Microsemi Corp.
The diode experts
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(602) 941-6300

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**

$t_{clamping}$ (0 Volts to BV Min.):

unidirectional $< 1x10^{-12}$ seconds;

bidirectional $< 5x10^{-9}$ seconds;

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

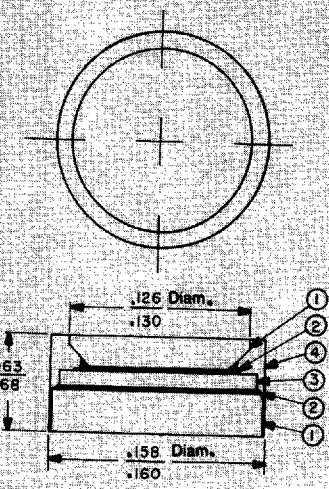
Forward Surge Rating: 200 Amps, 1/120 second at 25°C

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. Eqvlt.	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 of $V_{(BR)}$
		V_{WM} VOLTS	MIN	MAX	@ I_T mA	V_C VOLTS	I_D µA	I_{PP} A	% / °C
—	CD5908	5.00	6.0	—	1	7.6	300	30.0	.057
1.5KCD6.8	CD6267	5.50	6.12	7.48	10	10.8	1000	139.0	.057
1.5KCD6.8A	CD6267A	5.80	6.45	7.14	10	10.5	1000	143.0	.057
1.5KCD7.5	CD6268	6.05	6.75	8.25	10	11.7	500	128.0	.061
1.5KCD7.5A	CD6268A	6.40	7.13	7.88	10	11.3	500	132.0	.061
1.5KCD8.2	CD6269	6.83	7.38	9.02	10	12.5	200	120.0	.065
1.5KCD8.2A	CD6269A	7.02	7.79	8.61	10	12.1	200	124.0	.065
1.5KCD9.1	CD6270	7.37	8.19	10.00	1	13.8	50	109.0	.068
1.5KCD9.1A	CD6270A	7.78	8.65	9.55	1	13.4	50	112.0	.068
1.5KCD10	CD6271	8.10	9.00	11.00	1	15.0	10	100.0	.073
1.5KCD10A	CD6271A	8.55	9.50	10.50	1	14.5	10	103.0	.073
1.5KCD11	CD6272	8.92	9.90	12.10	1	16.2	5	93.0	.075
1.5KCD11A	CD6272A	9.40	10.50	11.60	1	15.6	5	96.0	.075
1.5KCD12	CD6273	9.72	10.80	13.20	1	17.3	5	87.0	.078
1.5KCD12A	CD6273A	10.20	11.40	12.60	1	16.7	5	90.0	.078
1.5KCD13	CD6274	10.50	11.70	14.30	1	19.0	5	79.0	.081
1.5KCD13A	CD6274A	11.10	12.40	13.70	1	18.2	5	82.0	.081
1.5KCD15	CD6275	12.10	13.50	16.50	1	22.0	5	68.0	.084
1.5KCD15A	CD6275A	12.80	14.30	15.80	1	21.2	5	71.0	.084
1.5KCD16	CD6276	12.90	14.40	17.60	1	23.5	5	64.0	.086
1.5KCD16A	CD6276A	13.60	15.20	16.80	1	22.5	5	67.0	.086
1.5KCD18	CD6277	14.50	16.20	19.80	1	26.5	5	58.5	.088
1.5KCD18A	CD6277A	15.30	17.10	18.90	1	25.2	5	59.5	.088
1.5KCD20	CD6278	16.20	18.00	22.00	1	29.1	5	51.5	.090
1.5KCD20A	CD6278A	17.10	19.00	21.00	1	27.7	5	54.0	.090
1.5KCD22	CD6279	17.80	19.80	24.20	1	31.9	5	47.0	.092
1.5KCD22A	CD6279A	18.80	20.90	23.10	1	30.6	5	48.0	.092
1.5KCD24	CD6280	19.40	21.80	26.40	1	34.7	5	43.0	.094
1.5KCD24A	CD6280A	20.50	22.80	25.20	1	33.2	5	45.0	.094
1.5KCD27	CD6281	21.80	24.30	29.70	1	39.1	5	38.5	.096
1.5KCD27A	CD6281A	23.10	25.70	28.40	1	37.5	5	40.0	.096
1.5KCD30	CD6282	24.30	27.00	33.00	1	43.5	5	34.5	.097
1.5KCD30A	CD6282A	25.60	28.50	31.50	1	41.4	5	36.0	.097
1.5KCD33	CD6283	26.80	29.70	36.30	1	47.7	5	31.5	.098
1.5KCD33A	CD6283A	28.20	31.40	34.70	1	45.7	5	33.0	.098
1.5KCD36	CD6284	29.10	32.40	39.60	1	52.9	5	29.0	.099
1.5KCD36A	CD6284A	30.80	34.20	37.80	1	48.9	5	30.0	.099
1.5KCD39	CD6285	31.60	35.10	42.90	1	56.4	5	26.5	.100
1.5KCD39A	CD6285A	33.30	37.10	41.00	1	53.9	5	28.0	.100
1.5KCD43	CD6286	34.80	38.70	47.30	1	61.9	5	24.0	.101
1.5KCD43A	CD6286A	36.80	40.90	45.20	1	59.3	5	25.3	.101
1.5KCD47	CD6287	38.10	42.30	51.70	1	67.8	5	22.2	.101
1.5KCD47A	CD6287A	40.20	44.70	49.40	1	64.8	5	23.2	.101
1.5KCD51	CD6288	41.30	45.90	56.10	1	73.5	5	20.4	.102
1.5KCD51A	CD6288A	43.60	48.50	53.80	1	70.1	5	21.4	.102
1.5KCD56	CD6289	45.40	50.40	61.60	1	80.5	5	18.6	.103
1.5KCD56A	CD6289A	47.80	53.20	58.80	1	77.0	5	19.5	.103
1.5KCD62	CD6290	50.20	55.80	68.20	1	89.0	5	16.9	.104
1.5KCD62A	CD6290A	53.00	58.90	65.10	1	85.0	5	17.7	.104
1.5KCD68	CD6291	55.10	61.20	74.80	1	98.0	5	15.3	.104
1.5KCD68A	CD6291A	58.10	64.60	71.40	1	92.0	5	16.3	.104
1.5KCD75	CD6292	60.70	67.50	82.50	1	108.0	5	13.9	.105
1.5KCD75A	CD6292A	64.10	71.30	78.80	1	103.0	5	14.6	.105
1.5KCD82	CD6293	66.40	73.80	90.20	1	118.0	5	12.7	.105
1.5KCD82A	CD6293A	70.10	77.90	86.10	1	113.0	5	13.3	.105
1.5KCD91	CD6294	73.70	81.90	100.00	1	131.0	5	11.4	.106
1.5KCD91A	CD6294A	77.80	86.50	95.50	1	125.0	5	12.0	.106
1.5KCD100	CD6295	81.00	90.00	110.00	1	144.0	5	10.4	.106
1.5KCD100A	CD6295A	85.50	95.00	105.00	1	137.0	5	11.0	.106
1.5KCD110	CD6296	89.20	99.00	121.00	1	158.0	5	9.5	.107
1.5KCD110A	CD6296A	94.00	105.00	116.00	1	152.0	5	9.9	.107
1.5KCD120	CD6297	97.20	108.00	132.00	1	173.0	5	8.7	.107
1.5KCD120A	CD6297A	102.00	114.00	126.00	1	165.0	5	9.1	.107
1.5KCD130	CD6298	105.00	117.00	143.00	1	187.0	5	8.0	.107
1.5KCD130A	CD6298A	111.00	124.00	137.00	1	179.0	5	8.4	.107
1.5KCD150	CD6299	121.00	135.00	165.00	1	215.0	5	7.0	.108
1.5KCD150A	CD6299A	128.00	143.00	158.00	1	207.0	5	7.2	.108
1.5KCD180	CD6300	130.00	144.00	176.00	1	230.0	5	6.5	.108
1.5KCD180A	CD6300A	136.00	152.00	168.00	1	219.0	5	6.8	.108
1.5KCD170	CD6301	138.00	153.00	187.00	1	244.0	5	6.2	.108
1.5KCD170A	CD6301A	145.00	162.00	179.00	1	234.0	5	6.4	.108
1.5KCD180	CD6302	148.00	162.00	198.00	1	258.0	5	5.8	.108
1.5KCD180A	CD6302A	154.00	171.00	189.00	1	248.0	5	6.1	.108
1.5KCD200	CD6303	162.00	180.00	220.00	1	287.0	5	5.2	.108
1.5KCD200A	CD6303A	171.00	190.00	210.00	1	274.0	5	5.5	.108

