

**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\*\*

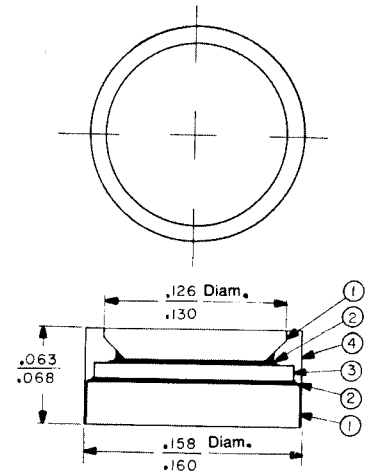
- clamping (0 Volts to BV Min.):
- unidirectional <math>1 \times 10^{-12}</math> seconds;
- bidirectional <math>5 \times 10^{-9}</math> seconds;

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 1.5KCD20A, CD5908 and CD6267 thru CD603A 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 <sub>PP</sub> (1 mSEC)	Maximum Reverse Leakage @ V <sub>WM</sub>	Rated Maximum Peak Pulse Current	Maximum Temperature Coefficient $\alpha_V$
		V <sub>WM</sub> VOLTS	MIN	MAX	@ I <sub>T</sub> mA				
1.5KCD10	CD6208	5.00	6.0	—	1	7.6	300	30.0	0.57
1.5KCD11	CD6209	5.80	6.85	7.14	10	19.5	1000	143.0	0.57
1.5KCD12	CD6210	6.50	7.55	7.84	10	19.5	500	130.0	0.61
1.5KCD13	CD6211	6.40	7.13	7.88	10	11.3	500	132.0	0.61
1.5KCD14	CD6212	6.63	7.38	8.02	10	12.5	200	120.0	0.65
1.5KCD15	CD6213	7.02	7.78	8.61	10	13.8	50	109.0	0.68
1.5KCD16	CD6214	7.37	8.13	9.00	10	15.2	200	124.0	0.65
1.5KCD17	CD6215	7.78	8.65	9.55	1	13.4	50	112.0	0.68
1.5KCD18	CD6216	8.10	9.00	11.00	1	15.0	10	100.0	0.73
1.5KCD19	CD6217	8.55	9.50	10.50	1	14.5	10	103.0	0.73
1.5KCD20	CD6218	8.92	9.90	12.10	1	16.2	5	93.0	0.73
1.5KCD21	CD6219	9.40	10.50	13.00	1	15.8	5	96.0	0.75
1.5KCD22	CD6220	9.72	10.80	13.20	1	17.3	5	87.0	0.78
1.5KCD23	CD6221	10.20	11.40	12.90	1	18.7	5	90.0	0.78
1.5KCD24	CD6222	20.50	22.40	24.30	1	19.0	5	73.0	0.81
1.5KCD25	CD6223	11.10	12.40	13.70	1	18.2	5	87.5	0.81
1.5KCD26	CD6224	12.10	13.50	16.50	1	22.0	5	88.0	0.84
1.5KCD27	CD6225	12.90	14.40	17.80	1	23.5	5	77.0	0.84
1.5KCD28	CD6226	13.40	15.20	18.60	1	23.5	5	84.0	0.86
1.5KCD29	CD6227	14.50	16.30	19.80	1	25.5	5	87.0	0.86
1.5KCD30	CD6228	15.30	17.10	20.00	1	25.2	5	59.5	0.88
1.5KCD31	CD6229	16.30	18.00	21.00	1	26.5	5	61.5	0.90
1.5KCD32	CD6230	17.10	18.90	21.00	1	27.7	5	54.0	0.90
1.5KCD33	CD6231	17.80	19.60	24.20	1	31.9	5	47.0	0.92
1.5KCD34	CD6232	18.80	20.50	23.10	1	30.7	5	48.0	0.92
1.5KCD35	CD6233	19.40	21.40	26.40	1	34.7	5	43.0	0.94
1.5KCD36	CD6234	20.50	22.80	25.20	1	33.2	5	45.0	0.94
1.5KCD37	CD6235	21.80	24.30	29.70	1	39.1	5	38.5	0.98
1.5KCD38	CD6236	23.10	25.90	31.40	1	37.5	5	40.0	0.98
1.5KCD39	CD6237	24.30	27.00	33.00	1	43.5	5	34.5	0.99
