CHENMKO ENTERPRISE CO.,LTD

1.5KE SERIES

GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE-6.8 TO 400 VOLTS

1500 WATTS PEAK POWER 6.5 WATTS STEADY STATE

Lead free devices

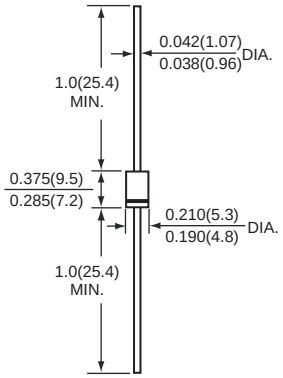
FEATURES

* Plastic package
* 1500W surge capability at 1ms
* Glass passivated chip junction in DO-201 Package
* Excellent clamping capability
* Low Zener Impedance
* Fast response time: typically less than 1.0ps from 0 volts to BV min.
* Typical IR less than 1 uA above 10V
* High temperature soldering guaranteed: 300 degree C/10seconds/.375"(9.5mm) lead length/51 bs., (2.3k) tension

DO-201

MECHANICAL DATA

Case: JEDEC DO-201 molded plastic
Terminals: Plated axial leads, solderable per MIL-STD-750, Method 2026
Polarity: Color band denotes cathode end
Mounting Position: Any
Weight: 0.045 ounce, 1.2 grams



Dimensions in inches and (millimeters)

DO-201

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

DEVICES FOR BIDIRECTIONAL APPLICATIONS

For Bidirectional use C or CA Suffix for types 1.5KE6.8 thru types 1.5KE400
Electrical characteristics apply in both directions.

MAXIMUM RATINGES (At T_A = 25°C unless otherwise noted)

RATINGS	SYMBOL	VALUE	UNITS
Peak Power Dissipation at T_A = 25°C, Tp = 1ms (Note1)	P_{PK}	Minimum 1500	Watts
Steady State Power Dissipation at T_L = 75°C Lead Lengths .375" (9.5mm)	P_D	6.5	Watts
Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Note 2)	I_{FSM}	200	Amps
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175	°C

NOTES : 1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum.