Vf 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.

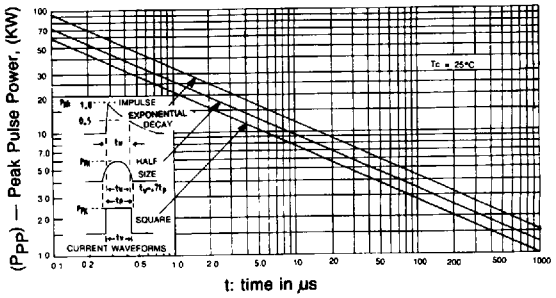


FIGURE 1
Peak Pulse Power vs Peak Pulse Time

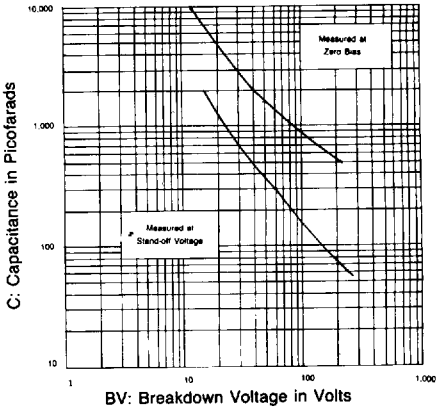


FIGURE 2
Typical Capacitance vs Breakdown Voltage

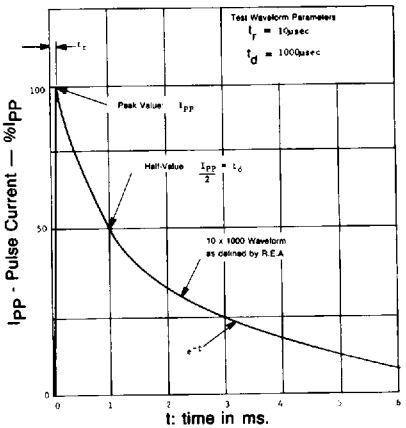


FIGURE 3
Pulse Wave Form

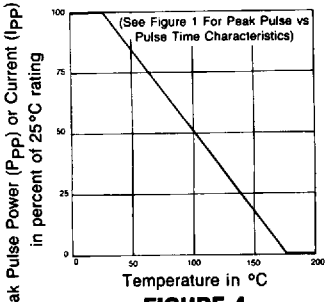


FIGURE 4
Derating Curve