



GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSORS

1.5KE6.8 THRU 1.5KE440CA(GPP)

Breakdown Voltage 6.8 to 440 Volts

1.5KE6.8J THRU 1.5KE440CAJ(OPEN JUNCTION)

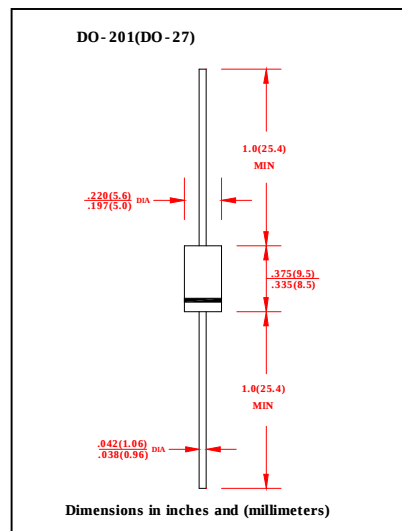
Peak Pulse Power 1500 Watts

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated junction or silastic guard junction (open junction)
- 1500W peak pulse power capability with a 10/1000 μ s Waveform, repetition rate (duty cycle): 0.05%
- Excellent clamping capability
- Low incremental surge resistance
- Fast response time: typically less than 1.0ps from 0 Volts to $V_{(BR)}$ for unidirectional and 5.0ns for bidirectional types
- Devices with $V_{(BR)} \geq 10V$, I_D are typically less than 1.0 μ A
- High temperature soldering guaranteed:
265°C/10 seconds, 0.375" (9.5mm) lead length, 51bs.(2.3kg) tension

MECHANICAL DATA

- Cass: molded plastic body over passivated junction
- Terminals: plated axial leads, solderable per MIL-STD-750, Method 2026
- Polarity: Color bands denotes positive end (cathode) except for bidirectional
- Mounting Position: any
- Weight: 0.045 ounces, 1.2 grams



DEVICES FOR BIDIRECTIONAL APPLICATIONS

- For bidirectional use C or CA suffix for types 1.5KE6.8 thru types 1.5K440 (e.g. 1.5KE6.8C, 1.5KE440CA).Electrical Characteristics apply in both directions.
- Suffix A denotes $\pm 5\%$ tolerance device, No suffix A denotes $\pm 10\%$ tolerance device

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

- Ratings at 25°C ambient temperature unless otherwise specified

Ratings	Symbols	Value	Unit
Peak Pulse power dissipation with a 10/1000 μ s waveform (NOTE1)	P _{PPM}	Minimum 400	Watts
Peak Pulse current with a 10/1000 μ s waveform (NOTE1,FIG.1)	I _{PPM}	See Table 1	Amps
Steady Stage Power Dissipation at T _L =75°C Lead lengths 0.375"(9.5mm)(Note2)	P _{M(AV)}	5.0	Watts
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) unidirectional only	I _{FSM}	200.0	Amps
Maximum instantaneous forward voltage at 100.0A for unidirectional only (NOTE 3)	V _F	3.5/5.0	Volts
Operating Junction and Storage Temperature Range	T _J , T _{STG}	50 to +150	°C

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25°C per Fig.2
2. Mounted on copper pads are of 0.8×0.8"(20×20mm) per Fig 5.
3. V_F=3.5 V for devices of V_(BR) ≤200V, and V_F=5.0 Volts max. for devices of V_(BR) >200v



GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSORS

1.5KE6.8 THRU 1.5KE440CA(GPP)

Breakdown Voltage 6.8 to 440 Volts

1.5KE6.8J THRU 1.5KE440CAJ(OPEN JUNCTION)

