

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

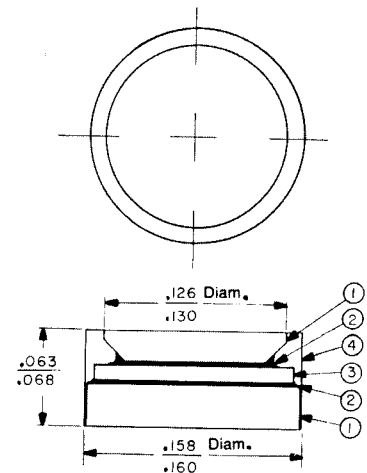
Forward Surge Rating: 200 Amps, 1/120 second at 25°C

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 _{VZ}
		V _{WM} VOLTS	MIN	MAX	@ I _T mA	V _C VOLTS	μA	I _{PP} A	% / °C
1.5KCD58A	CD5908	5.00	6.0	7.48	1	7.6	300	30.0	057
1.5KCD59A	CD5908	5.90	6.9	8.48	1	8.5	300	39.0	057
1.5KCD75	CD6267	7.50	8.5	10.48	1	10.5	1000	143.0	057
1.5KCD75A	CD6267	8.40	9.4	11.48	1	11.5	500	138.0	061
1.5KCD75A	CD6267	8.40	9.4	11.48	1	11.3	500	132.0	061
1.5KCD82	CD6269	8.20	9.2	11.18	1	11.2	200	120.0	065
1.5KCD82A	CD6269	9.10	10.1	12.18	1	12.2	200	124.0	065
1.5KCD82A	CD6269	9.10	10.1	12.18	1	11.8	50	109.0	068
1.5KCD82A	CD6269	9.10	10.1	12.18	1	11.4	50	112.0	068
1.5KCD91A	CD6271	9.10	10.1	12.18	1	12.2	10	103.0	073
1.5KCD91A	CD6271	9.10	10.1	12.18	1	11.8	10	103.0	073
1.5KCD91A	CD6271	9.10	10.1	12.18	1	11.4	5	93.0	075
1.5KCD91A	CD6271	9.10	10.1	12.18	1	11.0	5	86.0	078
1.5KCD102	CD6273	10.20	11.2	13.18	1	13.2	5	90.0	078
1.5KCD102A	CD6273	11.10	12.1	14.18	1	14.2	5	79.0	081
1.5KCD102A	CD6273	11.10	12.1	14.18	1	13.8	5	82.5	081
1.5KCD135	CD6275	13.50	14.5	16.48	1	16.5	5	68.0	084
1.5KCD135A	CD6275	14.40	15.4	17.48	1	17.5	5	71.0	084
1.5KCD135A	CD6275	14.40	15.4	17.48	1	17.0	5	64.0	086
1.5KCD135A	CD6275	14.40	15.4	17.48	1	16.6	5	67.0	086
1.5KCD188	CD6277	18.80	19.8	21.78	1	21.8	5	58.5	088
1.5KCD188A	CD6277	19.70	20.7	22.68	1	22.7	5	59.5	088
1.5KCD188A	CD6277	19.70	20.7	22.68	1	22.3	5	51.5	091
1.5KCD188A	CD6277	19.70	20.7	22.68	1	21.9	5	54.0	090
1.5KCD222	CD6279	22.20	23.2	25.18	1	25.2	5	47.0	092
1.5KCD222A	CD6279	23.10	24.1	26.08	1	26.1	5	49.0	092
1.5KCD222A	CD6279	23.10	24.1	26.08	1	25.7	5	43.0	094
1.5KCD222A	CD6279	23.10	24.1	26.08	1	25.3	5	45.0	094
1.5KCD227	CD6281	22.70	23.7	25.68	1	25.7	5	38.5	094
1.5KCD227A	CD6281	23.60	24.6	26.58	1	26.6	5	40.0	096
1.5KCD227A	CD6281	23.60	24.6	26.58	1	26.2	5	34.5	096
1.5KCD227A	CD6281	23.60	24.6	26.58	1	25.8	5	36.0	097
1.5KCD333	CD6283	33.30	34.3	36.28	1	36.3	5	31.5	098
1.5KCD333A	CD6283	34.20	35.2	37.18	1	37.2	5	33.0	098
1.5KCD333A	CD6283	34.20	35.2	37.18	1	36.8	5	29.0	100
1.5KCD333A	CD6283	34.20	35.2	37.18	1	36.4	5	28.0	100
1.5KCD333A	CD6283	34.20	35.2	37.18	1	36.0	5	24.0	101
1.5KCD333A	CD6283	34.20	35.2	37.18	1	35.6	5	25.3	101
1.5KCD477	CD6287	47.70	48.7	50.68	1	50.7	5	22.2	101
1.5KCD477A	CD6287	48.60	49.6	51.58	1	51.6	5	23.2	102
1.5KCD477A	CD6287	48.60	49.6	51.58	1	51.2	5	20.4	102
1.5KCD477A	CD6287	48.60	49.6	51.58	1	50.8	5	21.4	102
1.5KCD588	CD6289	58.80	59.8	61.78	1	61.8	5	18.8	103
1.5KCD588A	CD6289	60.70	61.7	63.68	1	63.7	5	19.5	103
1.5KCD588A	CD6289	60.70	61.7	63.68	1	63.3	5	15.9	104
1.5KCD588A	CD6289	60.70	61.7	63.68	1	62.9	5	17.7	104
1.5KCD688	CD6291	68.80	69.8	71.78	1	71.8	5	15.3	104
1.5KCD688A	CD6291	70.70	71.7	73.68	1	73.7	5	16.3	104
1.5KCD688A	CD6291	70.70	71.7	73.68	1	73.3	5	13.9	105
1.5KCD688A	CD6291	70.70	71.7	73.68	1	72.9	5	14.6	105
1.5KCD822	CD6293	82.20	83.2	85.18	1	85.2	5	12.7	105
1.5KCD822A	CD6293	84.10	85.1	87.08	1	87.1	5	13.3	105
1.5KCD822A	CD6293	84.10	85.1	87.08	1	86.7	5	11.4	106
1.5KCD822A	CD6293	84.10	85.1	87.08	1	86.3	5	12.0	106
1.5KCD100	CD6295	100.00	101.0	102.98	1	103.0	5	10.4	106
1.5KCD100A	CD6295	101.90	102.9	104.88	1	104.9	5	11.0	106
1.5KCD100A	CD6295	101.90	102.9	104.88	1	104.5	5	8.5	107
1.5KCD100A	CD6295	101.90	102.9	104.88	1	104.1	5	9.9	107
1.5KCD120	CD6297	120.00	121.0	122.98	1	123.0	5	8.7	107
1.5KCD120A	CD6297	121.90	122.9	124.88	1	124.9	5	9.1	107
1.5KCD120A	CD6297	121.90	122.9	124.88	1	124.5	5	8.0	107
1.5KCD120A	CD6297	121.90	122.9	124.88	1	124.1	5	8.4	107
1.5KCD150	CD6299	150.00	151.0	152.98	1	153.0	5	7.0	108
1.5KCD150A	CD6299	151.90	152.9	154.88	1	154.9	5	7.5	108
1.5KCD150A	CD6299	151.90	152.9	154.88	1	154.5	5	6.2	108
1.5KCD150A	CD6299	151.90	152.9	154.88	1	154.1	5	6.8	108
1.5KCD170	CD6301	170.00	171.0	172.98	1	173.0	5	6.2	108
1.5KCD170A	CD6301	171.90	172.9	174.88	1	174.9	5	6.4	108
1.5KCD170A	CD6301	171.90	172.9	174.88	1	174.5	5	5.8	108
1.5KCD170A	CD6301	171.90	172.9	174.88	1	174.1	5	6.1	108
1.5KCD200	CD6303	200.00	201.0	202.98	1	203.0	5	5.2	108
1.5KCD200A	CD6303	201.90	202.9	204.88	1	204.9	5	5.5	108