1.5KCD40	CD6238	25.60	28.40	31.50	1	41.4	5	36.0	0.97
1.5KCD41	CD6239	26.80	29.70	33.00	1	47.7	5	31.5	0.98
1.5KCD42	CD6240	28.00	31.40	34.70	1	45.7	5	33.0	0.98
1.5KCD43	CD6241	29.10	32.40	36.40	1	49.9	5	29.0	0.99
1.5KCD44	CD6242	30.40	34.20	37.80	1	48.9	5	30.0	0.99
1.5KCD45	CD6243	31.60	35.90	39.60	1	56.5	5	26.5	1.00
1.5KCD46	CD6244	33.00	37.10	41.00	1	53.9	5	28.0	1.00
1.5KCD47	CD6245	34.40	38.70	42.30	1	61.9	5	24.0	1.01
1.5KCD48	CD6246	36.80	40.90	45.20	1	59.3	5	25.3	1.01
1.5KCD49	CD6247	38.10	42.30	51.70	1	87.8	5	22.2	1.01
1.5KCD50	CD6248	40.20	44.70	49.40	1	84.3	5	23.2	1.01
1.5KCD51	CD6249	41.30	45.70	58.10	1	73.5	5	20.4	1.02
1.5KCD52	CD6250	43.80	48.50	53.80	1	70.1	5	21.4	1.02
1.5KCD53	CD6251	45.40	50.40	61.80	1	80.5	5	18.8	1.03
1.5KCD54	CD6252	47.80	52.20	58.80	1	77.0	5	19.5	1.03
1.5KCD55	CD6253	50.20	55.80	66.20	1	88.0	5	15.9	1.04
1.5KCD56	CD6254	53.10	58.90	65.10	1	85.0	5	15.8	1.04
1.5KCD57	CD6255	55.10	61.20	74.80	1	98.0	5	15.3	1.04
1.5KCD58	CD6256	58.10	64.60	71.40	1	92.0	5	16.3	1.04
1.5KCD59	CD6257	60.70	67.50	78.00	1	103.0	5	13.9	1.05
1.5KCD60	CD6258	64.10	71.30	78.00	1	103.0	5	14.6	1.05
1.5KCD61	CD6259	66.40	73.80	80.20	1	118.0	5	12.7	1.05
1.5KCD62	CD6260	70.10	77.80	89.10	1	110.0	5	13.3	1.05
1.5KCD63	CD6261	73.70	81.90	100.00	1	131.0	5	11.4	1.06
1.5KCD64	CD6262	77.80	86.50	95.50	1	125.0	5	12.0	1.06
1.5KCD65	CD6263	81.00	90.10	110.00	1	144.0	5	10.4	1.06
1.5KCD66	CD6264	85.50	95.00	105.00	1	137.0	5	11.0	1.06
1.5KCD67	CD6265	90.20	101.00	121.00	1	165.0	5	9.5	1.07
1.5KCD68	CD6266	94.00	105.00	118.00	1	152.0	5	9.9	1.07
1.5KCD69	CD6267	97.20	108.00	132.00	1	173.0	5	8.7	1.07
1.5KCD70	CD6268	102.00	114.00	126.00	1	169.0	5	9.1	1.07
1.5KCD71	CD6269	105.00	117.00	143.00	1	197.0	5	8.0	1.07
1.5KCD72	CD6270	111.00	124.00	137.00	1	179.0	5	8.4	1.07
1.5KCD73	CD6271	121.00	135.00	165.00	1	215.0	5	7.0	1.08
1.5KCD74	CD6272	128.00	143.00	158.00	1	207.0	5	7.2	1.08
1.5KCD75	CD6273	130.00	144.00	178.00	1	230.0	5	6.5	1.08
1.5KCD76	CD6274	136.00	152.00	169.00	1	219.0	5	6.8	1.08
1.5KCD77	CD6301	136.00	157.00	187.00	1	244.0	5	6.2	1.08
1.5KCD78	CD6302	145.00	162.00	179.00	1	234.0	5	6.4	1.08
1.5KCD79	CD6303	162.00	180.00	220.00	1	287.0	5	5.2	1.08
1.5KCD80	CD6304	171.00	190.00	210.00	1	274.0	5	5.5	1.08