Peak Pulse Power 1500 Watts

Electrical Characteristic at (T_A =25°C unless otherwise noted) TABLE1

Device Type	Breakdown Voltage V _(BR) (Volts) (Note 1)		Test Current at I _r (mA)	Stand-off Voltage V _{WM} (Volts)	Maximum Reverse Leakage at V _{WM} I _D (μ A)	Maximum Peak Pulse Current I _{PPM} (Note 2) (Amps)	Maximum Clamping Voltage at I _{PPM} V _C (Volts)	Maximum Temperature Coefficient of V _(BR) (%/°C)
	MIN	MAX						
1.5KE6.8/J	6.12	7.48	10	5.5	1000	139	10.8	0.057
1.5KE6.8A/J	6.45	7.14	10	5.8	1000	143	10.5	0.057
1.5KE7.5/J	6.75	8.25	10	6.05	500	128	11.7	0.061
1.5KE7.5A/J	7.13	7.88	10	6.4	500	133	11.3	0.061
1.5KE8.2/J	7.38	9.02	10	6.63	200	120	12.5	0.065
1.5KE8.2A/J	7.79	8.61	10	7.02	200	124	12.1	0.065
1.5KE9.1/J	8.19	10	1	7.37	50	109	13.8	0.068
1.5KE9.1A/J	7.65	9.55	1	7.78	50	112	13.4	0.068
1.5KE10/J	9	11	1	8.1	10	100	15	0.073
1.5KE10A/J	9.5	10.5	1	8.55	10	103	14.5	0.073
1.5KE11/J	9.9	12.1	1	8.92	5	92.6	16.2	0.075
1.5KE11A/J	10.5	11.6	1	9.4	5	96.2	15.6	0.075
1.5KE12/J	10.8	13.2	1	9372	5	86.7	17.3	0.076
1.5KE12A/J	11.4	12.6	1	10.2	5	89.8	16.7	0.078
1.5KE13/J	11.7	14.3	1	10.5	5	78.9	19	0.081
1.5KE13A/J	12.4	13.7	1	11.1	5	82.4	18.2	0.081
1.5KE15/J	13.5	16.5	1	12.1	5	68.2	22	0.084
1.5KE15A/J	14.3	15.8	1	12.8	5	70.8	21.2	0.084
1.5KE16/J	14.4	17.6	1	12.9	5	63.8	23.5	0.086
1.5KE16A/J	15.2	16.8	1	13.6	5	66.7	22.5	0.086
1.5KE18/J	16.2	19.8	1	14.5	5	56.6	26.5	0.088
1.5KE18A/J	17.1	18.9	1	15.3	5	59.5	25.2	0.089
1.5KE20/J	18	22	1	16.2	5	51.5	29.1	0.09
1.5KE20A/J	19	21	1	17.1	5	54.2	27.7	0.09
1.5KE22/J	19.8	24.2	1	17.8	5	47	31.9	0.092
1.5KE22A/J	20.9	23.1	1	18.8	5	49	30.6	0.092
1.5KE24/J	21.6	26.4	1	19.4	5	43.2	34.7	0.094
1.5KE24A/J	22.8	25.2	1	20.5	5	45.2	33.2	0.094
1.5KE27/J	24.3	29.7	1	21.8	5	38.4	39.1	0.096
1.5KE27A/J	25.7	28.4	1	23.1	5	40	37.5	0.096
1.5KE30/J	27	33	1	24.3	5	34.5	43.5	0.097
1.5KE30A/J	28.5	31.5	1	25.6	5	36.2	41.4	0.097
1.5KE33/J	29.7	36.3	1	26.8	5	31.4	47.7	0.098
1.5KE33A/J	31.4	34.7	1	28.2	5	32.8	45.7	0.098
1.5KE36/J	32.4	39.6	1	29.1	5	28.8	52	0.099
1.5KE36A/J	34.2	37.8	1	30.8	5	30.1	49.9	0.099
1.5KE39/J	35.1	42.9	1	31.6	5	26.6	56.4	0.1
1.5KE39A/J	37.1	41	1	33.3	5	27.8	53.9	0.1
1.5KE43/J	38.7	47.3	1	34.8	5	24.2	61.9	0.101
1.5KE43A/J	40.9	45.2	1	36.8	5	25.3	59.3	0.101
1.5KE47/J	42.3	51.7	1	38.1	5	22.1	67.8	0.101
1.5KE47A/J	44.7	49.4	1	40.2	5	23.1	64.8	0.101
1.5KE51/J	45.7	56.1	1	41.3	5	20.4	73.5	0.102
1.5KE51A/J	48.5	43.6	1	43.6	5	21.4	70.1	0.102
1.5KE56/J	50.4	61.6	1	45.4	5	18.6	80.5	0.103
1.5KE56A/J	53.2	58.8	1	47.8	5	19.5	77	0.103
1.5KE62/J	55.8	68.8	1	50.2	5	16.9	89	0.104
1.5KE62A/J	58.9	65.1	1	53	5	17.6	85	0.104



GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSORS

1.5KE6.8 THRU 1.5KE440CA(GPP)

Breakdown Voltage 6.8 to 440 Volts

1.5KE6.8J THRU 1.5KE440CAJ(OPEN JUNCTION)

Peak Pulse Power 1500 Watts

Electrical Characteristic at (T_A =25°C unless otherwise noted) TABLE 1 (Cont'd)

Device Type	Breakdown Voltage V _(BR) (Volts) (Note 1)		Test Current at I _T (mA)	Stand-off Voltage V _{WM} (Volts)	Maximum Reverse Leakage at V _{WM} I _D (μ A) (Note3)	Maximum Peak Pulse Current I _{PPM} (Note 2) (Amps)	Maximum Clamping Voltage at I _{PPM} V _C (Volts)	Maximum Temperature Coefficient of V _(BR) (%/°C)
	MIN	MAX						
1.5KE68/J	61.2	74.8	1	55.1	5	15.3	98	0.104
1.5KE68A/J	64.6	71.4	1	58.1	5	16.3	92	0.104
1.5KE75/J	67.5	82.5	1	60.7	5	13.9	105	0.105
1.5KE75A/J	71.3	78.8	1	64.1	5	14.6	103	0.105
1.5KE82/J	73.8	90.2	1	66.4	5	12.7	118	0.105
1.5KE82A/J	77.9	86.1	1	70.1	5	13.3	113	0.105
1.5KE91/J	81.9	100	1	73.7	5	11.5	131	0.106
1.5KE91A/J	86.5	95.5	1	77.8	5	12	125	0.106
1.5KE100/J	90	110	1	81	5	10.4	144	0.106
1.5KE100A/J	95	105	1	85.5	5	10.9	137	0.106
1.5KE110/J	99	121	1	89.2	5	9.5	158	0.107
1.5KE110A/J	105	116	1	94	5	9.9	152	0.107
1.5KE120/J	108	132	1	97.2	5	8.7	173	0.107
1.5KE120A/J	114	126	1	102	5	9.1	165	0.107
1.5KE130/J	117	143	1	105	5	8	187	0.107
1.5KE130A/J	124	137	1	111	5	8.4	179	0.107
1.5KE150/J	135	165	1	121	5	7	215	0.108
1.5KE150A/J	143	159	1	128	5	7.2	207	0.108
1.5KE160/J	144	175	1	130	5	6.5	230	0.108
1.5KE160A/J	152	167	1	136	5	6.8	219	0.108
1.5KE170/J	153	187	1	138	5	6.1	244	0.108
1.5KE170A/J	162	179	1	145	5	6.4	234	0.108
1.5KE180/J	162	197	1	146	5	5.8	258	0.108
1.5KE180A/J	171	189	1	154	5	6.1	246	0.108
1.5KE200/J	180	220	1	162	5	5.2	287	0.108
1.5KE200A/J	190	210	1	171	5	5.5	274	0.108
1.5KE220/J	198	242	1	175	5	4.4	344	0.108
1.5KE220A/J	209	231	1	185	5	4.6	328	0.108
1.5KE250/J	25	275	1	202	5	4.2	360	0.11
1.5KE250A/J	237	267	1	214	5	4.4	344	0.11
1.5KE300/J	270	330	1	243	5	3.5	430	0.11
1.5KE300A/J	285	315	1	245	5	3.6	414	0.11
1.5KE350/J	315	385	1	284	5	3	504	0.11
1.5KE350A/J	332	368	1	300	5	3.1	482	0.11
1.5KE400/J	360	440	1	324	5	2.6	574	0.11
1.5KE400A/J	380	420	1	342	5	2.7	548	0.11
1.5KE440/J	396	484	1	356	5	2.4	631	0.11
1.5KE440A/J	418	462	1	376	5	2.5	602	0.11