PRODUCT NO.	Breakdown Voltage			Working Peak Reverse Voltage	Maximum Reverse Leakage at Vrwm	Maximum Reverse Current (NOTE 2)	Maximum Reverse Voltage at Irsm (clamping)	Maximum Temperature Coefficient of Vbr
	VBR Volts (NOTE 1)		@ IT (mA)					
	MIN.	MAX.		Vrwm (V)	Ir (uA)	Irsm (A)	Vrsm (V)	(%C)
1.5KE6.8PT	6.12	7.48	10	5.50	1000	139	10.8	0.057
1.5KE6.8APT	6.45	7.14	10	5.80	1000	143	10.5	0.057
1.5KE7.5PT	6.75	8.25	10	6.05	500	128	11.7	0.061
1.5KE7.5APT	7.13	7.88	10	6.40	500	132	11.3	0.061
1.5KE8.2PT	7.38	9.02	10	6.63	200	120	12.5	0.065
1.5KE8.2APT	7.79	8.61	10	7.02	200	124	12.1	0.065
1.5KE9.1PT	8.19	10.0	1.0	7.37	50	109	13.8	0.068
1.5KE9.1APT	8.65	9.55	1.0	7.78	50	112	13.4	0.068
1.5KE10PT	9.0	11.0	1.0	8.10	10	100	15.0	0.073
1.5KE10APT	9.5	10.5	1.0	8.55	10	103	14.5	0.073
1.5KE11PT	9.9	12.1	1.0	8.92	5.0	93.0	16.2	0.075
1.5KE11APT	10.5	11.6	1.0	9.40	5.0	96.0	15.6	0.075
1.5KE12PT	10.8	13.2	1.0	9.72	5.0	87.0	17.3	0.078
1.5KE12APT	11.4	12.6	1.0	10.2	5.0	90.0	16.7	0.078
1.5KE13PT	11.7	14.3	1.0	10.5	5.0	79.0	19.0	0.081
1.5KE13APT	12.4	13.7	1.0	11.1	5.0	82.0	18.2	0.081
1.5KE15PT	13.5	16.5	1.0	12.1	5.0	68.0	22.0	0.084
1.5KE15APT	14.3	15.8	1.0	12.8	5.0	71.0	21.2	0.084
1.5KE16PT	14.4	17.6	1.0	12.9	5.0	64.0	23.5	0.086
1.5KE16APT	15.2	16.8	1.0	13.6	5.0	67.0	22.5	0.086
1.5KE18PT	16.2	19.8	1.0	14.5	5.0	56.5	26.5	0.088
1.5KE18APT	17.1	18.9	1.0	15.3	5.0	59.5	25.2	0.088
1.5KE20PT	18.0	22.0	1.0	16.2	5.0	51.5	29.1	0.090
1.5KE20APT	19.0	21.0	1.0	17.1	5.0	54.0	27.7	0.090
1.5KE22PT	19.8	24.2	1.0	17.8	5.0	47.0	31.9	0.092
1.5KE22APT	20.9	23.1	1.0	18.8	5.0	49.0	30.6	0.092
1.5KE24PT	21.6	26.4	1.0	19.4	5.0	43.0	34.7	0.094
1.5KE24APT	22.8	25.2	1.0	20.5	5.0	45.0	33.2	0.094
1.5KE27PT	24.3	29.7	1.0	21.8	5.0	38.5	39.1	0.096
1.5KE27APT	25.7	28.4	1.0	23.1	5.0	40.0	37.5	0.096
1.5KE30PT	27.0	33.0	1.0	24.3	5.0	34.5	43.5	0.097
1.5KE30APT	28.5	31.5	1.0	25.6	5.0	36.0	41.4	0.097
1.5KE33PT	29.7	36.3	1.0	26.8	5.0	31.5	47.7	0.098
1.5KE33APT	31.4	34.7	1.0	28.2	5.0	33.0	45.7	0.098
1.5KE36PT	32.4	39.6	1.0	29.1	5.0	29.0	52.0	0.099
1.5KE36APT	34.2	37.8	1.0	30.8	5.0	30.0	49.9	0.099
1.5KE39PT	35.1	42.9	1.0	31.6	5.0	26.5	56.4	0.100
1.5KE39APT	37.1	41.0	1.0	33.3	5.0	28.0	53.9	0.100
1.5KE43PT	38.7	47.3	1.0	34.8	5.0	24.0	61.9	0.101
1.5KE43APT	40.9	45.2	1.0	36.8	5.0	25.3	59.3	0.101
1.5KE47PT	42.3	51.7	1.0	38.1	5.0	22.2	67.8	0.101
1.5KE47APT	44.7	49.4	1.0	40.2	5.0	23.2	64.8	0.101
1.5KE51PT	45.9	56.1	1.0	41.3	5.0	20.4	73.5	0.102
1.5KE51APT	48.5	53.6	1.0	43.6	5.0	21.4	70.1	0.102
1.5KE56PT	50.4	61.6	1.0	45.4	5.0	18.6	80.5	0.103

