

# MDE Semiconductor, Inc.

78-150 Calle Tampico, Unit 210, La Quinta, CA. U.S.A. 92253 Tel: 760-564-8656 • Fax: 760-564-2414

## 1.5KE SERIES

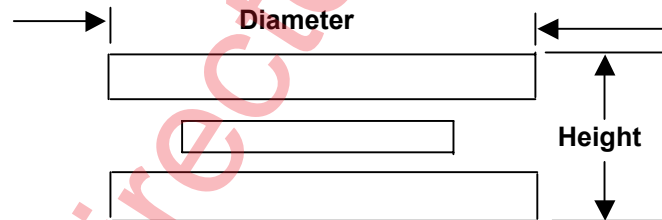
### GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR VOLTAGE- 6.8 TO 440 Volts 1500 Watt Peak Pulse Power 5.0 Watt Steady State

#### FEATURES

- Glass passivated junction
- 1500W Peak Pulse Power capability on 10/1000  $\mu$ s waveform
- Glass passivated junction
- Low zener impedance
- Excellent clamping capability
- Fast response time: typically less than 1.0 ps from 0 volts to BV min
- Typical IR less than 1 $\mu$ A above 10V

#### MECHANICAL DATA

The devices listed in this document take the following physical form:



1.5KE TVS Cells: Assembled with 118mil Hex Die  
Max. Height 65mil. Max. Dia 50mil

All dice are passivated either glass or SiO<sub>2</sub>

These cell TVS devices are specially designed for TVS modules and hybrid circuit applications. The benefit of this package is less space and easier assembly. Users should be cautioned that the assembled modules must be properly protected to avoid the glass or SiO<sub>2</sub> passivated die damage.

#### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 1.5KE6.8 thru types 1.5KE440 (e.g. 1.5KE6.8C, 1.5KE440CA)  
Electrical characteristics apply in both directions.

#### MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000 $\mu$ s waveform (NOTE 1, Fig.1)	P <sub>ppm</sub>	Minimum 5000	Watts
Peak Pulse Current of on 10/1000 $\mu$ s waveform (Note 1, Fig 3)	I <sub>ppm</sub>	SEE TABLE 1	Amps
Steady State Power Dissipation at TL = 75°C Lead lengths .375", 9.5mm (Note 2)	P <sub>m(AV)</sub>	5.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load, (JEDEC Method)(Note 3)	I <sub>FSM</sub>	200	Amps
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>stg</sub>	-55 +175	°C

