

Microsemi Corp.

The diode experts

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1.5KCD6.8 thru 1.5KCD200A, CD5908 and CD6267 thru CD6303A Transient Suppressor CELLULAR DIE PACKAGE

APPLICATION

This TAZ* series has a peak pulse power rating of 1500 watts for one millisecond. It can protect integrated circuits, hybrids, CMOS, MOS and other voltage sensitive components that are used in a broad range of applications including: telecommunications, power supplies, computers, automotive, industrial and medical equipment. TAZ* devices have become very important as a consequence of their high surge capability, extremely fast response time and low clamping voltage.

The cellular die (CD) package is ideal for use in hybrid applications and for solder mounting. The cellular design in hybrids assures ample bonding with immediate heat sinking to provide the required transient peak pulse power of 1500 watts.

FEATURES

- ✓ Economical
- ✓ 1500 Watts peak pulse power dissipation
- ✓ Stand-Off voltages from 5.0V to 171V
- ✓ Uses thermally passivated die design
- ✓ Additional silicone protective coating over die for rugged environments
- ✓ Stringent process norm screening
- ✓ Low leakage current at rated stand-off voltage
- ✓ Exposed metal surfaces are readily solderable
- ✓ 100% lot traceability
- ✓ Manufactured in the U.S.A.
- ✓ Meets JEDEC IN6267 - IN6303A electrically equivalent specifications
- ✓ Available in bipolar configuration
- ✓ Additional transient suppressor ratings and sizes are available as well as zener, rectifier and reference diode configurations. Consult factory for special requirements.

MAXIMUM RATINGS

1500 Watts of Peak Pulse Power Dissipation at 25°C**

clamping (0 Volts to BV Min.):

unidirectional $< 1 \times 10^{-12}$ seconds;

bidirectional $< 5 \times 10^{-9}$ seconds;

Operating and Storage Temperature: -65°C to +175°C

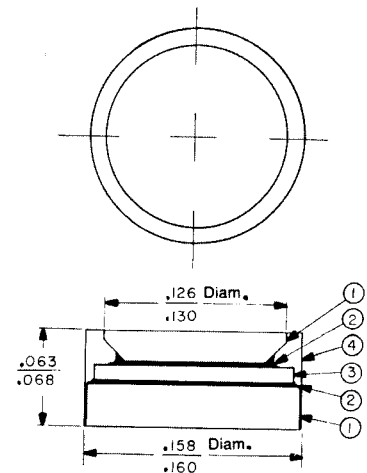
Forward Surge Rating: 200 Amps, 1/120 second at 25°C

Steady State Power Dissipation is heat sink dependent.

*Transient Absorption Zener

**Wire contact or tab geometry for interconnects should be selected with adequate cross-sectional size to prevent fusing relative to peak pulse current rating (Ipp).

PACKAGE DIMENSIONS



Item Number	Description
1.....	Nickel and Silver Plated Copper Discs
2.....	Solder Bond
3.....	Silicon Die
4.....	Conformal coating

Illustration Represents Unipolar Only

MECHANICAL CHARACTERISTICS

Case: Nickel and Silver plated copper discs with conformal coating.

Finish: Both external surfaces are corrosion resistant, readily solderable.

