

# EPCOS CeraDiodes, Gas Discharge Tubes, and Varistors

EPCOS

Products may be RoHS compliant. Check mouser.com for RoHS status.

## RELIABLE ESD PROTECTION

CeraDiodes are ceramic semiconductors optimized specifically for high performance in ESD applications. They have a non-linear voltage/current characteristic for effectively suppressing extremely fast voltage transients and offer superior parametric stability over the complete operating range of -40°C to +85°C. CeraDiodes are bi-directional devices. A single CeraDiode connected from signal/data line 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, possibly damaging nearby integrated circuits. CeraDiodes for high-speed lines exhibits a very low capacitance designed for maximum ESD protection combined with minimal signal distortion.

### Features:

- Bi-directional ESD protection to IEC 61000-4-2 (level 4)
- Suitable for uni- and bi-directional lines
- Bi-directional ESD protection in a two-pin line
- Routes all ESD events, both positive and negative, safely to ground
- USB 2.0 compliant
- Extremely fast response time < 0.5ns
- Lead-free nickel barrier terminations suitable for lead-free soldering
- RoHS-compatible

### Applications:

- Interfaces (e.g. audio and video, USB, IEEE 1394, Ethernet, DVI)
- EDP products (e.g. desktop and notebook computers)
- Peripherals (e.g. printers, memory cards, etc.)
- Portable handheld products (e.g. PDA)
- Mobile communication
- Consumer products (Flat TVs, set top boxes, MP3 players, digital cameras, etc.)
- Liquid crystal displays (LCD) / monitors

### Note:

CeraDiodes are not suitable for switching applications or for voltage stabilization, where static power dissipation is required.



RoHS Compliant  
For quantities greater than listed, call for quote.

MOUSER STOCK NO.	Epcos Part No.	Fig.	Series / Type	Case Size	Working Voltage (VDC Max.)	Peak Pulse @ 8/20 μs Current (A)	Power (W)	Price Each			
								1	50	100	1000
<b>Standard Single Line CeraDiodes</b>											
871-B72590D50A60	B72590D50A60	A	CDS2C05GTA	0402	5.6	10	320	.73	.57	.30	.14
871-B72590D150A60	B72590D150A60	A	CDS2C15GTA	0402	15	10	670	.16	.14	.13	.10
871-B72500D50A60	B72500D50A60	A	CDS3C05GTA	0603	5.6	30	1000	.54	.37	.259	.133
871-B72500D90A60	B72500D90A60	A	CDS3C09GTA	0603	9	30	1600	.54	.43	.26	.12
871-B72500D150A60	B72500D150A60	A	CDS3C15GTA	0603	15	30	2000	.54	.37	.26	.12
871-B72570D120A60	B72570D120A60	A	CDS4C12GTA	1003	12	20	1000	.67	.50	.32	.16
<b>High Speed Single Line CeraDiodes</b>											
871-B72590D160H60	B72590D160H60	A	CDS2C16GTH	0402	16	65	290	.73	.55	.30	.14
871-B72500D160H60	B72500D160H60	A	CDS3C16GTH	0603	16	65	290	.56	.40	.27	.13
871-B72500D300H60	B72500D300H60	A	CDS3C30GTH	0603	30	50	120	.53	.38	.25	.13
<b>Arrays</b>											
871-B72735D50H62	B72735D50H62	B	CDA6C05GTH	1012	3	5.6	195	.53	.50	.47	.32
871-B72724D160H62	B72724D160H62	C	CDA5C16GTH	0612	4	16	350	.39	.28	.253	.203

## 2-POLE GAS DISCHARGE TUBES

### Features:

- Standard size
- High current rating
- Very fast response time
- Stable performance over life

- Very low capacitance
- High insulation resistance
- RoHS-compatible

### Applications:

- Modem
- XDSL-splitter
- Data lines
- Tuner
- Antenna



For quantities greater than listed, call for quote.