PRODUCT NO.	Breakdown Voltage			Working Peak Reverse Voltage	Maximum Reverse Leakage at Vrwm	Maximum Reverse Current (NOTE 2)	Maximum Reverse Voltage at Irsm (clamping)	Maximum Temperature Coefficient of Vbr
	VBR Volts (NOTE 1)		@ IT (mA)					
	MIN.	MAX.		Vrwm (V)	Ir (uA)	Irsm (A)	Vrsm (V)	(%C)
1.5KE56APT	53.2	58.8	1.0	47.8	5.0	19.5	77.0	0.103
1.5KE62PT	55.8	68.2	1.0	50.2	5.0	16.9	89.0	0.104
1.5KE62APT	58.9	65.1	1.0	53.0	5.0	17.7	85.0	0.104
1.5KE68PT	61.2	74.8	1.0	55.1	5.0	15.3	98.0	0.104
1.5KE68APT	64.6	71.4	1.0	58.0	5.0	16.3	92.0	0.104
1.5KE75PT	67.5	82.5	1.0	60.7	5.0	13.9	108	0.105
1.5KE75APT	71.3	78.8	1.0	64.1	5.0	14.6	103	0.105
1.5KE82PT	73.8	90.2	1.0	66.4	5.0	12.7	118	0.105
1.5KE82APT	77.9	86.1	1.0	70.1	5.0	13.3	113	0.105
1.5KE91PT	81.9	100	1.0	73.7	5.0	11.4	131	0.106
1.5KE91APT	86.5	95.5	1.0	77.8	5.0	12.0	125	0.106
1.5KE100PT	90.0	110	1.0	81.0	5.0	10.4	144	0.106
1.5KE100APT	95.0	105	1.0	85.5	5.0	11.0	137	0.106
1.5KE110PT	99.0	121	1.0	89.2	5.0	9.5	158	0.107
1.5KE110APT	105	116	1.0	94.0	5.0	9.9	152	0.107
1.5KE120PT	108	132	1.0	97.2	5.0	8.7	173	0.107
1.5KE120APT	114	126	1.0	102	5.0	9.1	165	0.107
1.5KE130PT	117	143	1.0	105	5.0	8.0	187	0.107
1.5KE130APT	124	137	1.0	111	5.0	8.4	179	0.107
1.5KE150PT	135	165	1.0	121	5.0	7.0	215	0.108
1.5KE150APT	143	158	1.0	128	5.0	7.2	207	0.108
1.5KE160PT	144	176	1.0	130	5.0	6.5	230	0.108
1.5KE160APT	152	168	1.0	136	5.0	6.8	219	0.108
1.5KE170PT	153	187	1.0	138	5.0	6.2	244	0.108
1.5KE170APT	162	179	1.0	145	5.0	6.4	234	0.108
1.5KE180PT	162	198	1.0	146	5.0	5.8	258	0.108
1.5KE180APT	171	189	1.0	154	5.0	6.1	246	0.108
1.5KE200PT	180	220	1.0	162	5.0	5.2	287	0.108
1.5KE200APT	190	210	1.0	171	5.0	5.5	274	0.108
1.5KE220PT	198	242	1.0	175	5.0	4.3	344	0.108
1.5KE220APT	209	231	1.0	185	5.0	4.6	328	0.108
1.5KE250PT	225	275	1.0	202	5.0	5.0	360	0.110
1.5KE250APT	237	263	1.0	214	5.0	5.0	344	0.110
1.5KE300PT	270	330	1.0	243	5.0	5.0	430	0.110
1.5KE300APT	285	315	1.0	256	5.0	5.0	414	0.110
1.5KE350PT	315	385	1.0	284	5.0	4.0	504	0.110
1.5KE350APT	332	368	1.0	300	5.0	4.0	482	0.110
1.5KE400PT	360	440	1.0	324	5.0	4.0	574	0.110
1.5KE400APT	380	420	1.0	342	5.0	4.0	548	0.110

NOTES : 1. Vbr measured after IT applied for 300 us. IT = Square Wave Pulse or equivalent.

2. Surge Current Waveform per Figure 3 and Derated per Figure 2.

3. Vf = 3.5 V max. at If= 100 A (1.5KE6.8 thru 1.5KE91A)
Vf = 5.0 V max. at If = 100 A (1.5KE100 thru 1.5KE400A) on 1/2 Square or equivalent Sine Wave.
PW = 8.3ms, Duty Cycle = 4 Pulses per minute maximum.

4. For Bipolar types having VR of 10 Volts and under, the IR limit is doubled.

RATING CHARACTERISTIC CURVES (1.5KE6.8PT ~ 1.5KE400APT)