Polarity: Large contact side is cathode

Mounting Position: Any

1.5KCD6.8 thru 1.5KCD200A, CD5908 and CD6267 thru CD6303A CELLULAR DIE PACKAGE

ELECTRICAL CHARACTERISTICS @ 25°C

Industry Type Number	JEDEC Type Number Elect. Equiv.	Rated Stand-Off Voltage		Breakdown Voltage V _(BR) VOLTS		Maximum Clamping Voltage @ I _{PP} (1 mSEC)	Maximum Reverse Leakage @ V _{WM}	Rated Maximum Peak Pulse Current	Maximum Temperature Coefficient α V _Z
		V _{WM} VOLTS	MIN	MAX	@ I _T mA	V _C VOLTS	μA	I _{PP} A	% / °C
1.5KCD58	CD5908	5.00	6.0	7.48	1	7.6	300	30.0	057
1.5KCD58A	CD5908A	5.00	6.0	7.48	1	7.6	300	30.0	057
1.5KCD75	CD6267	5.00	6.0	7.48	1	7.6	300	30.0	057
1.5KCD75A	CD6267A	5.00	6.0	7.48	1	7.6	300	30.0	057
1.5KCD82	CD6283	6.63	7.38	9.02	10	12.5	200	120.0	065
1.5KCD82A	CD6283A	6.63	7.38	9.02	10	12.5	200	120.0	065
1.5KCD91	CD6291	7.37	8.18	10.00	10	13.8	50	109.0	068
1.5KCD91A	CD6291A	7.37	8.18	10.00	10	13.8	50	109.0	068
1.5KCD100	CD6299	8.10	9.00	11.00	1	15.0	10	100.0	073
1.5KCD100A	CD6299A	8.10	9.00	11.00	1	15.0	10	100.0	073
1.5KCD110	CD6301	8.95	9.90	12.00	1	16.5	5	90.0	075
1.5KCD110A	CD6301A	8.95	9.90	12.00	1	16.5	5	90.0	075
1.5KCD120	CD6273	9.72	10.80	13.00	1	17.3	5	87.0	078
1.5KCD120A	CD6273A	9.72	10.80	13.00	1	17.3	5	87.0	078
1.5KCD130	CD6274	10.20	11.40	14.00	1	18.0	5	79.0	081
1.5KCD130A	CD6274A	10.20	11.40	14.00	1	18.0	5	79.0	081
1.5KCD150	CD6275	12.10	13.50	16.50	1	22.0	5	68.0	084
1.5KCD150A	CD6275A	12.10	13.50	16.50	1	22.0	5	68.0	084
1.5KCD160	CD6276	12.90	14.40	17.80	1	23.5	5	64.0	086
1.5KCD160A	CD6276A	12.90	14.40	17.80	1	23.5	5	64.0	086
1.5KCD180	CD6277	14.50	16.50	20.50	1	26.5	5	56.5	088
1.5KCD180A	CD6277A	14.50	16.50	20.50	1	26.5	5	56.5	088
1.5KCD190	CD6278	16.70	18.00	22.00	1	27.2	5	51.5	090
1.5KCD190A	CD6278A	16.70	18.00	22.00	1	27.2	5	51.5	090
1.5KCD220	CD6279	17.80	19.60	24.00	1	31.9	5	47.0	092
1.5KCD220A	CD6279A	17.80	19.60	24.00	1	31.9	5	47.0	092
1.5KCD240	CD6280	19.40	21.90	26.40	1	34.9	5	43.0	094
1.5KCD240A	CD6280A	19.40	21.90	26.40	1	34.9	5	43.0	094
1.5KCD270	CD6281	21.60	24.30	29.70	1	39.1	5	38.5	096
1.5KCD270A	CD6281A	21.60	24.30	29.70	1	39.1	5	38.5	096
1.5KCD300	CD6282	24.30	27.00	33.00	1	43.5	5	34.5	098
1.5KCD300A	CD6282A	24.30	27.00	33.00	1	43.5	5	34.5	098
1.5KCD330	CD6283	26.80	29.70	36.30	1	47.7	5	31.5	099
1.5KCD330A	CD6283A	26.80	29.70	36.30	1	47.7	5	31.5	099
1.5KCD360	CD6284	28.10	31.40	38.70	1	49.9	5	30.0	099
1.5KCD360A	CD6284A	28.10	31.40	38.70	1	49.9	5	30.0	099
1.5KCD390	CD6285	30.80	34.20	41.00	1	53.9	5	26.5	100
1.5KCD390A	CD6285A	30.80	34.20	41.00	1	53.9	5	26.5	100
1.5KCD420	CD6286	33.30	37.10	45.00	1	58.3	5	24.0	101
1.5KCD420A	CD6286A	33.30	37.10	45.00	1	58.3	5	24.0	101
