

# 1.5KE6.8CS SERIES

# BIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR

**V<sub>BR</sub> : 6.8 - 440 Volts**

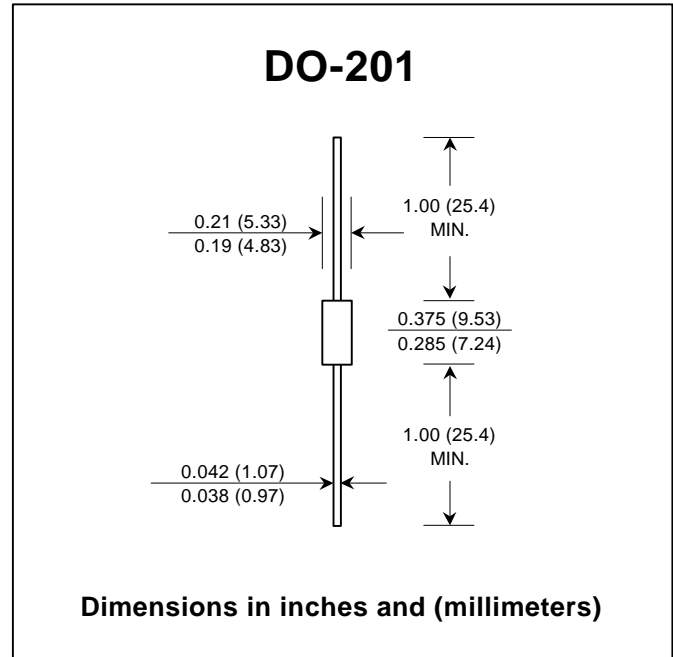
**PPK : 1500 Watts**

## FEATURES :

- \* 1500W 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 10V

## 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 gram



## DEVICES FOR UNIPOLAR APPLICATIONS

For uni-directional without "C"

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 1500	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 0.79 in<sup>2</sup> (20mm<sup>2</sup>).

## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

TYPE	Breakdown Voltage @ It ( Note 1 )		Working Peak Reverse Voltage	Maximum Reverse Leakage @ VRWM	Maximum Reverse Current	Maximum Clamping Voltage @ IRSM	Maximum Temperature Co-efficient of VBR	
	VBR (V)							VRWM
	Min.	Max.	(mA)	(V)	(µA)	(A)	(V)	(% / °C)
1.5KE6.8CS	6.12	7.48	10	5.50	2000	139	10.8	0.057
1.5KE6.8CAS	6.45	7.14	10	5.80	2000	143	10.5	0.057
1.5KE7.5CS	6.75	8.25	10	6.05	1000	128	11.7	0.061
1.5KE7.5CAS	7.13	7.88	10	6.40	1000	132	11.3	0.061
1.5KE8.2CS	7.38	9.02	10	6.63	400	120	12.5	0.065
1.5KE8.2CAS	7.79	8.61	10	7.02	400	124	12.1	0.065
1.5KE9.1CS	8.19	10.0	1.0	7.37	100	109	13.8	0.068
1.5KE9.1CAS	8.65	9.55	1.0	7.78	100	112	13.4	0.068
1.5KE10CS	9.00	11.0	1.0	8.10	10	100	15.0	0.073
1.5KE10CAS	9.50	10.5	1.0	8.55	10	103	14.5	0.073
1.5KE11CS	9.90	12.1	1.0	8.92	10	93.0	16.2	0.075
1.5KE11CAS	10.5	11.6	1.0	9.40	10	96.0	15.6	0.075
1.5KE12CS	10.8	13.2	1.0	9.72	5.0	87.0	17.3	0.078
1.5KE12CAS	11.4	12.6	1.0	10.2	5.0	90.0	16.7	0.078
1.5KE13CS	11.7	14.3	1.0	10.5	5.0	79.0	19.0	0.081
1.5KE13CAS	12.4	13.7	1.0	11.1	5.0	82.0	18.2	0.081
1.5KE15CS	13.5	16.5	1.0	12.1	5.0	68.0	22.0	0.084
1.5KE15CAS	14.3	15.8	1.0	12.8	5.0	71.0	21.2	0.084
1.5KE16CS	14.4	17.6	1.0	12.9	5.0	64.0	23.5	0.086
1.5KE16CAS	15.2	16.8	1.0	13.6	5.0	67.0	22.5	0.086
1.5KE18CS	16.2	19.8	1.0	14.5	5.0	56.5	26.5	0.088
1.5KE18CAS	17.1	18.9	1.0	15.3	5.0	59.5	25.2	0.088
1.5KE20CS	18.0	22.0	1.0	16.2	5.0	51.5	29.1	0.090
1.5KE20CAS	19.0	21.0	1.0	17.1	5.0	54.0	27.7	0.090
1.5KE22CS	19.8	24.2	1.0	17.8	5.0	47.0	31.9	0.092
1.5KE22CAS	20.9	23.1	1.0	18.8	5.0	49.0	30.6	0.092
1.5KE24CS	21.6	26.4	1.0	19.4	5.0	43.0	34.7	0.094
1.5KE24CAS	22.8	25.2	1.0	20.5	5.0	45.0	33.2	0.094
1.5KE27CS	24.3	29.7	1.0	21.8	5.0	38.5	39.1	0.096
1.5KE27CAS	25.7	28.4	1.0	23.1	5.0	40.0	37.5	0.096
1.5KE30CS	27.0	33.0	1.0	24.3	5.0	34.5	43.5	0.097
1.5KE30CAS	28.5	31.5	1.0	25.6	5.0	36.0	41.4	0.097
1.5KE33CS	29.7	36.3	1.0	26.8	5.0	31.5	47.7	0.098
1.5KE33CAS	31.4	34.7	1.0	28.2	5.0	33.0	45.7	0.098
1.5KE36CS	32.4	39.6	1.0	29.1	5.0	29.0	52.0	0.099
1.5KE36CAS	34.2	37.8	1.0	30.8	5.0	30.0	49.9	0.099
1.5KE39CS	35.1	42.9	1.0	31.6	5.0	26.5	56.4	0.100
1.5KE39CAS	37.1	41.0	1.0	33.3	5.0	28.0	53.9	0.100
1.5KE43CS	38.7	47.3	1.0	34.8	5.0	24.0	61.9	0.101
1.5KE43CAS	40.9	45.2	1.0	36.8	5.0	25.3	59.3	0.101
1.5KE47CS	42.3	51.7	1.0	38.1	5.0	22.2	67.8	0.101
1.5KE47CAS	44.7	49.4	1.0	40.2	5.0	23.2	64.8	0.101
1.5KE51CS	45.9	56.1	1.0	41.3	5.0	20.4	73.5	0.102
1.5KE51CAS	48.5	53.6	1.0	43.6	5.0	21.4	70.1	0.102
1.5KE56CS	50.4	61.6	1.0	45.4	5.0	18.6	80.5	0.103
1.5KE56CAS	53.2	58.8	1.0	47.8	5.0	19.5	77.0	0.103
1.5KE62CS	55.8	68.2	1.0	50.2	5.0	16.9	89.0	0.104
1.5KE62CAS	58.9	65.1	1.0	53.0	5.0	17.7	85.0	0.104