FIG. 1 - PULSE POWER RATING CURVE

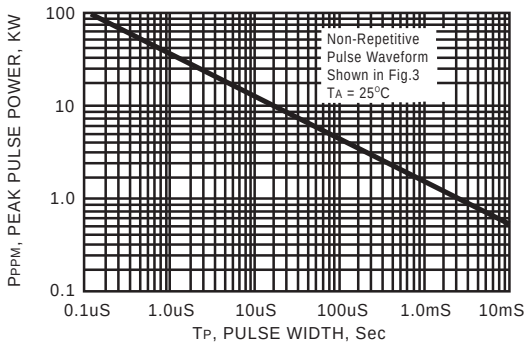


FIG. 2 - PULSE DERATING CURVE

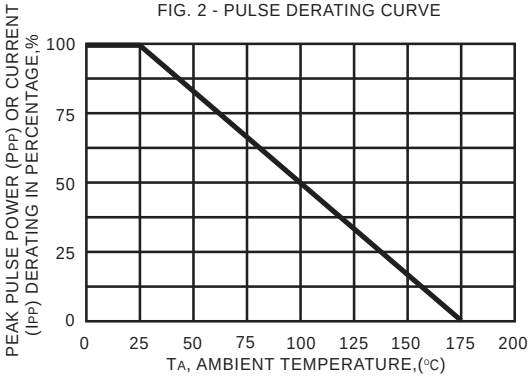


FIG. 3 - PULSE WAVEFORM

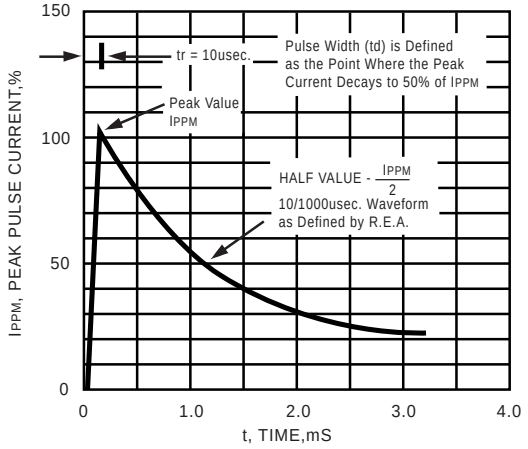


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

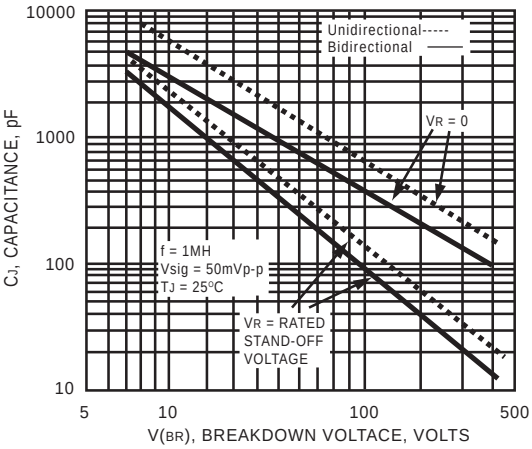


FIG. 5 - STEADY STATE POWER DERATING CURVE

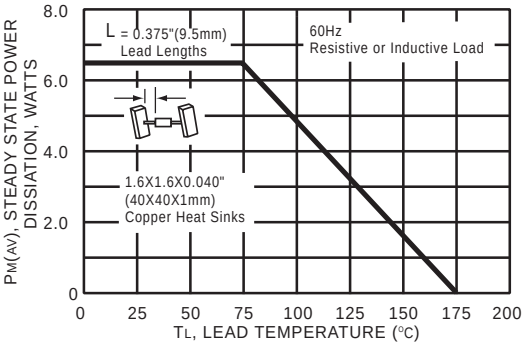
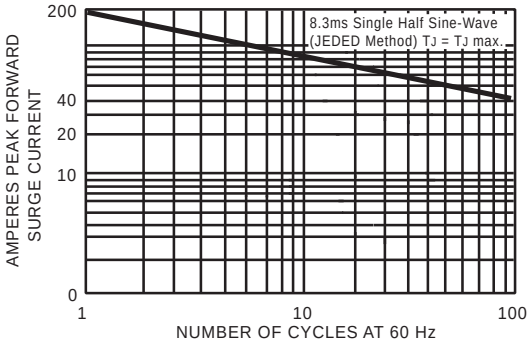


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD
SURGE CURRENT UNIDIRECTIONAL



RATING CHARACTERISTIC CURVES (1.5KE6.8PT ~ 1.5KE400APT)