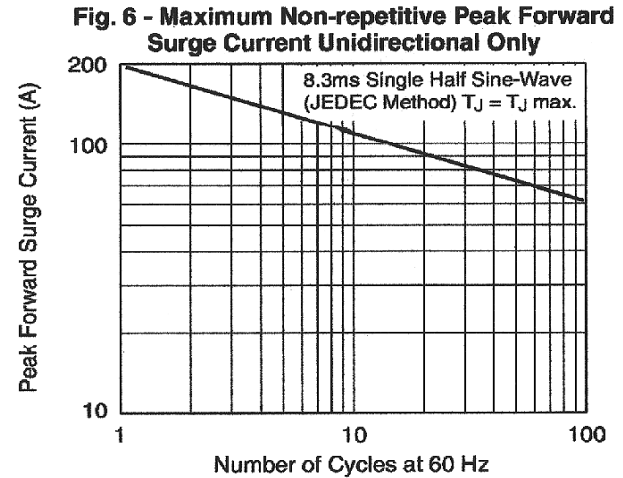
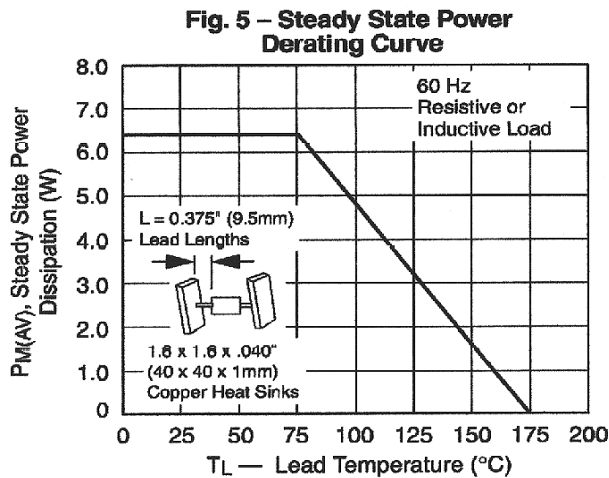
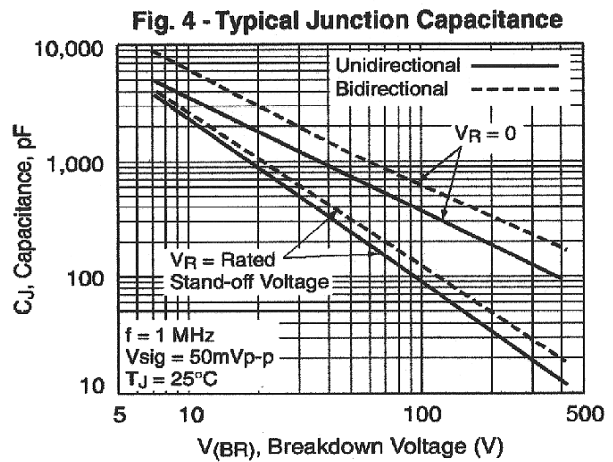
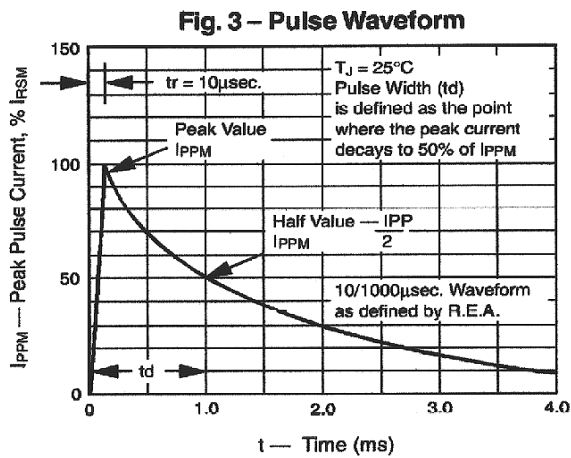
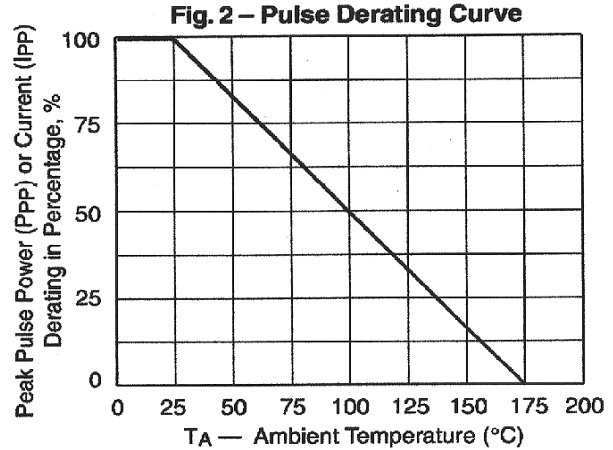
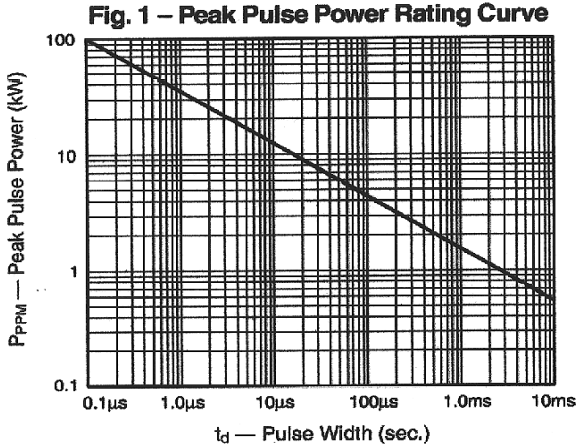
#### NOTES:

1. Non-repetitive current pulse, per Fig.3 and derated above Ta=25 °C per Fig.2.
2. Mounted on Copper Pad area of 0.8x0.8" (20x20mm) per Fig.5.
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle=4 pulses per minutes maximum.

