1500W Transient Voltage Suppressor

COMCHIP
SMD Diodes Specialist

1.5KE-G Series

Stand-off Voltage: 6.8 ~ 440V
Power Dissipation: 1500 Watts
RoHS Device

Features

-Plastic package has underwriters laboratory flammability classification 94V-0

-1500W, surge capability at 1mS.

-Excellent clamping capability.

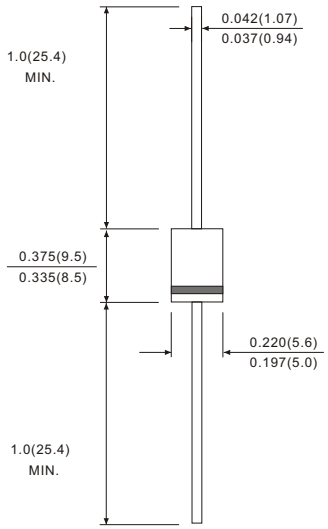
-Low Zener impedance.

-Fast response time: typically less than 1.0pS from 0 volt to BV min.

-Typical I_R less than 1μA above 10V.

-High temperature soldering guaranteed: 260°C/10S/0.375"(9.5mm) lead length/5lbs.,(2.3KG) tension

DO-201AE



Dimensions in inches and (millimeter)

Mechanical Data

-Case: Molded plastic DO-201AE

-Terminals: Axial leads, solderable per MIL-STD-202, Method 208

-Polarity: Color band denotes cathode except bipolar

-Weight: 1.2 gram

Maximum Ratings and Electrical Characteristics

Parameter	Symbol	Value	Unit
Peak power dissipation at T_A=25°C T_P=1mS (Note 1)	P_{PK}	Maximum 1500	W
Steady state power dissipation at T_L=75°C Lead length 0.375" (9.5mm) (Note 2)	P_D	5.0	W
Peak forward surge current, 8.3mS single half sine-wave superimposed on rated load (JEDEC method) (Note 3)	I_{FSM}	200	A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175	°C

NTOES:
(1) Non-repetitive current pulse, per fig.3 and derated above T_A=25°C per fig. 2.
(2) Mounted on copper land area of 0.79in²(20mm²).
(3) 8.3mS single half-sine wave, duty cycle=4 pulses per minute maximum.
(4) For bidirectional use C suffix for 10% tolerance, CA suffix for 5% tolerance.

RATING AND CHARACTERISTIC (1.5KE-G Series)