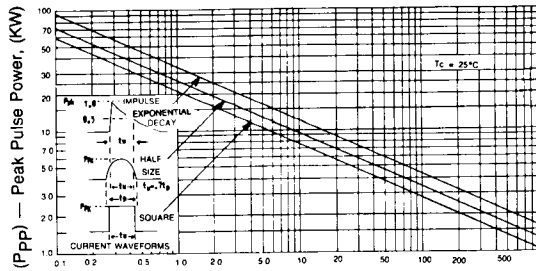
V<sub>f</sub> at 100 amps peak. 8.3 ms sine wave equals 3.5 volts maximum. For bidirectional part number add C or CA as suffix (ie: 1.5KCD33C or 1.5KCD33CA; or CD6283C or CD6283CA). Note that for bidirectional types having V<sub>WM</sub> of 8 volts and under, the I<sub>D</sub> leakage current is doubled.

### SYMBOLS AND ABBREVIATIONS

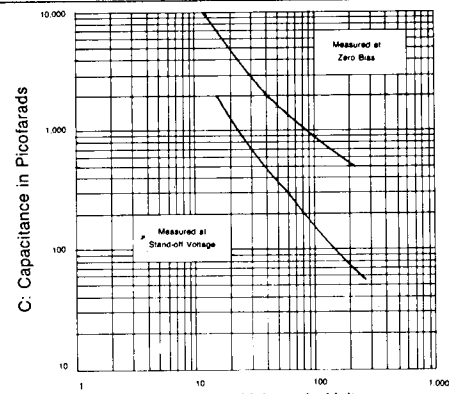
- V<sub>WM</sub> = RATED STAND-OFF VOLTAGE
- I<sub>PP</sub> = PEAK PULSE CURRENT
- V<sub>C</sub> (MAX) = MAXIMUM CLAMPING VOLTAGE
- V(BR) = BREAKDOWN VOLTAGE
- I<sub>T</sub> = TEST CURRENT
- I<sub>D</sub> = REVERSE LEAKAGE

NOTE 1 Normal selection criteria for TAZ\* devices is by rated stand-off voltage (V<sub>WM</sub>) and should be equal or greater than DC or continuous peak operating voltage.

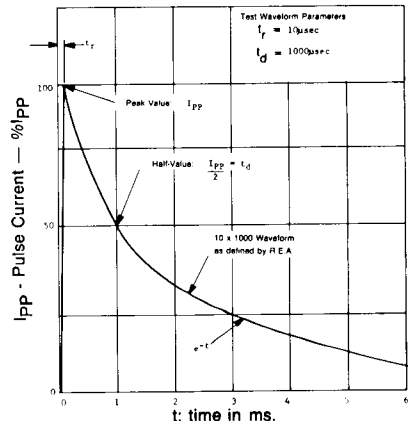
NOTE 2 TAZ\* devices are tested to maximum peak pulse current (I<sub>PP</sub>) with clamping voltage monitored. This surge capability is one of the most significant electrical characteristics of the device and should be considered as part of customer quality inspections.



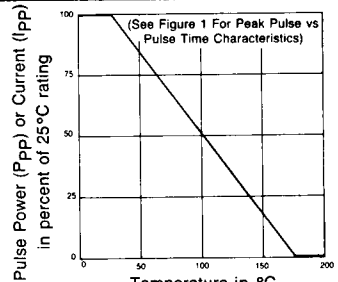
**FIGURE 1**  
Peak Pulse Power vs Pulse Time



**FIGURE 2**  
Typical Capacitance vs Breakdown Voltage



**FIGURE 3**  
Pulse Wave Form



**FIGURE 4**  
Derating Curve