

# 3KE13C SERIES

**V<sub>BR</sub> : 13 - 440 Volts**

**PPK : 3000 Watts**

## FEATURES :

- \* 3000W surge capability at 1ms
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time : typically less than 1.0 ps from 0 volt to V<sub>BR(min.)</sub>
- \* Typical I<sub>R</sub> less than 1μA above 22V
- \* Pb / RoHS Free

## MECHANICAL DATA

- \* Case : DO-201 Molded plastic
- \* Epoxy : UL94V-O rate flame retardant
- \* Lead : Axial lead solderable per MIL-STD-202, method 208 guaranteed
- \* Mounting position : Any
- \* Weight : 0.93 grams

## DEVICES FOR UNIPOLAR APPLICATIONS

For uni-directional without C suffix  
 Electrical characteristics apply in both directions

## MAXIMUM RATINGS

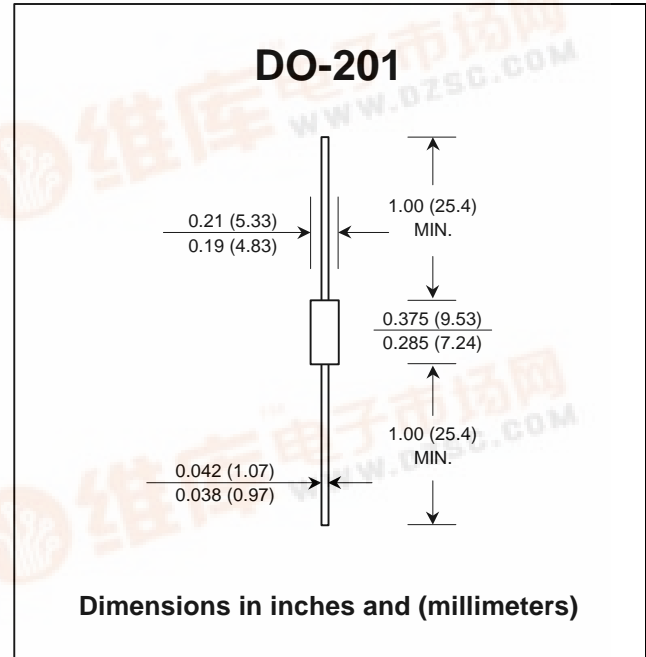
Rating at 25 °C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Unit
Peak Power Dissipation at Ta = 25 °C, Tp=1ms (Note1)	PPK	Minimum 3000	W
Steady State Power Dissipation at TL = 75 °C Lead Lengths 0.375", (9.5mm) (Note 2)	Pd	5.0	W
Operating and Storage Temperature Range	TJ, TSTG	- 65 to + 175	°C

### Note :

- (1) Non-repetitive Current pulse, per Fig. 2 and derated above Ta = 25 °C per Fig. 1
- (2) Mounted on Copper Leaf area of 1.57 in<sup>2</sup> (40mm<sup>2</sup>).
- (3) 8.3 ms single half sine-wave, duty cycle = 4 pulses per minutes maximum.

# BIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR



## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

TYPE	Breakdown Voltage @ $I_t$ ( Note 1 )		Working Peak Reverse Voltage	Maximum Reverse Leakage @ $V_{RWM}$	Maximum Reverse Current	Maximum Clamping Voltage @ $I_{RSM}$	Maximum Temperature Co-efficient of $V_{BR}$ (% / °C)	
	$V_{BR}$ (V)							$I_t$
	Min.	Max.	(mA)	(V)	( $\mu$ A)	(A)	(V)	
3KE13C	11.7	14.3	10	10.5	2000	158	19.0	0.081
3KE13CA	12.4	13.7	10	11.1	2000	164	18.2	0.081
3KE15C	13.5	16.5	10	12.1	1000	136	22.0	0.084
3KE15CA	14.3	15.8	10	12.8	1000	142	21.2	0.084
3KE16C	14.4	17.6	10	12.9	400	128	23.5	0.086
3KE16CA	15.2	16.8	10	13.6	400	134	22.5	0.086
3KE18C	16.2	19.8	1.0	14.5	100	113	26.5	0.088
3KE18CA	17.1	18.9	1.0	15.3	100	119	25.2	0.088
3KE20C	18.0	22.0	1.0	16.2	10	103	29.1	0.090
3KE20CA	19.0	21.0	1.0	17.1	10	108	27.7	0.090
3KE22C	19.8	24.2	1.0	17.8	5.0	94	31.9	0.092
3KE22CA	20.9	23.1	1.0	18.8	5.0	98	30.6	0.092
3KE24C	21.6	26.4	1.0	19.4	5.0	86	34.7	0.094
3KE24CA	22.8	25.2	1.0	20.5	5.0	90	33.2	0.094
3KE27C	24.3	29.7	1.0	21.8	5.0	77	39.1	0.096
3KE27CA	25.7	28.4	1.0	23.1	5.0	80	37.5	0.096
3KE30C	27.0	33.0	1.0	24.3	5.0	69	43.5	0.097
3KE30CA	28.5	31.5	1.0	25.6	5.0	72	41.4	0.097
3KE33C	29.7	36.3	1.0	26.8	5.0	63	47.7	0.098
3KE33CA	31.4	34.7	1.0	28.2	5.0	66	45.7	0.098
3KE36C	32.4	39.6	1.0	29.1	5.0	58	52.0	0.099
3KE36CA	34.2	37.8	1.0	30.8	5.0	60	49.9	0.099
3KE39C	35.1	42.9	1.0	31.6	5.0	53	56.4	0.100
3KE39CA	37.1	41.0	1.0	33.3	5.0	56	53.9	0.100
3KE43C	38.7	47.3	1.0	34.8	5.0	48	61.9	0.101
3KE43CA	40.9	45.2	1.0	36.8	5.0	51	59.3	0.101
3KE47C	42.3	51.7	1.0	38.1	5.0	44	67.8	0.101
3KE47CA	44.7	49.4	1.0	40.2	5.0	46	64.8	0.101
3KE51C	45.9	56.1	1.0	41.3	5.0	41	73.5	0.102
3KE51CA	48.5	53.6	1.0	43.6	5.0	43	70.1	0.102
3KE56C	50.4	61.6	1.0	45.4	5.0	37	80.5	0.103
3KE56CA	53.2	58.8	1.0	47.8	5.0	39	77.0	0.103
3KE62C	55.8	68.2	1.0	50.2	5.0	34	89.0	0.104
3KE62CA	58.9	65.1	1.0	53.0	5.0	35.4	85.0	0.104
3KE68C	61.2	74.8	1.0	55.1	5.0	30.6	98.0	0.104
3KE68CA	64.6	71.4	1.0	58.1	5.0	32.6	92.0	0.104
3KE75C	67.5	82.5	1.0	60.7	5.0	27.8	108	0.105
3KE75CA	71.3	78.8	1.0	64.1	5.0	29.2	103	0.105
3KE82C	73.8	90.2	1.0	66.4	5.0	25.4	118	0.105
3KE82CA	77.9	86.1	1.0	70.1	5.0	26.6	113	0.105

## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

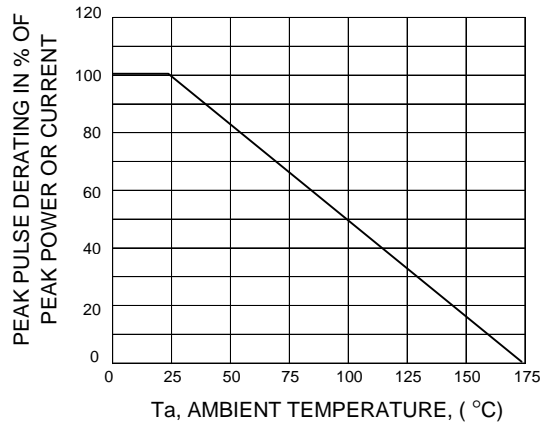
TYPE	Breakdown Voltage @ $I_t$ ( Note 1 )		Working Peak Reverse Voltage	Maximum Reverse Leakage @ $V_{RWM}$	Maximum Reverse Current	Maximum Clamping Voltage @ $I_{RSM}$	Maximum Temperature Co-efficient of $V_{BR}$ (% / °C)	
	$V_{BR}$ (V)							$I_t$
	Min.	Max.	(mA)	(V)	( $\mu$ A)	(A)	(V)	
3KE91C	81.9	100	1.0	73.7	5.0	22.8	131	0.106
3KE91CA	86.5	95.5	1.0	77.8	5.0	24.0	125	0.106
3KE100C	90.0	110	1.0	81.0	5.0	20.8	144	0.106
3KE100CA	95.0	105	1.0	85.5	5.0	22.0	137	0.106
3KE110C	99.0	121	1.0	89.2	5.0	19.0	158	0.107
3KE110CA	105	116	1.0	94.0	5.0	19.8	152	0.107
3KE120C	108	132	1.0	97.2	5.0	17.4	173	0.107
3KE120CA	114	126	1.0	102	5.0	18.2	165	0.107
3KE130C	117	143	1.0	105	5.0	16.0	187	0.107
3KE130CA	124	137	1.0	111	5.0	16.8	179	0.107
3KE150C	135	165	1.0	121	5.0	14.0	215	0.108
3KE150CA	143	158	1.0	128	5.0	14.4	207	0.108
3KE160C	144	176	1.0	130	5.0	13.0	230	0.108
3KE160CA	152	168	1.0	136	5.0	13.6	219	0.108
3KE170C	153	187	1.0	138	5.0	12.4	244	0.108
3KE170CA	162	179	1.0	145	5.0	12.8	234	0.108
3KE180C	162	198	1.0	146	5.0	11.6	258	0.108
3KE180CA	171	189	1.0	154	5.0	12.2	246	0.108
3KE200C	180	220	1.0	162	5.0	10.4	287	0.108
3KE200CA	190	210	1.0	171	5.0	11.0	274	0.108
3KE220C	198	242	1.0	175	5.0	8.6	344	0.108
3KE220CA	209	231	1.0	185	5.0	9.2	328	0.108
3KE250C	225	275	1.0	202	5.0	10	360	0.110
3KE250CA	237	263	1.0	214	5.0	10	344	0.110
3KE300C	270	330	1.0	243	5.0	10	430	0.110
3KE300CA	285	315	1.0	256	5.0	10	414	0.110
3KE350C	315	385	1.0	284	5.0	8.0	504	0.110
3KE350CA	332	368	1.0	300	5.0	8.0	482	0.110
3KE400C	360	440	1.0	324	5.0	8.0	574	0.110
3KE400CA	380	420	1.0	342	5.0	8.0	548	0.110
3KE440C	396	484	1.0	356	5.0	4.8	631	0.110
3KE440CA	418	462	1.0	376	5.0	5.0	602	0.110

**Note:**

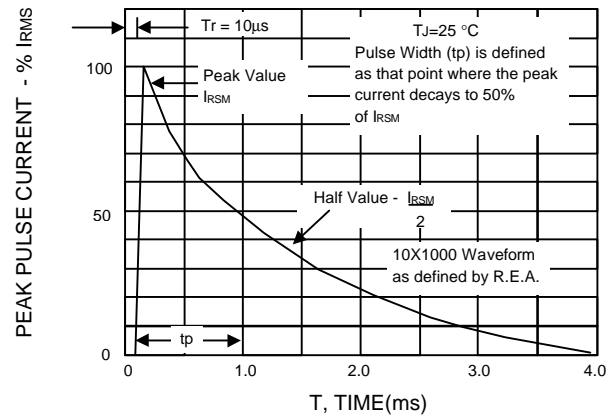
( 1 )  $V_{BR}$  measured after  $I_t$  applied for 300  $\mu$ s.,  $I_t$  = square wave pulse or equivalent.

## RATING AND CHARACTERISTIC CURVES ( 3KE13C SERIES )

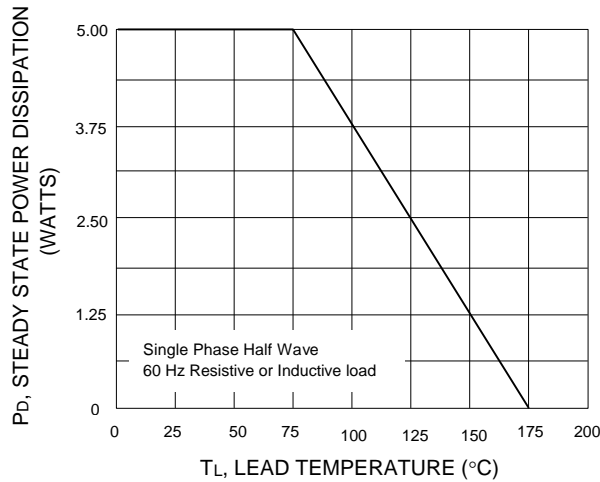
**FIG.1 - PULSE DERATING CURVE**



**FIG.2 - PULSE WAVEFORM**



**FIG.3 - STEADY STATE POWER DERATING**



**FIG.4 - PULSE RATING CURVE**