Part No.	Breakdown Voltage			Working Peak Reverse Voltage V_{RWM}(V)	Maximum Reverse Leakage at V_{RWM} I_R(μA)	Maximum Reverse Current I_{RSM} (A)	Maximum Clamping Voltage V_{RWM} (V)	Maximum Temperature Coefficient of V_{BR} (%C)
	V_{BR} (V)		@I_T(mA)					
	MIN.	MAX.						
1.5KE6.8(C)-G	6.12	7.48	10	5.50	1000	139.0	10.8	0.057
1.5KE6.8(C)A-G	6.45	7.14	10	5.80	1000	143.0	10.5	0.057
1.5KE7.5(C)-G	6.75	8.25	10	6.05	500	128.0	11.7	0.061
1.5KE7.5(C)A-G	7.13	7.88	10	6.40	500	132.0	11.3	0.061
1.5KE8.2(C)-G	7.38	9.02	10	6.63	200	120.0	12.5	0.065
1.5KE8.2(C)A-G	7.79	8.00	10	7.02	200	124.0	12.1	0.065
1.5KE9.1(C)-G	8.19	10.0	1.0	7.37	50	109.0	13.8	0.068
1.5KE9.1(C)A-G	8.65	9.55	1.0	7.78	50	112.0	13.4	0.068
1.5KE10(C)-G	9.00	11.0	1.0	8.10	10	100.0	15.0	0.073
1.5KE10(C)A-G	9.50	10.5	1.0	8.55	10	103.0	14.5	0.073
1.5KE11(C)-G	9.90	12.1	1.0	8.92	5.0	93.0	16.2	0.075
1.5KE11(C)A-G	10.5	11.6	1.0	9.40	5.0	96.0	15.6	0.075
1.5KE12(C)-G	10.8	13.2	1.0	9.72	5.0	87.0	17.3	0.078
1.5KE12(C)A-G	11.4	12.6	1.0	10.2	5.0	90.0	16.7	0.078
1.5KE13(C)-G	11.7	14.3	1.0	10.5	5.0	79.0	19.0	0.081
1.5KE13(C)A-G	12.4	13.7	1.0	11.1	5.0	82.0	18.2	0.081
1.5KE15(C)-G	13.5	16.5	1.0	12.1	5.0	68.0	22.0	0.084
1.5KE15(C)A-G	14.3	15.8	1.0	12.8	5.0	71.0	21.2	0.084
1.5KE16(C)-G	14.4	17.6	1.0	12.9	5.0	64.0	23.5	0.086
1.5KE16(C)A-G	15.2	16.8	1.0	13.6	5.0	67.0	22.5	0.086
1.5KE18(C)-G	16.2	19.8	1.0	14.5	5.0	56.5	26.5	0.088
1.5KE18(C)A-G	17.1	18.9	1.0	15.3	5.0	59.5	25.2	0.088
1.5KE20(C)-G	18.0	22.0	1.0	16.2	5.0	51.5	29.1	0.090
1.5KE20(C)A-G	19.0	21.0	1.0	17.1	5.0	54.0	27.7	0.090
1.5KE22(C)-G	19.8	24.2	1.0	17.8	5.0	47.0	31.9	0.092
1.5KE22(C)A-G	20.9	23.1	1.0	18.8	5.0	49.0	30.6	0.092
1.5KE24(C)-G	21.6	26.4	1.0	19.4	5.0	43.0	34.7	0.094
1.5KE24(C)A-G	22.8	25.2	1.0	20.5	5.0	45.0	33.2	0.094
1.5KE27(C)-G	24.3	29.7	1.0	21.8	5.0	38.2	39.1	0.096
1.5KE27(C)A-G	25.7	28.4	1.0	23.1	5.0	403.0	37.5	0.096
1.5KE30(C)-G	27.0	33.0	1.0	24.3	5.0	34.5	43.5	0.097
1.5KE30(C)A-G	28.5	31.5	1.0	25.6	5.0	36.0	41.4	0.097
1.5KE33(C)-G	29.7	36.3	1.0	26.8	5.0	31.5	47.7	0.098
1.5KE33(C)A-G	31.4	34.7	1.0	28.2	5.0	33.0	45.7	0.098
1.5KE36(C)-G	32.4	39.6	1.0	29.1	5.0	29.0	52.0	0.099
1.5KE36(C)A-G	34.2	37.8	1.0	30.8	5.0	30.0	49.0	0.099
1.5KE39(C)-G	35.1	42.9	1.0	31.6	5.0	26.5	56.4	0.100
1.5KE39(C)A-G	37.1	41.0	1.0	33.3	5.0	28.0	53.9	0.100
1.5KE43(C)-G	38.7	47.3	1.0	34.8	5.0	24.0	61.9	0.101
1.5KE43(C)A-G	40.9	45.2	1.0	36.8	5.0	25.3	59.3	0.101
1.5KE47(C)-G	42.3	51.7	1.0	36.1	5.0	22.2	67.8	0.101
1.5KE47(C)A-G	44.7	49.4	1.0	40.2	5.0	23.2	64.8	0.101
1.5KE51(C)-G	45.9	56.1	1.0	41.3	5.0	20.4	73.5	0.102
1.5KE51(C)A-G	48.5	53.6	1.0	43.6	5.0	21.4	70.1	0.102
1.5KE56(C)-G	50.4	61.8	1.0	45.4	5.0	18.6	80.5	0.103
1.5KE56(C)A-G	53.2	58.8	1.0	47.8	5.0	19.5	77.0	0.103
1.5KE62(C)-G	55.8	68.2	1.0	50.2	5.0	16.9	89.0	0.104
1.5KE62(C)A-G	58.9	65.1	1.0	53.0	5.0	17.7	85.0	0.104

