Certificate Number: Q10561

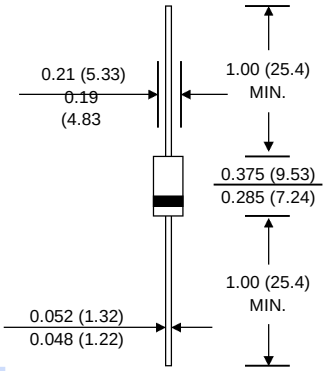
Certificate Number: E17276

1.5KE SERIES - L

TRANSIENT VOLTAGE SUPPRESSOR

V_{BR} : 6.8 - 440 Volts
P_{PK} : 1500 Watts

DO-201AD



Dimensions in inches and (millimeters)

FEATURES :

* 1500W surge capability at 1ms
* Excellent clamping capability
* Low zener impedance
* Fast response time : typically less then 1.0 ps from 0 volt to $V_{BR(min.)}$
* Typical I_R less then 1μA above 10V
* Pb / RoHS Free

MECHANICAL DATA

* Case : DO-201AD Molded plastic
* Epoxy : UL94V-O rate flame retardant
* Lead : Axial lead solderable per MIL-STD-202, method 208 guaranteed
* Mounting position : Any
* Weight : 1.21 grams

DEVICES FOR BIPOLAR APPLICATIONS

For Bi-directional use CS or CAS 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)	P_{PK}	Minimum 1500	W
Steady State Power Dissipation at T_L = 75 °C Lead Lengths 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 and Storage Temperature Range	T_J, T_{STG}	- 65 to + 175	°C

Notes :

(1) Non-repetitive Current pulse, per Fig. 5 and derated above Ta = 25 °C per Fig. 1
(2) Mounted on Copper Leaf area of 0.79 in^2 (20mm^2).
(3) 8.3 ms single half sine-wave, duty cycle = 4 pulses per minutes maximum.

ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

TYPE	Breakdown Voltage @ It (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}
	V_{BR} (V)		It	V_{RWM}	I_R	I_{RSM}	V_{RSM}	
	Min.	Max.	(mA)	(V)	(µA)	(A)	(V)	(% / °C)
1.5KE6.8L	6.12	7.48	10	5.50	1000	139	10.8	0.057
1.5KE6.8AL	6.45	7.14	10	5.80	1000	143	10.5	0.057
1.5KE7.5L	6.75	8.25	10	6.05	500	128	11.7	0.061
1.5KE7.5AL	7.13	7.88	10	6.40	500	132	11.3	0.061
1.5KE8.2L	7.38	9.02	10	6.63	200	120	12.5	0.065
1.5KE8.2AL	7.79	8.61	10	7.02	200	124	12.1	0.065
1.5KE9.1L	8.19	10.0	1.0	7.37	50	109	13.8	0.068
1.5KE9.1AL	8.65	9.55	1.0	7.78	50	112	13.4	0.068
1.5KE10L	9.00	11.0	1.0	8.10	10	100	15.0	0.073
1.5KE10AL	9.50	10.5	1.0	8.55	10	103	14.5	0.073
1.5KE11L	9.90	12.1	1.0	8.92	5.0	93.0	16.2	0.075
1.5KE11AL	10.5	11.6	1.0	9.40	5.0	96.0	15.6	0.075
1.5KE12L	10.8	13.2	1.0	9.72	5.0	87.0	17.3	0.078
1.5KE12AL	11.4	12.6	1.0	10.2	5.0	90.0	16.7	0.078
1.5KE13L	11.7	14.3	1.0	10.5	5.0	79.0	19.0	0.081
1.5KE13AL	12.4	13.7	1.0	11.1	5.0	82.0	18.2	0.081
1.5KE15L	13.5	16.5	1.0	12.1	5.0	68.0	22.0	0.084
1.5KE15AL	14.3	15.8	1.0	12.8	5.0	71.0	21.2	0.084
1.5KE16L	14.4	17.6	1.0	12.9	5.0	64.0	23.5	0.086
1.5KE16AL	15.2	16.8	1.0	13.6	5.0	67.0	22.5	0.086
1.5KE18L	16.2	19.8	1.0	14.5	5.0	56.5	26.5	0.088
1.5KE18AL	17.1	18.9	1.0	15.3	5.0	59.5	25.2	0.088
1.5KE20L	18.0	22.0	1.0	16.2	5.0	51.5	29.1	0.090
1.5KE20AL	19.0	21.0	1.0	17.1	5.0	54.0	27.7	0.090
1.5KE22L	19.8	24.2	1.0	17.8	5.0	47.0	31.9	0.092
1.5KE22AL	20.9	23.1	1.0	18.8	5.0	49.0	30.6	0.092
1.5KE24L	21.6	26.4	1.0	19.4	5.0	43.0	34.7	0.094
1.5KE24AL	22.8	25.2	1.0	20.5	5.0	45.0	33.2	0.094
1.5KE27L	24.3	29.7	1.0	21.8	5.0	38.5	39.1	0.096
1.5KE27AL	25.7	28.4	1.0	23.1	5.0	40.0	37.5	0.096
1.5KE30L	27.0	33.0	1.0	24.3	5.0	34.5	43.5	0.097
1.5KE30AL	28.5	31.5	1.0	25.6	5.0	36.0	41.4	0.097
1.5KE33L	29.7	36.3	1.0	26.8	5.0	31.5	47.7	0.098
1.5KE33AL	31.4	34.7	1.0	28.2	5.0	33.0	45.7	0.098
1.5KE36L	32.4	39.6	1.0	29.1	5.0	29.0	52.0	0.099
1.5KE36AL	34.2	37.8	1.0	30.8	5.0	30.0	49.9	0.099
1.5KE39L	35.1	42.9	1.0	31.6	5.0	26.5	56.4	0.100
1.5KE39AL	37.1	41.0	1.0	33.3	5.0	28.0	53.9	0.100
1.5KE43L	38.7	47.3	1.0	34.8	5.0	24.0	61.9	0.101
1.5KE43AL	40.9	45.2	1.0	36.8	5.0	25.3	59.3	0.101
1.5KE47L	42.3	51.7	1.0	38.1	5.0	22.2	67.8	0.101
1.5KE47AL	44.7	49.4	1.0	40.2	5.0	23.2	64.8	0.101
1.5KE51L	45.9	56.1	1.0	41.3	5.0	20.4	73.5	0.102
1.5KE51AL	48.5	53.6	1.0	43.6	5.0	21.4	70.1	0.102
1.5KE56L	50.4	61.6	1.0	45.4	5.0	18.6	80.5	0.103
1.5KE56AL	53.2	58.8	1.0	47.8	5.0	19.5	77.0	0.103
1.5KE62L	55.8	68.2	1.0	50.2	5.0	16.9	89.0	0.104
1.5KE62AL	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 @ It (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}
	V_{BR} (V)		It	V_{RWM}	I_R	I_{RSM}	V_{RSM}	
	Min.	Max.	(mA)	(V)	(µA)	(A)	(V)	(% / °C)
1.5KE68L	61.2	74.8	1.0	55.1	5.0	15.3	98.0	0.104
1.5KE68AL	64.6	71.4	1.0	58.1	5.0	16.3	92.0	0.104
1.5KE75L	67.5	82.5	1.0	60.7	5.0	13.9	108	0.105
1.5KE75AL	71.3	78.8	1.0	64.1	5.0	14.6	103	0.105
1.5KE82L	73.8	90.2	1.0	66.4	5.0	12.7	118	0.105
1.5KE82AL	77.9	86.1	1.0	70.1	5.0	13.3	113	0.105
1.5KE91L	81.9	100	1.0	73.7	5.0	11.4	131	0.106
1.5KE91AL	86.5	95.5	1.0	77.8	5.0	12.0	125	0.106
1.5KE100L	90.0	110	1.0	81.0	5.0	10.4	144	0.106
1.5KE100AL	95.0	105	1.0	85.5	5.0	11.0	137	0.106
1.5KE110L	99.0	121	1.0	89.2	5.0	9.5	158	0.107
1.5KE110AL	105	116	1.0	94.0	5.0	9.9	152	0.107
1.5KE120L	108	132	1.0	97.2	5.0	8.7	173	0.107
1.5KE120AL	114	126	1.0	102	5.0	9.1	165	0.107
1.5KE130L	117	143	1.0	105	5.0	8.0	187	0.107
1.5KE130AL	124	137	1.0	111	5.0	8.4	179	0.107
1.5KE150L	135	165	1.0	121	5.0	7.0	215	0.108
1.5KE150AL	143	158	1.0	128	5.0	7.2	207	0.108
1.5KE160L	144	176	1.0	130	5.0	6.5	230	0.108
1.5KE160AL	152	168	1.0	136	5.0	6.8	219	0.108
1.5KE170L	153	187	1.0	138	5.0	6.2	244	0.108
1.5KE170AL	162	179	1.0	145	5.0	6.4	234	0.108
1.5KE180L	162	198	1.0	146	5.0	5.8	258	0.108
1.5KE180AL	171	189	1.0	154	5.0	6.1	246	0.108
1.5KE200L	180	220	1.0	162	5.0	5.2	287	0.108
1.5KE200AL	190	210	1.0	171	5.0	5.5	274	0.108
1.5KE220L	198	242	1.0	175	5.0	4.3	344	0.108
1.5KE220AL	209	231	1.0	185	5.0	4.6	328	0.108
1.5KE250L	225	275	1.0	202	5.0	5.0	360	0.110
1.5KE250AL	237	263	1.0	214	5.0	5.0	344	0.110
1.5KE300L	270	330	1.0	243	5.0	5.0	430	0.110
1.5KE300AL	285	315	1.0	256	5.0	5.0	414	0.110
1.5KE350L	315	385	1.0	284	5.0	4.0	504	0.110
1.5KE350AL	332	368	1.0	300	5.0	4.0	482	0.110
1.5KE400L	360	440	1.0	324	5.0	4.0	574	0.110
1.5KE400AL	380	420	1.0	342	5.0	4.0	548	0.110
1.5KE440L	396	484	1.0	356	5.0	2.38	631	0.110
1.5KE440AL	418	462	1.0	376	5.0	2.50	602	0.110