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: 1.5KCD333C or 1.5KCD333CA; 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.

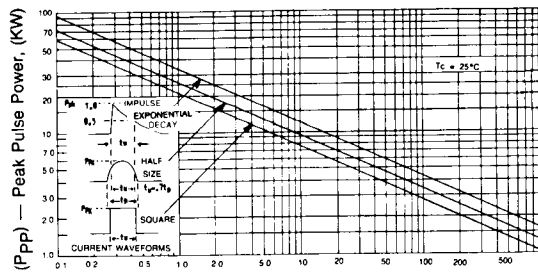


FIGURE 1
Peak Pulse Power vs Pulse Time

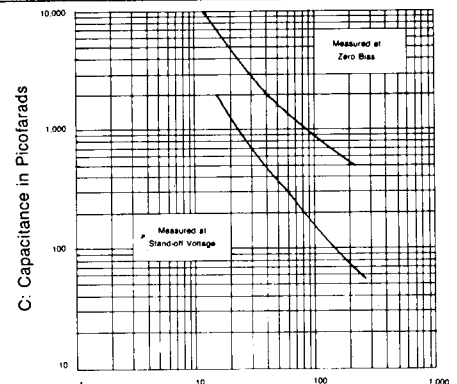


FIGURE 2
Typical Capacitance vs Breakdown Voltage

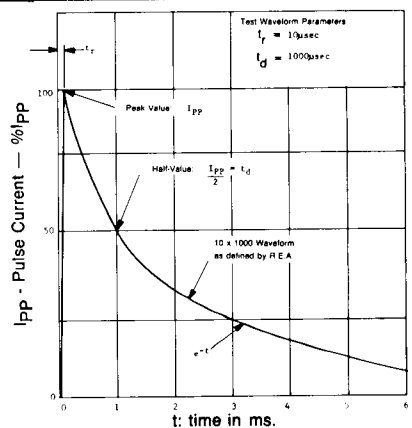


FIGURE 3
Pulse Wave Form

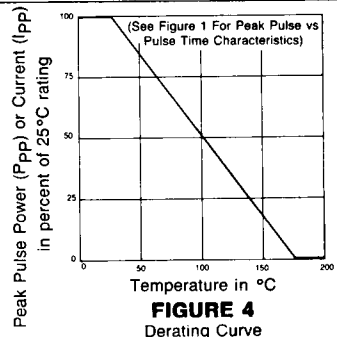


FIGURE 4
Derating Curve