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Part No.	Breakdown Voltage			Working Peak Reverse Voltage V_{RWM}(V)	Maximum Reverse Leakage at V_{RWM} I_R(μA)	Maximum Reverse Current I_{RSM} (A)	Maximum Clamping Voltage V_{RWM} (V)	Maximum Temperature Coefficient of V_{BR} (%C)
	V_{BR} (V)		@I_T(mA)					
	MIN.	MAX.						
1.5KE68(C)-G	61.2	74.8	1.0	55.1	5.0	15.3	98.0	0.104
1.5KE68(C)A-G	64.6	71.4	1.0	58.1	5.0	16.3	92.0	0.104
1.5KE75(C)-G	67.5	82.5	1.0	60.7	5.0	13.9	108.0	0.105
1.5KE75(C)A-G	71.3	78.8	1.0	64.1	5.0	14.6	103.0	0.105
1.5KE82(C)-G	73.8	90.2	1.0	66.4	5.0	12.7	118.0	0.105
1.5KE82(C)A-G	77.9	86.1	1.0	70.1	5.0	13.3	113.0	0.105
1.5KE91(C)-G	81.9	100.0	1.0	73.7	5.0	11.4	131.8	0.106
1.5KE91(C)A-G	86.5	95.5	1.0	77.8	5.0	12.0	125.0	0.106
1.5KE100(C)-G	90.0	110.0	1.0	81.0	5.0	10.4	144.0	0.106
1.5KE100(C)A-G	95.0	105.0	1.0	85.5	5.0	11.0	137.0	0.106
1.5KE110(C)-G	99.0	121.0	1.0	89.2	5.0	9.5	158.0	0.107
1.5KE110(C)A-G	106.0	116.0	1.0	94.0	5.0	9.9	152.0	0.107
1.5KE120(C)-G	108.0	132.0	1.0	97.2	5.0	8.7	173.0	0.107
1.5KE120(C)A-G	114.0	126.0	1.0	102.0	5.0	9.1	165.0	0.107
1.5KE130(C)-G	117.0	143.0	1.0	106.0	5.0	8.0	187.0	0.107
1.5KE130(C)A-G	124.0	137.0	1.0	111.0	5.0	8.4	179.0	0.107
1.5KE150(C)-G	136.0	165.0	1.0	121.0	5.0	7.0	215.0	0.108
1.5KE150(C)A-G	143.0	158.0	1.0	128.0	5.0	7.2	207.0	0.108
1.5KE160(C)-G	144.0	176.0	1.0	130.0	5.0	6.5	230.0	0.108
1.5KE160(C)A-G	152.0	168.0	1.0	136.0	5.0	6.8	219.0	0.108
1.5KE170(C)-G	153.0	187.0	1.0	138.0	5.0	6.2	244.0	0.108
1.5KE170(C)A-G	162.0	179.0	1.0	145.0	5.0	6.4	234.0	0.108
1.5KE180(C)-G	162.0	198.0	1.0	146.0	5.0	5.8	258.0	0.108
1.5KE180(C)A-G	171.0	189.0	1.0	154.0	5.0	6.1	246.0	0.108
1.5KE200(C)-G	180.0	220.0	1.0	162.0	5.0	5.2	287.0	0.108
1.5KE200(C)A-G	190.0	210.0	1.0	171.0	5.0	5.5	274.0	0.108
1.5KE220(C)-G	196.0	242.0	1.0	175.0	5.0	4.40	344.0	0.108
1.5KE220(C)A-G	209.0	231.0	1.0	185.0	5.0	4.60	328.0	0.108
1.5KE250(C)-G	225.0	275.0	1.0	202.0	5.0	4.20	360.0	0.110
1.5KE250(C)A-G	237.0	263.0	1.0	214.0	5.0	4.40	344.0	0.110
1.5KE300(C)-G	270.0	330.0	1.0	243.0	5.0	3.20	430.0	0.110
1.5KE300(C)A-G	285.0	315.0	1.0	256.0	5.0	3.60	414.0	0.110
1.5KE350(C)-G	315.0	385.0	1.0	284.0	5.0	3.00	504.0	0.110
1.5KE350(C)A-G	333.0	368.0	1.0	300.0	5.0	3.10	482.0	0.110
1.5KE400(C)-G	360.0	440.0	1.0	324.0	5.0	2.60	574.0	0.110
1.5KE400(C)A-G	380.0	420.0	1.0	342.0	5.0	2.70	548.0	0.110
1.5KE440(C)-G	396.0	484.0	1.0	356.0	5.0	2..4	631.0	0.110
1.5KE440(C)A-G	418.0	462.0	1.0	376.0	5.0	2.50	602.0	0.110

NOTES:
1. V_{BR} measured after I_T applied for 300μS, I_T=square wave pulse or equivalent.
2. Surge current wave form per fig.3 and derated per fig.2.
3. V_F=3.5V at I_F=50A (P6KE6.8-G thru P6KE91A-G
   V_F=5.0V at I_F=50A (p6KE100-G thru P6KE400A-G on ½ square or equivalent sine wave.
   P_W=8.3mS, duty cycle=4 pulses per minute max..
4. For bipolar types having V_{RWM} of 10 Volts and under, the I_R limit is doubled.