## 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)						
	Min.	Max.	(mA)	(V)	( $\mu$ A)	(A)	(V)

1.5KE68CS	61.2	74.8	1.0	55.1	5.0	15.3	98.0	0.104
1.5KE68CAS	64.6	71.4	1.0	58.1	5.0	16.3	92.0	0.104
1.5KE75CS	67.5	82.5	1.0	60.7	5.0	13.9	108	0.105
1.5KE75CAS	71.3	78.8	1.0	64.1	5.0	14.6	103	0.105
1.5KE82CS	73.8	90.2	1.0	66.4	5.0	12.7	118	0.105
1.5KE82CAS	77.9	86.1	1.0	70.1	5.0	13.3	113	0.105
1.5KE91CS	81.9	100	1.0	73.7	5.0	11.4	131	0.106
1.5KE91CAS	86.5	95.5	1.0	77.8	5.0	12.0	125	0.106
1.5KE100CS	90.0	110	1.0	81.0	5.0	10.4	144	0.106
1.5KE100CAS	95.0	105	1.0	85.5	5.0	11.0	137	0.106
1.5KE110CS	99.0	121	1.0	89.2	5.0	9.5	158	0.107
1.5KE110CAS	105	116	1.0	94.0	5.0	9.9	152	0.107
1.5KE120CS	108	132	1.0	97.2	5.0	8.7	173	0.107
1.5KE120CAS	114	126	1.0	102	5.0	9.1	165	0.107
1.5KE130CS	117	143	1.0	105	5.0	8.0	187	0.107
1.5KE130CAS	124	137	1.0	111	5.0	8.4	179	0.107
1.5KE150CS	135	165	1.0	121	5.0	7.0	215	0.108
1.5KE150CAS	143	158	1.0	128	5.0	7.2	207	0.108
1.5KE160CS	144	176	1.0	130	5.0	6.5	230	0.108
1.5KE160CAS	152	168	1.0	136	5.0	6.8	219	0.108
1.5KE170CS	153	187	1.0	138	5.0	6.2	244	0.108
1.5KE170CAS	162	179	1.0	145	5.0	6.4	234	0.108
1.5KE180CS	162	198	1.0	146	5.0	5.8	258	0.108
1.5KE180CAS	171	189	1.0	154	5.0	6.1	246	0.108
1.5KE200CS	180	220	1.0	162	5.0	5.2	287	0.108
1.5KE200CAS	190	210	1.0	171	5.0	5.5	274	0.108
1.5KE220CS	198	242	1.0	175	5.0	4.3	344	0.108
1.5KE220CAS	209	231	1.0	185	5.0	4.6	328	0.108
1.5KE250CS	225	275	1.0	202	5.0	5.0	360	0.110
1.5KE250CAS	237	263	1.0	214	5.0	5.0	344	0.110
1.5KE300CS	270	330	1.0	243	5.0	5.0	430	0.110
1.5KE300CAS	285	315	1.0	256	5.0	5.0	414	0.110
1.5KE350CS	315	385	1.0	284	5.0	4.0	504	0.110
1.5KE350CAS	332	368	1.0	300	5.0	4.0	482	0.110
1.5KE400CS	360	440	1.0	324	5.0	4.0	574	0.110
1.5KE400CAS	380	420	1.0	342	5.0	4.0	548	0.110
1.5KE440CS	396	484	1.0	356	5.0	2.38	631	0.110
1.5KE440CAS	418	462	1.0	376	5.0	2.50	602	0.110