Notes:/

- (1) V_(BR) measured after I_T applied for 300ms I_T =square wave pulse or equivalent
- (2) Surge current waveform per Figure 3 and derate per Fig.2
- (3) All terms and symbols are consistent with ANSI/IEEE C62.35
- (4) For bidirectional type having V_{WM} of 10 volts and less, the I_D limit is doubled



GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSORS

1.5KE6.8 THRU 1.5KE440CA(GPP)

Breakdown Voltage 6.8 to 440 Volts

1.5KE6.8J THRU 1.5KE440CAJ(OPEN JUNCTION)

Peak Pulse Power 1500 Watts

RATING AND CHARACTERISTIC CURVES 1.5KE6.8/J THRU 1.5KE440CA/J

FIG.1- PEAK PULSE POWER RATING CURVE

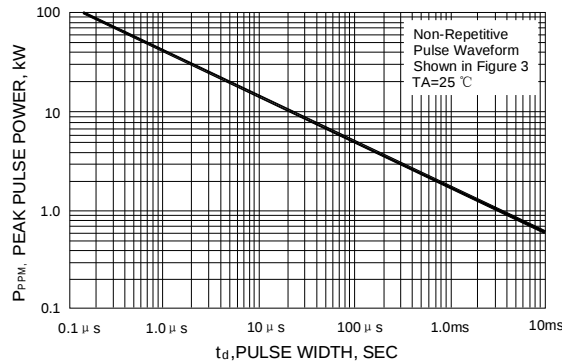


FIG.2- PULSE DERATING CURVE

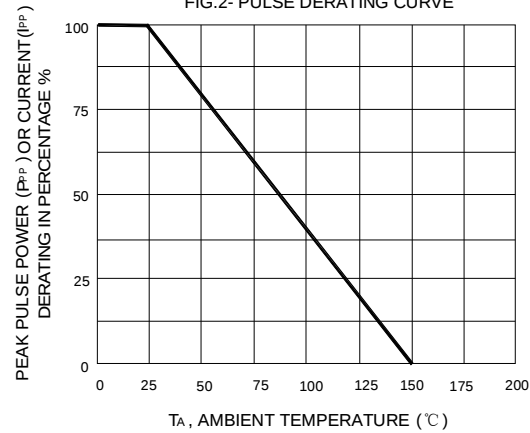


FIG.3- PULSE WAVEFORM

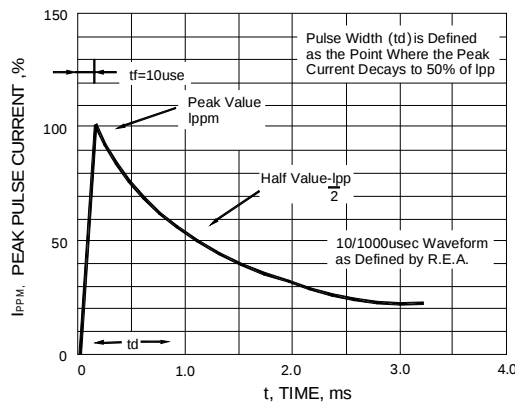