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## RATING AND CHARACTERISTIC CURVES 1.5KE SERIES



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## 1500 Watt TVS

UNI-DIRECTIONAL PART NUMBER	REVERSE STANDOFF VOLTAGE VRWM (V)	BREAKDOWN VOLTAGE VBR (V) MIN. @ IT	BREAKDOWN VOLTAGE VBR (V) MAX. @ IT	TEST CURRENT (It) mA	MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V)	PEAK PULSE CURRENT Ipp (A)	REVERSE LEAKAGE @ VRWM IR (μA)
1.5KE6.8	5.50	6.12	7.48	10	10.8	140.7	1000
1.5KE6.8.0A	5.80	6.45	7.14	10	10.5	144.8	1000
1.5KE7.5	6.05	6.75	8.25	10	11.7	2129.9	500
1.5KE7.5A	6.40	7.13	7.88	10	11.3	134.5	500
1.5KE8.2	6.63	7.38	9.02	10	12.5	121.6	200
1.5KE8.2A	7.02	7.79	8.61	10	12.1	125.6	200
1.5KE9.1	7.37	8.19	10.00	10	13.8	110.1	50
1.5KE9.1A	7.78	8.65	9.55	10	13.4	113.4	50
1.5KE10	8.10	9.00	11.00	1	15.0	101.3	10
1.5KE10A	8.55	9.50	10.50	1	14.5	104.8	10
1.5KE11	8.92	9.90	12.10	1	16.2	93.8	5
1.5KE11A	9.40	10.50	11.60	1	15.6	97.4	5
1.5KE12	9.72	10.80	13.20	1	17.3	87.9	1
1.5KE12A	10.20	11.40	12.60	1	16.7	91.0	1
1.5KE13	10.50	11.70	14.30	1	19.0	80.0	1
1.5KE13A	11.10	12.40	13.70	1	18.2	83.5	1
1.5KE15	12.10	13.50	16.50	1	22.0	69.1	1
1.5KE15A	10.00	14.30	15.80	1	21.2	71.7	1
1.5KE16	12.80	14.40	17.60	1	23.5	64.7	1
1.5KE16A	12.90	15.20	16.80	1	22.5	67.6	1
1.5KE18	13.60	16.20	19.80	1	26.5	57.4	1
1.5KE18A	14.50	17.10	18.90	1	25.2	60.3	1
1.5KE20	15.30	18.00	22.00	1	29.1	52.2	1
1.5KE20A	17.10	19.00	21.00	1	27.7	54.9	1
1.5KE22	17.80	19.80	24.20	1	31.9	47.6	1
1.5KE22A	18.80	20.90	23.10	1	30.6	49.7	1
1.5KE24	19.40	21.60	26.40	1	34.7	43.8	1
1.5KE24A	20.50	22.80	25.20	1	33.2	45.8	1
1.5KE27	21.80	24.30	29.70	1	39.1	38.9	1
1.5KE27A	23.10	25.70	28.40	1	37.5	40.5	1
1.5KE30	24.30	27.00	33.00	1	43.5	34.9	1
1.5KE30A	25.60	28.50	31.50	1	41.4	36.7	1
1.5KE33	26.80	29.70	36.30	1	47.7	31.9	1
1.5KE33A	28.20	31.40	34.70	1	45.7	33.3	1
1.5KE36	29.10	32.40	39.60	1	52.0	29.2	1
1.5KE36A	30.80	34.20	37.80	1	49.9	30.5	1
1.5KE39	31.60	35.10	42.90	1	56.4	27.0	1
1.5KE39A	33.30	37.10	41.00	1	53.9	28.2	1
1.5KE43	34.80	38.70	47.30	1	61.9	24.6	1
1.5KE43A	36.80	40.90	45.20	1	59.3	25.6	1
1.5KE47	38.10	42.30	51.70	1	67.8	22.4	1
1.5KE47A	40.20	44.70	49.40	1	64.8	23.5	1
1.5KE51	41.30	45.90	56.10	1	73.5	20.7	1
1.5KE51A	43.60	48.50	53.60	1	70.1	21.7	1
1.5KE56	45.40	50.40	61.60	1	80.5	18.9	1
1.5KE56A	47.80	53.20	58.80	1	77.0	19.7	1
1.5KE62	50.20	55.80	68.20	1	89.0	17.1	1
1.5KE62A	53.00	58.90	65.10	1	85.0	17.9	1
1.5KE68	55.10	61.20	74.80	1	98.0	15.5	1
1.5KE68A	58.10	64.60	71.40	1	92.0	16.5	1