MOUSER STOCK NO.	Epcos Part No.	Fig.	DC Sparkover Voltage	Impulse Sparkover Voltage		Arc Voltage @ 1 Amp	Single Impulse Discharge Current (KA/820μs)	Dim.: mm (LxD)	Price Each				
				100volts /μs	1000volts /μs				1	10	25	50	100
871-EC75X	B88069X0180S102	D	75	500	700	12	10	6x8	1.17	.97	.93	.83	.78
871-A81-C90X	B88069X1380S102	D	90	500	600	10	25	6x8	1.92	1.50	1.26	1.15	1.10
871-EC90X	B88069X0720S102	D	90	500	600	12	10	6x8	1.41	1.17	1.03	.99	.94
871-M51-A90X	B88069X5010C102	D	90	550	600	15	10	5x5	5.48	3.65	3.32	3.02	2.72
871-EC230X	B88069X0660S102	D	230	550	700	12	10	6x8	1.41	1.17	1.05	.99	.94
871-M51-A230X	B88069X2930C102	D	230	550	650	15	10	5x5	1.59	1.32	1.28	1.24	1.06
871-A81-A230X	B88069X2250S102	D	230	500	650	15	20	6x8	1.92	1.60	1.50	1.41	1.28
871-EC350X	B88069X0810S102	D	350	800	900	12	10	6x8	1.41	1.17	1.05	.99	.94
871-N81-A350X	B88069X4920S102A2	D	350	700	900	15	10	6x8	1.68	1.40	1.28	1.15	1.15
871-A71-H10X	B88069X3820S102	D	1000	1300	1400	20	10	7.9x8	1.89	1.57	1.49	1.35	1.26
871-A71-H25X	B88069X2190S102	D	2500	3900	4000	20	2.5	7.9x8	1.89	1.57	1.49	1.35	1.26
871-A71-A45X	B88069X2590S102	D	4500	5800	6000	20	2.5	7.9x8	1.89	1.57	1.49	1.35	1.26
871-L71-A270X	B88069X2030S102	D	230 ~ 338	500	550	22	5	7.9x8	2.91	2.42	2.34	2.27	1.94
871-L71-A470X	B88069X2010S102	D	400 ~ 588	700	800	22	5	7.9x8	2.91	2.42	2.34	2.27	1.94
871-L71-A800X	B88069X2040S102	D	680 ~ 1000	1100	1200	22	5	7.9x8	2.91	2.42	2.34	2.27	1.94

## 3-POLE GAS DISCHARGE TUBES

### Features:

- Standard size
- Fast response time
- Very high current rating
- Stable performance over life

- Very low capacitance
- High insulation resistance
- RoHS-compatible

### Applications:

- Line protection
- Station protection
- Base stations



For quantities greater than listed, call for quote.

MOUSER STOCK NO.	Epcos Part No.	Fig.	DC Sparkover Voltage	Impulse Sparkover Voltage		Arc Voltage @ 1 Amp	Single Impulse Discharge Current (KA/820μs)	Dim.: mm (LxD)	Price Each				
				100volts /μs	1000volts /μs				1	10	25	50	100
871-T83-A90X	B88069X8300B502	E	90	400	450	10	10	10x8	2.04	1.70	1.49	1.43	1.35
871-T83-A230X	B88069X8740B502	E	230	400	500	10	25	10x8	2.04	1.70	1.64	1.43	1.35
871-T61-C350X	B88069X7700B102	E	400	800	900	35	20	11.5x8.3	3.60	3.00	2.80	2.65	2.40

## ADVANCED THERMOFUSE VARISTORS

### Features:

- Overvoltage protection with integrated thermal fuse
- Suitable for use in industrial and household appliance applications

### Applications:

- Line protection
- Station protection



For quantities greater than listed, call for quote.