FIG. 7 - INCREMENTAL CLAMPING VOLTAGE CURVE UNI-DIRECTIONAL

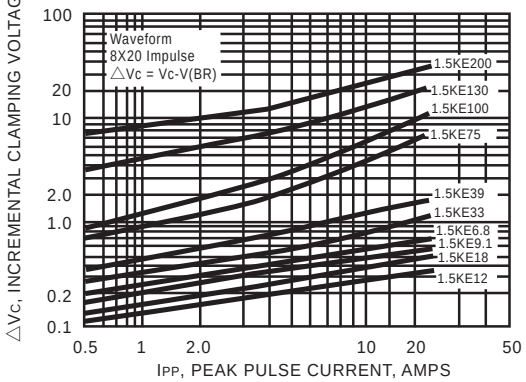


FIG. 7 - INCREMENTAL CLAMPING VOLTAGE CURVE UNI-DIRECTIONAL

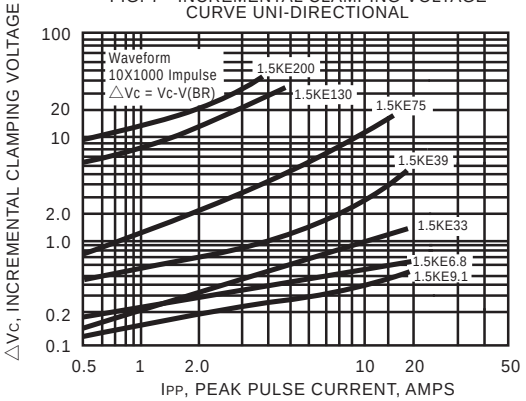


FIG. 9 - INCREMENTAL CLAMPING VOLTAGE CURVE BI-DIRECTIONAL

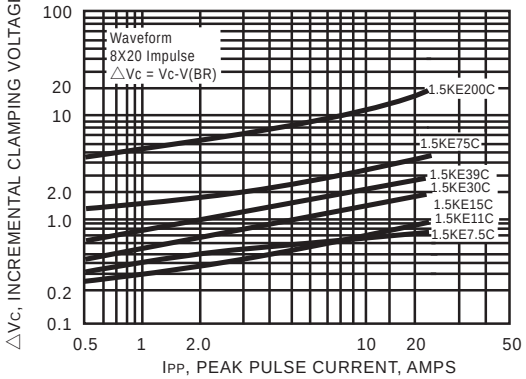


FIG. 7 - INCREMENTAL CLAMPING VOLTAGE CURVE BI-DIRECTIONAL

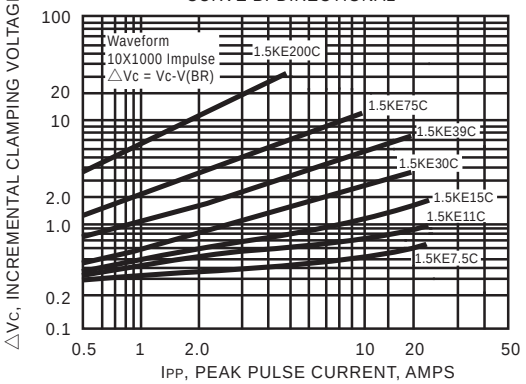


FIG. 11 -INSTANTANEOUS FORWARD VOLTAGE CHARACTERISTICS CURVE

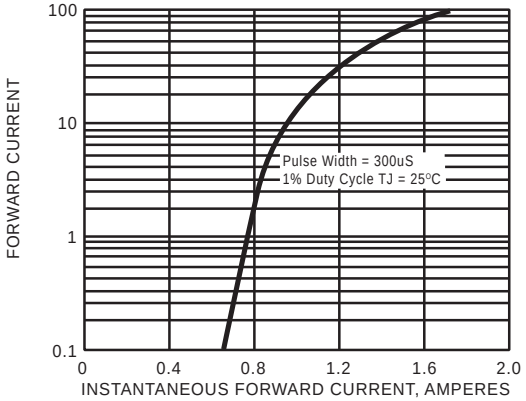


FIG. 12 - BREAKDOWN VOLTAGE TEMPEATURE COEFFICIENT CURVE