

# **MDE Semiconductor, Inc.**

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

## **P6KE SERIES**

### **GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR**

**VOLTAGE-6.8 TO 440 Volts**

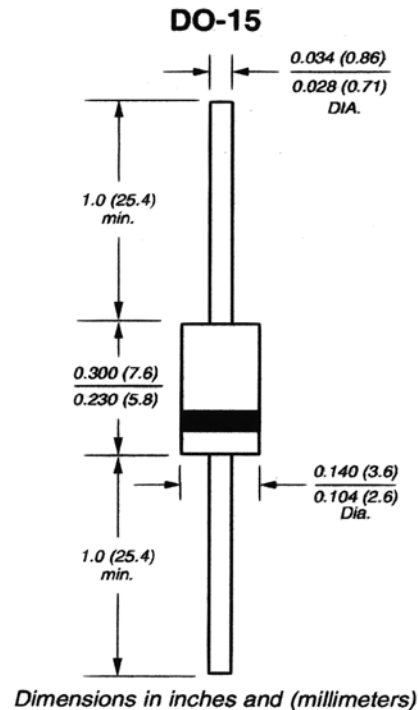
**600 Watt Peak Power 5.0 Watt Steady State**

#### **FEATURES**

- Plastic package has Underwriters Laboratory Flammability Classification 94 V-O
- Glass passivated chip junction in DO-15 (DO-204AC) package
- 600W surge capability at 10/1000  $\mu$ s
- Low zenen 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
- High temperature soldering guaranteed: 265°C/10 seconds/ .375", (9.5mm) lead length, 5lbs., (2.3kg) tension

#### **MECHANICAL DATA**

Case: JEDEC DO-15 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: 0.015 ounces, 0.4 grams



#### **DEVICES FOR BIPOLAR APPLICATIONS**

For Bidirectional use C or CA Suffix for types P6KE6.80 thru types P6KE440 (e.g. P6KE6.8C, P6KE440CA)  
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)	Pppm	Minimum 600	Watts
Peak Pulse Current of on 10/1000 $\mu$ s waveform (Note 1)	Ippm	SEE TABLE 1	Amps
Steady State Power Dissipation at TL = 75°C Lead lengths .375", 9.5mm (Note 2)	Pm(AV)	1.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load, (JEDEC Method)(Note 3)	IFSM	40	Amps
Operating and Storage Temperature Range	Tj, Tstg	-55 +175	°C

#### **NOTES:**

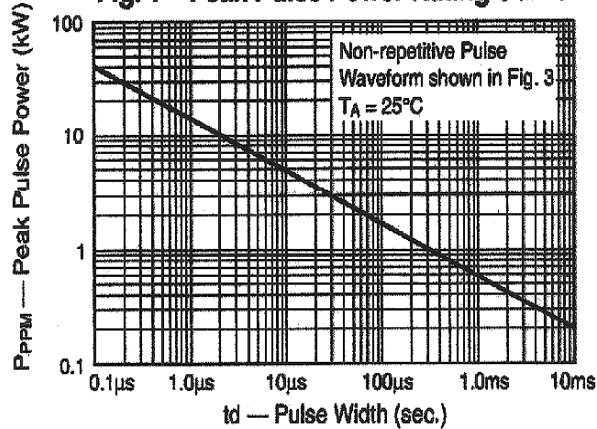
1. Non-repetitive current pulse, per Fig.3 and derated above Ta=25 °C per Fig.2.
2. Mounted on Copper Pad area of 1.6x1.6" (40x40mm) per Fig.5.
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle=4 pulses per minutes maximum.

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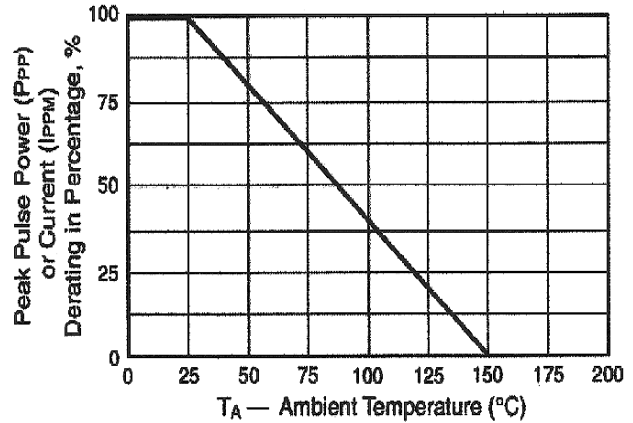
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## RATING AND CHARACTERISTIC CURVES P6KE SERIES