MOUSER STOCK NO.	Epcos Part No.	Fig.	AC Operating Voltage (Max VAC)	DC Operating Voltage (Max VDC)	Surge Current 8/20μs (A)	Energy Absorption (2ms)	Average Power Dissipation (W)	Price Each				
								1	25	100	250	500
871-ETFV14K130E2	ETFV14K130E2	F	130	170	6000	50	0.6	1.60	1.45	1.24	1.18	.96
871-ETFV14K150E2	ETFV14K150E2	F	150	200	6000	60	0.6	1.60	1.45	1.24	1.18	.96
871-ETFV14K175E2	ETFV14K175E2	F	175	225	6000	70	0.6	1.60	1.45	1.24	1.18	.96
871-ETFV14K275E2	ETFV14K275E2	F	275	350	6000	110	0.6	1.60	1.45	1.24	1.18	.96
871-ETFV14K320E2	ETFV14K320E2	F	320	420	6000	136	0.6	1.60	1.45	1.24	1.18	.96
871-ETFV14K420E2	ETFV14K420E2	F	420	560	6000	136	0.6	1.60	1.45	1.24	1.18	.96
871-ETFV20K130E2	ETFV20K130E2	G	130	170	10000	100	1	2.95	2.43	2.01	1.67	1.54
871-ETFV20K150E2	ETFV20K150E2	G	150	200	10000	120	1	2.95	2.43	2.01	1.67	1.54
871-ETFV20K175E2	ETFV20K175E2	G	175	225	10000	135	1	2.95	2.43	2.01	1.67	1.54
871-ETFV20K275E2	ETFV20K275E2	G	275	350	10000	215	1	2.95	2.43	2.01	1.67	1.54
871-ETFV20K320E2	ETFV20K320E2	G	320	420	10000	273	1	2.95	2.43	2.01	1.67	1.54
871-ETFV20K420E2	ETFV20K420E2	G	420	560	10000	273	1	2.95	2.43	2.01	1.67	1.54
871-ETFV25K130E4	ETFV25K130E4	H	130	170	20000	185	1	3.85	3.59	2.83	2.36	1.83
871-ETFV25K150E4	ETFV25K150E4	H	150	200	20000	215	1	3.85	3.59	2.83	2.36	1.83
871-ETFV25K275E4	ETFV25K275E4	H	275	350	20000	375	1	3.85	3.59	2.83	2.36	1.83
871-ETFV25K320E4	ETFV25K320E4	H	320	420	20000	445	1	3.85	3.59	2.83	2.36	1.83
871-ETFV25K420E4	ETFV25K420E4	H	420	560	20000	700	1	3.85	3.57	2.83	2.36	1.83

**DIMENSIONS: mm**

**A** P1 = GND  
P2 = 1/0 Line

Due to the symmetrical configuration, no marking information is needed. P1 and P2 can be interchanged.

**B** Dimensions: 36 ±0.1, 0.64, 0.7 max, 1.37 ±.15, 1.0 ±0.15

**C** P1 = I/O Line 1  
P2 = GND  
P3 = I/O Line 2  
P4 = I/O Line 3  
P5 = VDC  
P6 = I/O Line 4

Due to the symmetrical configuration, no marking information is needed. P2 and P5 can be interchanged.

**D** Dimensions: 60 +4, L, D, e0.8 ±0.05

**E** Dimensions: L, D, e

**F** Dimensions: b, S, h, e1, e2, e3, l, e1, e2, e3, l, e1, e2, e3, l

Bottom view: 1.4 ± 0.5, 2.0 ± 0.5

ETFV leads configuration

Thermal fuse  
Monitor lead  
Metal oxide varistor

bmax = 19.2  
hmax = 22.0  
smax = 11.2  
e1 = 7.5 ± 0.5  
e2 = 5.0 ± 0.5  
e3 = 1.0 ± 0.5  
l = 5.0 ± 0.5  
od = 0.8 ± 0.05

**G** Dimensions: b, S, h, e1, e2, e3, l, e1, e2, e3, l

Bottom view

ETFV leads configuration

Thermal fuse  
Monitor lead  
Metal oxide varistor

bmax = 22.0  
hmax = 25.7  
smax = 9.7  
e1 = 5.0 ± 0.5  
l = 5.0 ± 0.5  
od = 0.8 ± 0.05

**H** Dimensions: b, S, h, e1, e2, e3, l, e1, e2, e3, l

Bottom view

ETFV leads configuration

Thermal fuse  
Monitor lead  
Metal oxide varistor

bmax = 30.2  
hmax = 35.2  
smax = 11.2  
e1 = 6.35 ± 0.5  
l = 5.0 ± 0.5  
od = 1.0 ± 0.05