**Note:**

- ( 1 )  $V_{BR}$  measured after  $I_t$  applied for 300  $\mu$ s.,  $I_t$  = square wave pulse or equivalent.
- ( 2 ) "1.5" will be omitted in marking on the diode.

## RATING AND CHARACTERISTIC CURVES ( 1.5KE6.8CS SERIES )

FIG.1 - PULSE DERATING CURVE

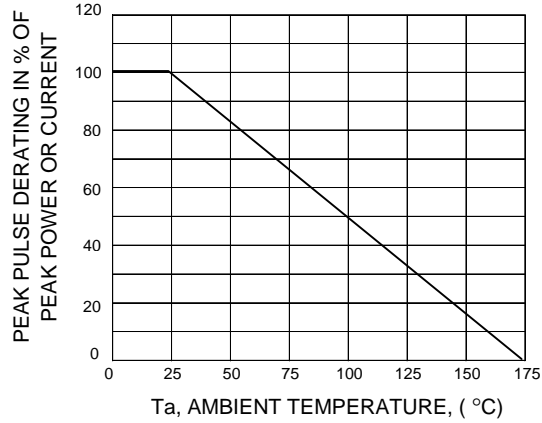


FIG.2 - PULSE WAVEFORM

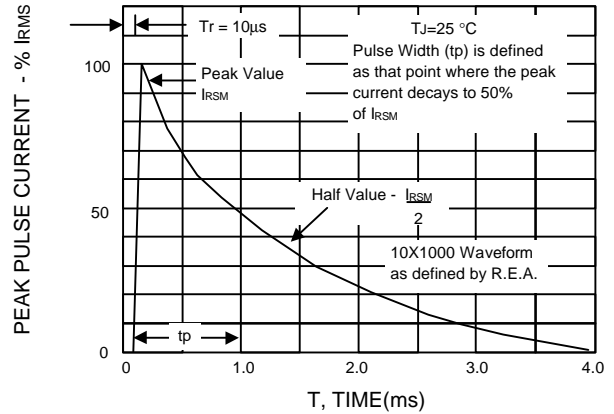


FIG.3 - STEADY STATE POWER DERATING

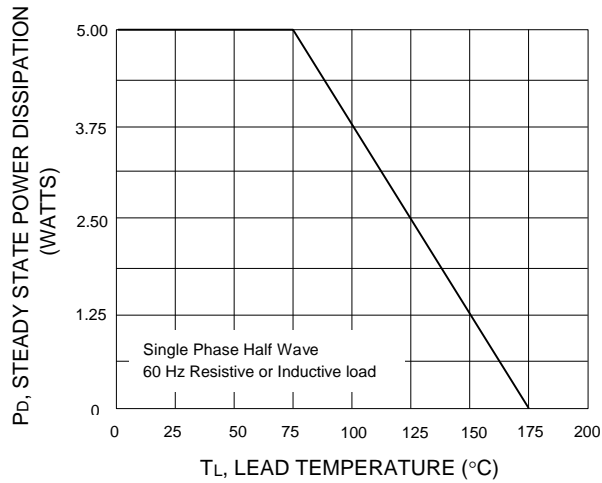


FIG.4 - PULSE RATING CURVE