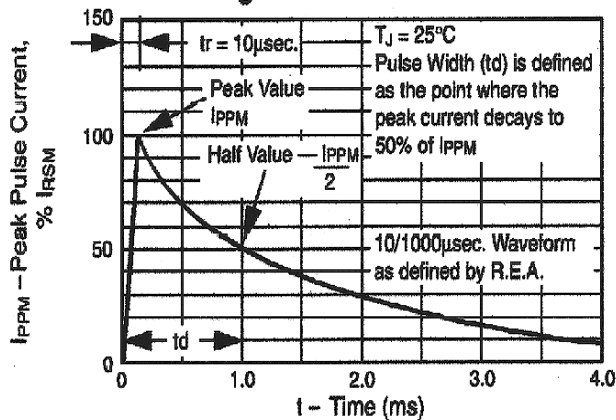
**Fig. 1 – Peak Pulse Power Rating Curve**



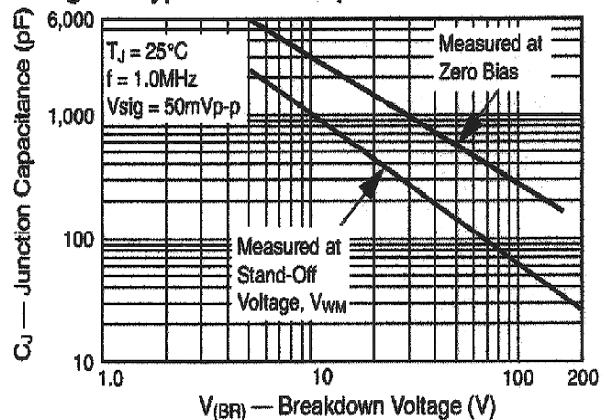
**Fig. 2 – Pulse Derating Curve**



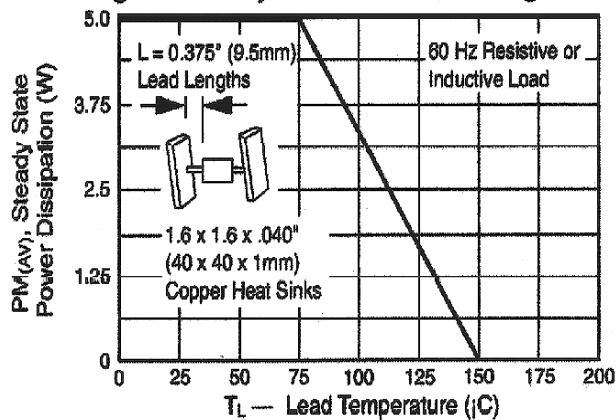
**Fig. 3 – Pulse Waveform**



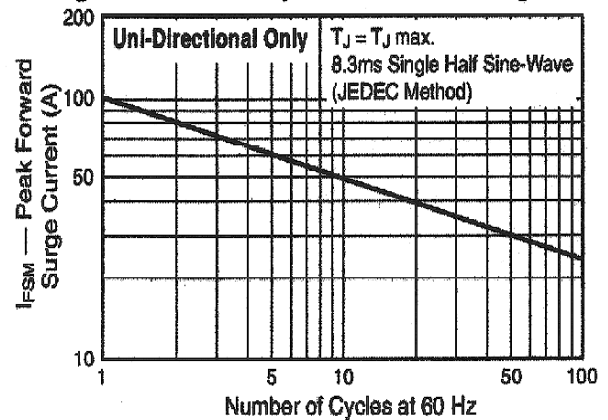
**Fig. 4 – Typ. Junction Capacitance Uni-Directional**