1.5KCD450	CD6287	36.00	40.00	48.00	1	63.0	5	21.0	102
1.5KCD450A	CD6287A	36.00	40.00	48.00	1	63.0	5	21.0	102
1.5KCD470	CD6288	40.00	44.00	52.00	1	68.0	5	18.0	103
1.5KCD470A	CD6288A	40.00	44.00	52.00	1	68.0	5	18.0	103
1.5KCD510	CD6289	45.00	50.00	58.00	1	75.0	5	15.0	104
1.5KCD510A	CD6289A	45.00	50.00	58.00	1	75.0	5	15.0	104
1.5KCD550	CD6290	47.80	52.00	60.00	1	77.0	5	13.0	105
1.5KCD550A	CD6290A	47.80	52.00	60.00	1	77.0	5	13.0	105
1.5KCD590	CD6291	55.10	61.20	74.00	1	88.0	5	10.0	106
1.5KCD590A	CD6291A	55.10	61.20	74.00	1	88.0	5	10.0	106
1.5KCD630	CD6292	60.70	67.50	81.00	1	95.0	5	8.5	107
1.5KCD630A	CD6292A	60.70	67.50	81.00	1	95.0	5	8.5	107
1.5KCD670	CD6293	66.40	73.80	89.20	1	103.0	5	7.0	108
1.5KCD670A	CD6293A	66.40	73.80	89.20	1	103.0	5	7.0	108
1.5KCD700	CD6294	70.10	77.90	95.00	1	110.0	5	6.0	108
1.5KCD700A	CD6294A	70.10	77.90	95.00	1	110.0	5	6.0	108
1.5KCD730	CD6295	73.70	81.90	100.00	1	117.0	5	5.0	109
1.5KCD730A	CD6295A	73.70	81.90	100.00	1	117.0	5	5.0	109
1.5KCD760	CD6296	77.80	86.50	105.00	1	124.0	5	4.0	109
1.5KCD760A	CD6296A	77.80	86.50	105.00	1	124.0	5	4.0	109
1.5KCD800	CD6297	81.00	90.00	110.00	1	130.0	5	3.0	110
1.5KCD800A	CD6297A	81.00	90.00	110.00	1	130.0	5	3.0	110
1.5KCD830	CD6298	85.50	95.00	115.00	1	137.0	5	2.0	110
1.5KCD830A	CD6298A	85.50	95.00	115.00	1	137.0	5	2.0	110
1.5KCD860	CD6299	90.00	100.00	120.00	1	144.0	5	1.0	110
1.5KCD860A	CD6299A	90.00	100.00	120.00	1	144.0	5	1.0	110
1.5KCD890	CD6300	94.00	105.00	125.00	1	150.0	5	0.5	110
1.5KCD890A	CD6300A	94.00	105.00	125.00	1	150.0	5	0.5	110
1.5KCD920	CD6301	97.20	108.00	130.00	1	156.0	5	0.0	110
1.5KCD920A	CD6301A	97.20	108.00	130.00	1	156.0	5	0.0	110
1.5KCD950	CD6302	102.00	114.00	135.00	1	165.0	5	-0.5	110
1.5KCD950A	CD6302A	102.00	114.00	135.00	1	165.0	5	-0.5	110
1.5KCD980	CD6303	105.00	117.00	140.00	1	170.0	5	-1.0	110
1.5KCD980A	CD6303A	105.00	117.00	140.00	1	170.0	5	-1.0	110
1.5KCD1000	CD6304	110.00	124.00	145.00	1	175.0	5	-1.5	110
1.5KCD1000A	CD6304A	110.00	124.00	145.00	1	175.0	5	-1.5	110
1.5KCD1050	CD6305	121.00	135.00	155.00	1	185.0	5	-2.0	110
1.5KCD1050A	CD6305A	121.00	135.00	155.00	1	185.0	5	-2.0	110
1.5KCD1100	CD6306	128.00	143.00	160.00	1	190.0	5	-2.5	110
1.5KCD1100A	CD6306A	128.00	143.00	160.00	1	190.0	5	-2.5	110
1.5KCD1150	CD6307	136.00	153.00	167.00	1	200.0	5	-3.0	110
1.5KCD1150A	CD6307A	136.00	153.00	167.00	1	200.0	5	-3.0	110
1.5KCD1200	CD6308	145.00	162.00	175.00	1	210.0	5	-3.5	110
1.5KCD1200A	CD6308A	145.00	162.00	175.00	1	210.0	5	-3.5	110
1.5KCD1250	CD6309	154.00	171.00	185.00	1	220.0	5	-4.0	110
1.5KCD1250A	CD6309A	154.00	171.00	185.00	1	220.0	5	-4.0	110
1.5KCD1300	CD6310	162.00	180.00	190.00	1	230.0	5	-4.5	110
1.5KCD1300A	CD6310A	162.00	180.00	190.00	1	230.0	5	-4.5	110

