

# MDE Semiconductor, Inc.

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## 1.5KE SERIES

### GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

**VOLTAGE- 6.8 TO 550 Volts**

**1500 Watt Peak Power 5.0 Watt Steady State**

#### FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94 V-O
- Glass passivated chip junction in Molded Plastic package
- 1500W surge capability at 1ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min.
- Typical IR less than 1µA above 10V
- High temperature soldering guaranteed: 250°C/10 seconds/ .375", (9.5mm) lead length, 5lbs., (2.3kg) tension

#### MECHANICAL DATA

Case: JEDEC DO-201 Molded plastic  
 Terminals: Plated Axial leads, solderable per MIL-STD-750, Method 2026  
 Polarity: Color band denoted positive end (cathode) except Bipolar  
 Mounting Position: Any  
 Weight: 0.045 ounces, 1.2 grams

#### DO-201



*Dimensions in inches and (millimeters)*

#### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 1.5KE6.80 thru types 1.5KE550 (e.g. 1.5KE6.8C, 1.5KE550CA)

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 at TA = 25 °C, TP = 1ms (NOTE 1)	P <sub>PPM</sub>	Minimum 1500	Watts
Peak Pulse Current of on 10/1000 µs waveform (Note 1)	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>	6.5	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.

Certified RoHS Compliant

UL File # E223026

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## RATING AND CHARACTERISTIC CURVES 1.5KE SERIES

**Fig. 1 - Peak Pulse Power Rating Curve**



**Fig. 2 - Pulse Derating Curve**



**Fig. 3 - Pulse Waveform**



**Fig. 4 - Typical Junction Capacitance**



**Fig. 5 - Steady State Power Derating Curve**



**Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Use Only**



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## 1500 Watt TVS

UNI-POLAR	BI-POLAR	REVERSE STANDOFF VOLTAGE V <sub>RWM</sub> (V)	BREAKDOWN VOLTAGE V <sub>BR</sub> (V) MIN. @ I <sub>T</sub>	BREAKDOWN VOLTAGE V <sub>BR</sub> (V) MAX. @ I <sub>T</sub>	TEST CURRENT (I <sub>T</sub> ) mA	MAXIMUM CLAMPING VOLTAGE @I <sub>PP</sub> V <sub>C</sub> (V)	PEAK PULSE CURRENT I <sub>PP</sub> (A)	REVERSE LEAKAGE @ V <sub>RWM</sub> I <sub>R</sub> (μA)
1.5KE6.8A	1.5KE6.8CA	5.80	6.45	7.14	10	10.5	144.8	1000
1.5KE7.5A	1.5KE7.5CA	6.40	7.13	7.88	10	11.3	134.5	500
1.5KE8.2A	1.5KE8.2CA	7.02	7.79	8.61	10	12.1	125.6	200
1.5KE9.1A	1.5KE9.1CA	7.78	8.65	9.50	10	13.4	113.4	50
1.5KE10A	1.5KE10CA	8.55	9.50	10.50	1	14.5	104.8	10
1.5KE11A	1.5KE11CA	9.40	10.50	11.60	1	15.6	97.4	5
1.5KE12A	1.5KE12CA	10.20	11.40	12.60	1	16.7	91.0	5
1.5KE13A	1.5KE13CA	11.10	12.40	13.70	1	18.2	83.5	5
1.5KE15A	1.5KE15CA	12.80	14.30	15.80	1	21.2	71.7	5
1.5KE16A	1.5KE16CA	13.60	15.20	16.80	1	22.5	67.6	5
1.5KE18A	1.5KE18CA	15.30	17.10	18.90	1	25.2	60.3	5
1.5KE20A	1.5KE20CA	17.10	19.00	21.00	1	27.7	54.9	5
1.5KE22A	1.5KE22CA	18.80	20.90	23.10	1	30.6	49.7	5
1.5KE24A	1.5KE24CA	20.50	22.80	25.20	1	33.2	45.8	5
1.5KE27A	1.5KE27CA	23.10	25.70	28.40	1	37.5	40.5	5
1.5KE30A	1.5KE30CA	25.60	28.50	31.50	1	41.4	36.7	5
1.5KE33A	1.5KE33CA	28.20	31.40	34.70	1	45.7	33.3	5
1.5KE36A	1.5KE36CA	30.80	34.20	37.80	1	49.9	30.5	5
1.5KE39A	1.5KE39CA	33.30	37.10	41.00	1	53.9	28.2	5
1.5KE43A	1.5KE43CA	36.80	40.90	45.20	1	59.3	25.6	5
1.5KE47A	1.5KE47CA	40.20	44.70	49.40	1	64.8	23.5	5
1.5KE51A	1.5KE51CA	43.60	48.50	53.60	1	70.1	21.7	5
1.5KE56A	1.5KE56CA	47.80	53.20	58.80	1	77.0	19.7	5
1.5KE62A	1.5KE62CA	53.00	58.90	65.10	1	85.0	17.9	5
1.5KE68A	1.5KE68CA	58.10	64.60	71.40	1	92.0	16.5	5
1.5KE75A	1.5KE75CA	64.10	71.30	78.80	1	103.0	14.8	5
1.5KE82A	1.5KE82CA	70.10	77.90	86.10	1	113.0	13.5	5
1.5KE91A	1.5KE91CA	77.80	86.50	95.50	1	125.0	12.2	5
1.5KE100A	1.5KE100CA	85.50	95.00	105.00	1	137.0	11.1	5
1.5KE110A	1.5KE110CA	94.00	105.00	116.00	1	152.0	10.0	5
1.5KE120A	1.5KE120CA	102.00	114.00	126.00	1	165.0	9.2	5
1.5KE130A	1.5KE130CA	111.00	124.00	137.00	1	179.0	8.5	5
1.5KE150A	1.5KE150CA	128.00	143.00	158.00	1	207.0	7.3	5
1.5KE160A	1.5KE160CA	136.00	152.00	168.00	1	219.0	6.9	5
1.5KE170A	1.5KE170CA	145.00	162.00	179.00	1	234.0	6.5	5
1.5KE180A	1.5KE180CA	154.00	171.00	189.00	1	246.0	6.2	5
1.5KE200A	1.5KE200CA	171.00	190.00	210.00	1	274.0	5.5	5
1.5KE220A	1.5KE220CA	185.00	209.00	231.00	1	328.0	4.6	5
1.5KE250A	1.5KE250CA	214.00	237.00	263.00	1	344.0	4.4	5
1.5KE300A	1.5KE300CA	256.00	285.00	315.00	1	414.0	3.7	5
1.5KE350A	1.5KE350CA	300.00	332.00	368.00	1	482.0	3.2	5
1.5KE400A	1.5KE400CA	342.00	380.00	420.00	1	548.0	2.8	5
1.5KE440A	1.5KE440CA	376.00	418.00	462.00	1	602.0	2.5	5
1.5KE480A	1.5KE480CA	408.00	456.00	504.00	1	658.0	2.3	5
1.5KE510A	1.5KE510CA	434.00	485.00	535.00	1	698.0	2.1	5
1.5KE530A	1.5KE530CA	450.00	503.50	556.50	1	725.0	2.1	5
1.5KE540A	1.5KE540CA	459.00	513.00	567.00	1	740.0	2.0	5
1.5KE550A	1.5KE550CA	467.00	522.50	577.50	1	760.0	2.0	5

For bidirectional type having V<sub>rwm</sub> of 10 volts and less, the I<sub>R</sub> limit is double.  
For parts without A , the V<sub>BR</sub> is ±10%

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