	16.11.2004	ISSUE	b	PUBLISHER	KB VS PE	PAGE	7/7
------------	------------	-------	---	-----------	----------	------	-----



中发网 WWW.ZFA.CN

全球最大的PDF中文下载站



中发网
www.zfa.cn

PDF 资料下载尽在中发网