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



**Fig. 6 - Max. Non-Repetitive Forward Surge Current**



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## **600 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)
P6KE6.8	5.50	6.12	7.48	10	10.8	56.5	1000
P6KE6.8.0A	5.80	6.45	7.14	10	10.5	58.1	1000
P6KE7.5	6.05	6.75	8.25	10	11.7	52.1	500
P6KE7.5A	6.40	7.13	7.88	10	11.3	54.0	500
P6KE8.2	6.63	7.38	9.02	10	12.5	48.8	200
P6KE8.2A	7.02	7.79	8.61	10	12.1	50.4	200
P6KE9.1	7.37	8.19	10.00	10	13.8	44.2	50
P6KE9.1A	7.78	8.65	9.55	10	13.4	45.5	50
P6KE10	8.10	9.00	11.00	1	15.0	40.7	10
P6KE10A	8.55	9.50	10.50	1	14.5	42.1	10
P6KE11	8.92	9.90	12.10	1	16.2	37.7	5
P6KE11A	9.40	10.50	11.60	1	15.6	39.1	5
P6KE12	9.72	10.80	13.20	1	17.3	35.3	1
P6KE12A	10.20	11.40	12.60	1	16.7	36.5	1
P6KE13	10.50	11.70	14.30	1	19.0	32.1	1
P6KE13A	11.10	12.40	13.70	1	18.2	33.5	1
P6KE15	12.10	13.50	16.50	1	22.0	27.7	1
P6KE15A	10.00	14.30	15.80	1	21.2	28.8	1
P6KE16	12.80	14.40	17.60	1	23.5	26.0	1
P6KE16A	12.90	15.20	16.80	1	22.5	27.1	1
P6KE18	13.60	16.20	19.80	1	26.5	23.0	1
P6KE18A	14.50	17.10	18.90	1	25.2	24.2	1
P6KE20	15.30	18.00	22.00	1	29.1	21.0	1
P6KE20A	17.10	19.00	21.00	1	27.7	22.0	1
P6KE22	17.80	19.80	24.20	1	31.9	19.1	1
P6KE22A	18.80	20.90	23.10	1	30.6	19.9	1
P6KE24	19.40	21.60	26.40	1	34.7	17.6	1
P6KE24A	20.50	22.80	25.20	1	33.2	18.4	1
P6KE27	21.80	24.30	29.70	1	39.1	15.6	1
P6KE27A	23.10	25.70	28.40	1	37.5	16.3	1
P6KE30	24.30	27.00	33.00	1	43.5	14.0	1
P6KE30A	25.60	28.50	31.50	1	41.4	14.7	1
P6KE33	26.80	29.70	36.30	1	47.7	12.8	1
P6KE33A	28.20	31.40	34.70	1	45.7	13.3	1
P6KE36	29.10	32.40	39.60	1	52.0	11.7	1
P6KE36A	30.80	34.20	37.80	1	49.9	12.2	1
P6KE39	31.60	35.10	42.90	1	56.4	10.8	1
P6KE39A	33.30	37.10	41.00	1	53.9	11.3	1
P6KE43	34.80	38.70	47.30	1	61.9	9.9	1
P6KE43A	36.80	40.90	45.20	1	59.3	10.3	1
P6KE47	38.10	42.30	51.70	1	67.8	9.0	1
P6KE47A	40.20	44.70	49.40	1	64.8	9.4	1
P6KE51	41.30	45.90	56.10	1	73.5	8.3	1
P6KE51A	43.60	48.50	53.60	1	70.1	8.7	1
P6KE56	45.40	50.40	61.60	1	80.5	7.6	1
P6KE56A	47.80	53.20	58.80	1	77.0	7.9	1
P6KE62	50.20	55.80	68.20	1	89.0	6.9	1
P6KE62A	53.00	58.90	65.10	1	85.0	7.2	1
P6KE68	55.10	61.20	74.80	1	98.0	6.2	1
P6KE68A	58.10	64.60	71.40	1	92.0	6.6	1

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P6KE75	60.70	67.50	82.50	1	108.0	5.6	5
P6KE75A	64.10	71.30	78.80	1	103.0	5.9	5
P6KE82	66.40	73.80	90.20	1	118.0	5.2	5
P6KE82A	70.10	77.90	86.10	1	113.0	5.4	5
P6KE91	73.70	81.90	100.00	1	131.0	4.70	5
P6KE91A	77.80	86.50	95.50	1	125.0	4.9	5
P6KE100	81.00	90.00	110.00	1	144.0	4.2	5
P6KE100A	85.50	95.00	105.00	1	137.0	4.5	5
P6KE110	89.20	99.00	121.00	1	158.0	3.9	5
P6KE110A	94.00	105.00	116.00	1	152.0	4.0	5
P6KE120	97.20	108.00	132.00	1	173.0	3.5	5
P6KE120A	102.00	114.00	126.00	1	165.0	3.7	5
P6KE130A	105.00	117.00	143.00	1	187.0	3.3	5
P6KE130A	111.00	124.00	137.00	1	179.0	3.4	5
P6KE150	121.00	135.00	165.00	1	215.0	2.8	5
P6KE150A	128.00	143.00	158.00	1	207.0	2.9	5
P6KE160	130.00	144.00	176.00	1	230.0	2.7	5
P6KE160A	136.00	152.00	168.00	1	219.0	2.8	5
P6KE170	138.00	153.00	187.00	1	244.0	2.5	5
P6KE170A	145.00	162.00	179.00	1	234.0	2.6	5
P6KE180	146.00	162.00	198.00	1	258.0	2.4	5
P6KE180A	154.00	171.00	189.00	1	246.0	2.5	5
P6KE200	162.00	180.00	220.00	1	287.0	2.1	5
P6KE200A	171.00	190.00	210.00	1	274.0	2.2	5
P6KE220	175.00	198.00	242.00	1	344.0	1.8	5
P6KE220A	185.00	209.00	231.00	1	328.0	1.9	5
P6KE250	202.00	225.00	275.00	1	360.0	1.7	5
P6KE250A	214.00	237.00	263.00	1	344.0	1.8	5
P6KE300	243.00	270.00	330.00	1	430.0	1.4	5
P6KE300A	256.00	285.00	315.00	1	414.0	1.5	5
P6KE350	284.00	315.00	385.00	1	504.0	1.2	5
P6KE350A	300.00	333.00	368.00	1	482.0	1.3	5
P6KE400	324.00	360.00	440.00	1	574.0	1.1	5
P6KE400A	342.00	380.00	420.00	1	548.0	1.1	5
P6KE440	356.00	396.00	484.00	1	631.0	1	5
P6KE440A	376.00	418.00	462.00	1	602.0	1	5

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