Notes :

(1) V_{BR} measured after It applied for 300 µs., It = square wave pulse or equivalent.

(2) V_F = 3.5 Vmax., I_F = 100 Amps. (6.8 Volts thru 91 Volts)
V_F = 5.0 Vmax., I_F = 100 Amps. (100 Volts thru 440 Volts) per 1/2 square or equivalent sine wave.
PW = 8.3 ms, duty cycle = 4 pulses per minute maximum.

(3) "1.5" will be omitted in marking on the diode.

RATING AND CHARACTERISTIC CURVES (1.5KE SERIES - L)

FIG.1 - PULSE DERATING CURVE

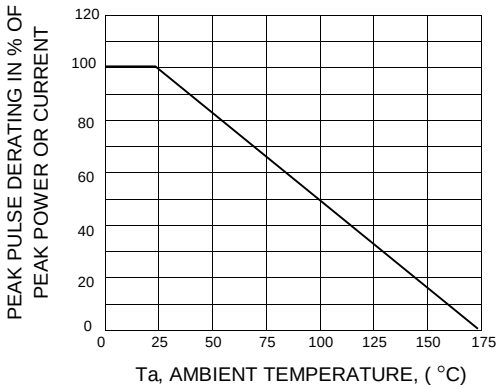


FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

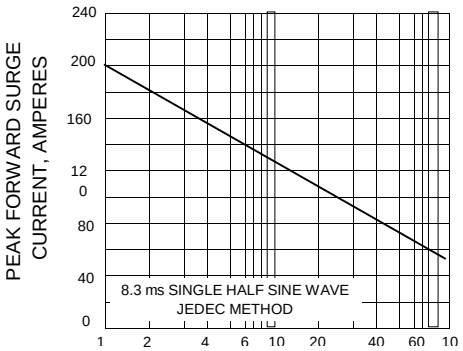


FIG.3 - STEADY STATE POWER DERATING

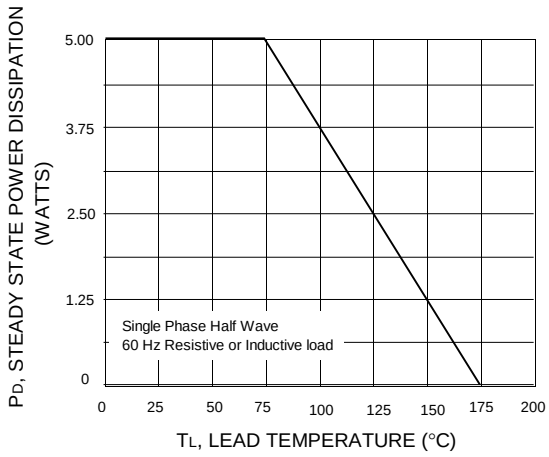


FIG.4 - PULSE RATING CURVE

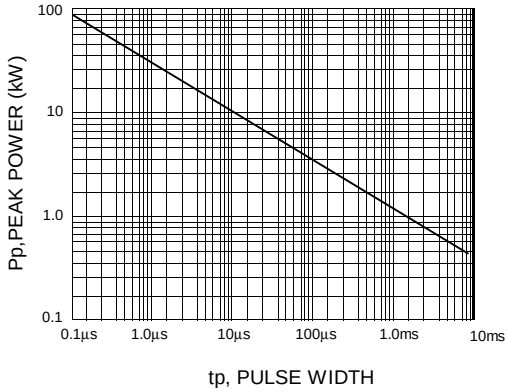


FIG.5 - PULSE WAVEFORM