RATING AND CHARACTERISTIC CURVES (1.5KE-G Series)

Fig.1 Peak Pulse Power Rating Curve

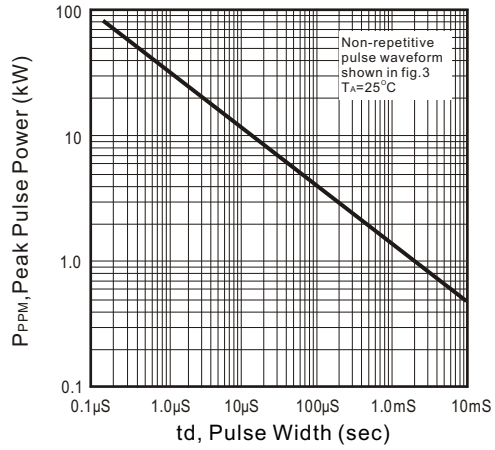


Fig.2 Pulse Derating Curve

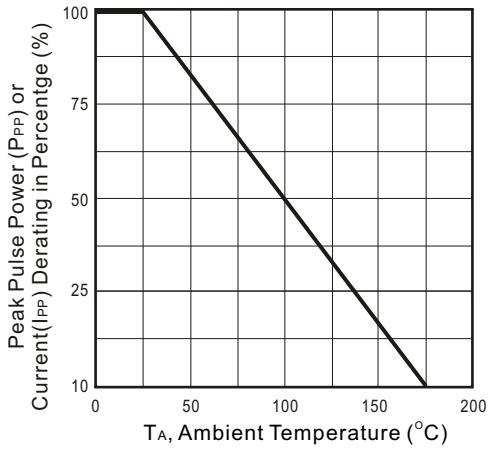


Fig.3 Pulse Wave Form

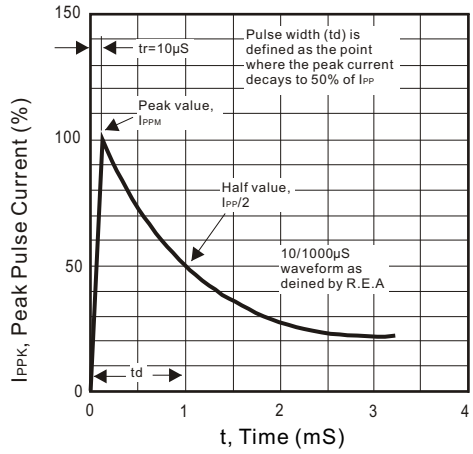


Fig.4 Typical Junction Capacitance
Unidirectional

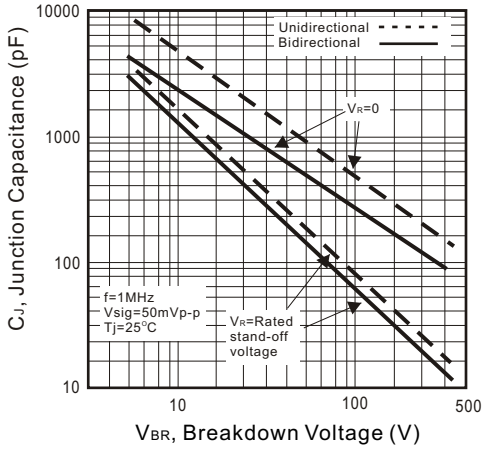


Fig.5 Steady State Power
Derating Curve

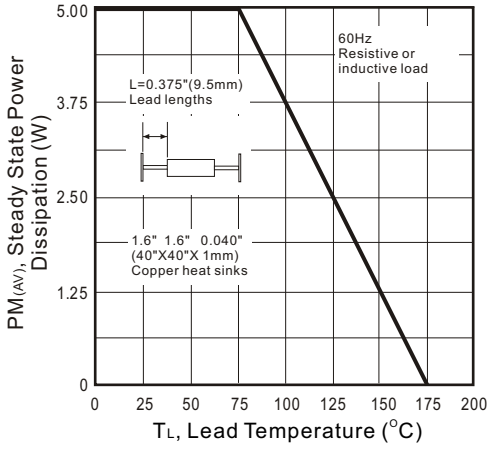
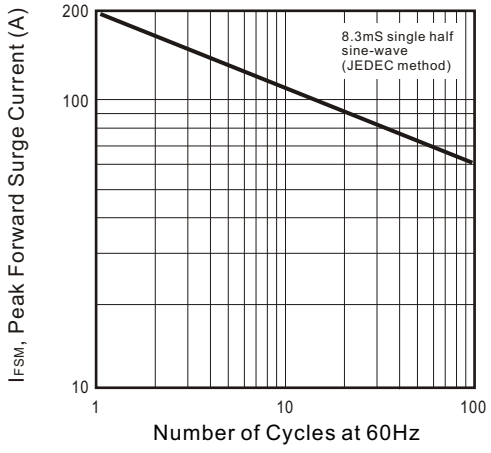