V_f at 100 amps peak. 8.3 ms sine wave equals 3.5 volts maximum. For bidirectional part number add C or CA as suffix (ie: 1.5KCD33C or 1.5KCD33CA; or CD6283C or CD6283CA).

Note that for bidirectional types having V_{WM} of 8 volts and under, the I_D leakage current is doubled.

SYMBOLS AND ABBREVIATIONS

V_{WM} = RATED STAND-OFF VOLTAGE

I_{PP} = PEAK PULSE CURRENT

V_C (MAX) = MAXIMUM CLAMPING VOLTAGE

V_(BR) = BREAKDOWN VOLTAGE

I_T = TEST CURRENT

I_D = REVERSE LEAKAGE

NOTE 1 Normal selection criteria for TAZ* devices is by rated stand-off voltage (V_{WM}) and should be equal or greater than DC or continuous peak operating voltage.

NOTE 2 TAZ* devices are tested to maximum peak pulse current (I_{PP}) with clamping voltage monitored. This surge capability is one of the most significant electrical characteristics of the device and should be considered as part of customer quality inspections.

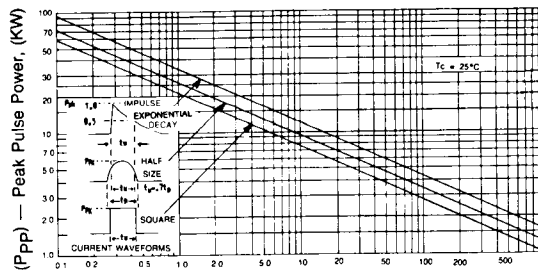


FIGURE 1
Peak Pulse Power vs Pulse Time

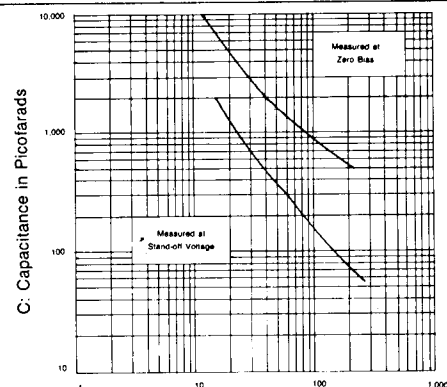


FIGURE 2
Typical Capacitance vs Breakdown Voltage

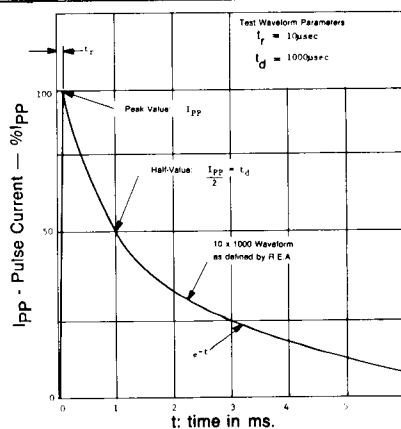


FIGURE 3
Pulse Wave Form

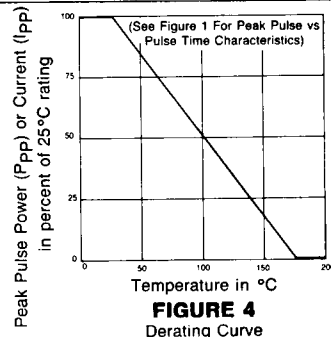


FIGURE 4
Derating Curve