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1.5KE75	60.70	67.50	82.50	1	108.0	14.1	5
1.5KE75A	64.10	71.30	78.80	1	103.0	14.8	5
1.5KE82	66.40	73.80	90.20	1	118.0	12.9	5
1.5KE82A	70.10	77.90	86.10	1	113.0	13.5	5
1.5KE91	73.70	81.90	100.00	1	131.0	11.60	5
1.5KE91A	77.80	86.50	95.50	1	125.0	12.2	5
1.5KE100	81.00	90.00	110.00	1	144.0	10.6	5
1.5KE100A	85.50	95.00	105.00	1	137.0	11.1	5
1.5KE110	89.20	99.00	121.00	1	158.0	9.6	5
1.5KE110A	94.00	105.00	116.00	1	152.0	10.0	5
1.5KE120	97.20	108.00	132.00	1	173.0	8.7	5
1.5KE120A	102.00	114.00	126.00	1	165.0	9.2	5
1.5KE130A	105.00	117.00	143.00	1	187.0	8.1	5
1.5KE130A	111.00	124.00	137.00	1	179.0	8.5	5
1.5KE150	121.00	135.00	165.00	1	215.0	7.1	5
1.5KE150A	128.00	143.00	158.00	1	207.0	7.3	5
1.5KE160	130.00	144.00	176.00	1	230.0	6.9	5
1.5KE160A	136.00	152.00	168.00	1	219.0	6.9	5
1.5KE170	138.00	153.00	187.00	1	244.0	6.2	5
1.5KE170A	145.00	162.00	179.00	1	234.0	6.5	5
1.5KE180	146.00	162.00	198.00	1	258.0	5.9	5
1.5KE180A	154.00	171.00	189.00	1	246.0	6.2	5
1.5KE200	162.00	180.00	220.00	1	287.0	5.3	5
1.5KE200A	171.00	190.00	210.00	1	274.0	5.5	5
1.5KE220	175.00	198.00	242.00	1	344.0	4.4	5
1.5KE220A	185.00	209.00	231.00	1	328.0	4.6	5
1.5KE250	202.00	225.00	275.00	1	360.0	4.2	5
1.5KE250A	214.00	237.00	263.00	1	344.0	4.4	5
1.5KE300	243.00	270.00	330.00	1	430.0	3.5	5
1.5KE300A	256.00	285.00	315.00	1	414.0	3.7	5
1.5KE350	284.00	315.00	385.00	1	504.0	3.0	5
1.5KE350A	300.00	333.00	368.00	1	482.0	3.2	5
1.5KE400	324.00	360.00	440.00	1	574.0	2.6	5
1.5KE400A	342.00	380.00	420.00	1	548.0	2.8	5
1.5KE440	356.00	396.00	484.00	1	631.0	2.4	5
1.5KE440A	376.00	418.00	462.00	1	602.0	2.5	5

For Bidirectional type having Vrwm of 10volts and less, the IR limit is double.