Fig.6 Maximum Non-repetitive
Forward Surge Current Unidirectional



RATING AND CHARACTERISTIC CURVES (1.5KE-G Series)

Fig.7 Incremental Clamping Voltage Curve
Unidirectional

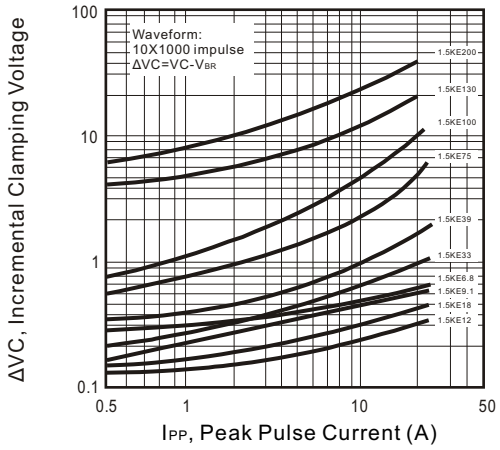


Fig.8 Incremental Clamping Voltage Curve
Unidirectional

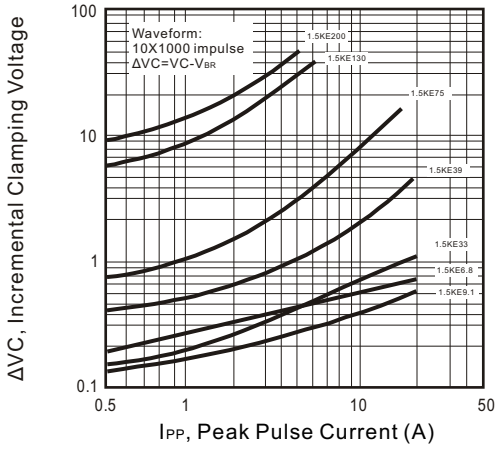


Fig.9 Incremental Clamping Voltage Curve
Bidirectional

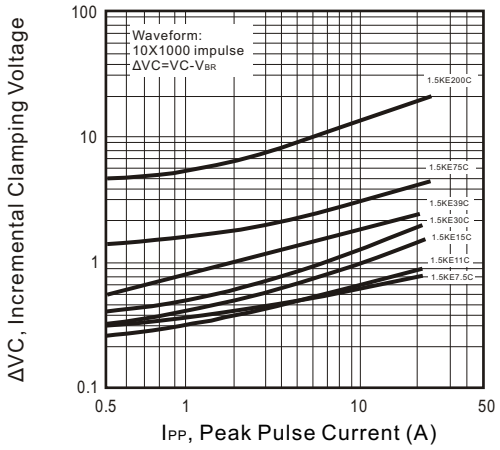


Fig.10 Incremental Clamping Voltage Curve
Bidirectional

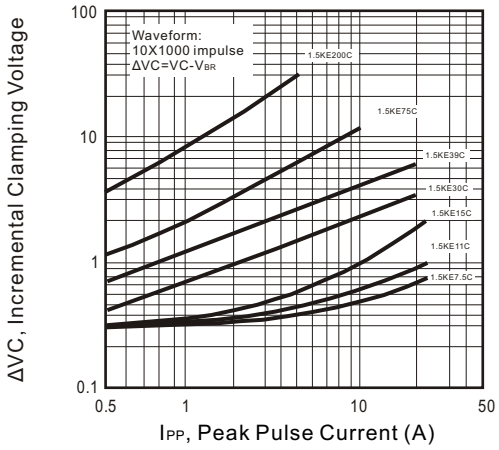


Fig.11 Instantaneous Forward Voltage
Characteristics Curve

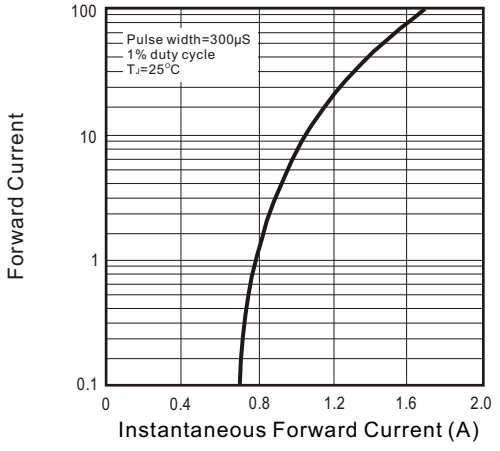


Fig.12 Breakdown Voltage Temperature
Coefficient Curve