FIG.4- TYPICAL JUNCTION CAPACITANCE

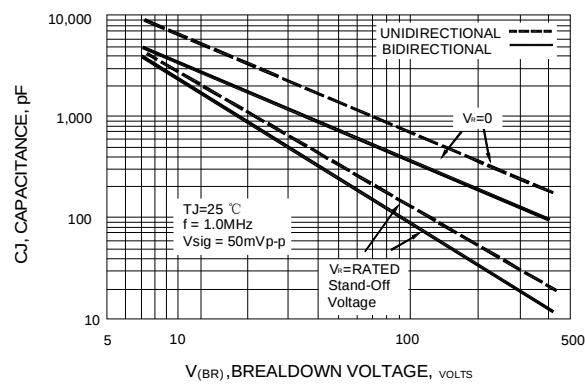


FIG.5- STEADY STATE POWER DERATING CURVE

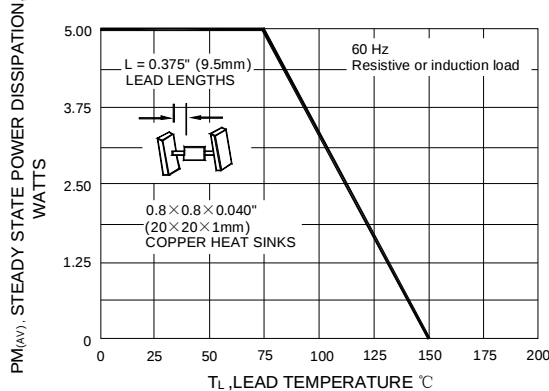
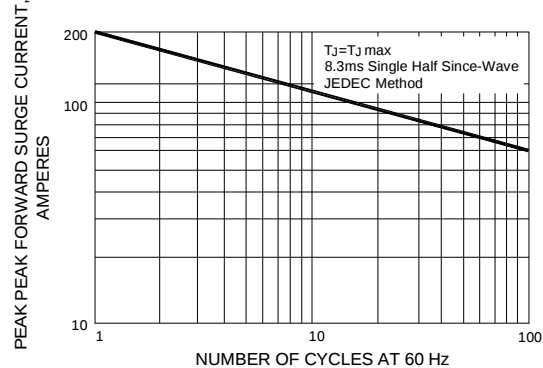


FIG.6 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY





GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSORS

1.5KE6.8 THRU 1.5KE440CA(GPP)

Breakdown Voltage 6.8 to 440 Volts

1.5KE6.8J THRU 1.5KE440CAJ(OPEN JUNCTION)

Peak Pulse Power 1500 Watts

RATING AND CHARACTERISTIC CURVES 1.5KE6.8/J THRU 1.5KE440CA/J

FIG.7- INCREMENTAL CLAMPING VOLTAGE CURVE
UNIDIRECTIONAL

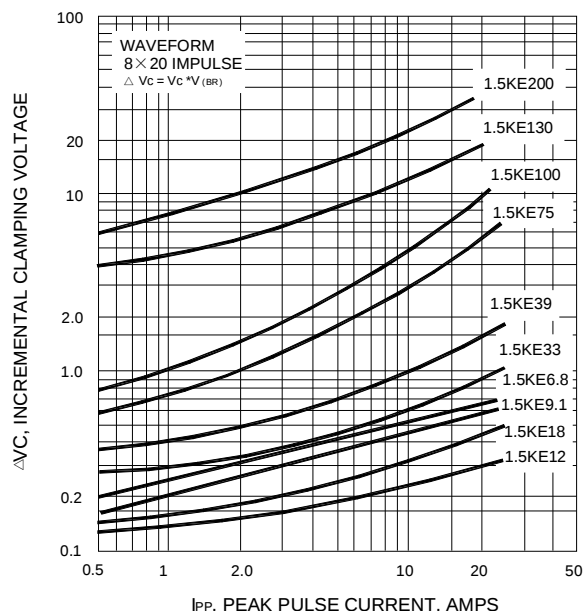


FIG.8- INCREMENTAL CLAMPING VOLTAGE CURVE
UNIDIRECTIONAL

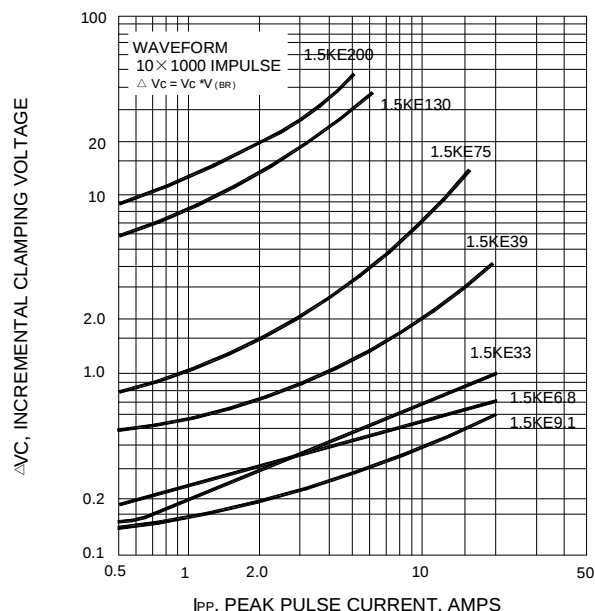


FIG.9- INCREMENTAL CLAMPING VOLTAGE CURVE
BIDIRECTIONAL

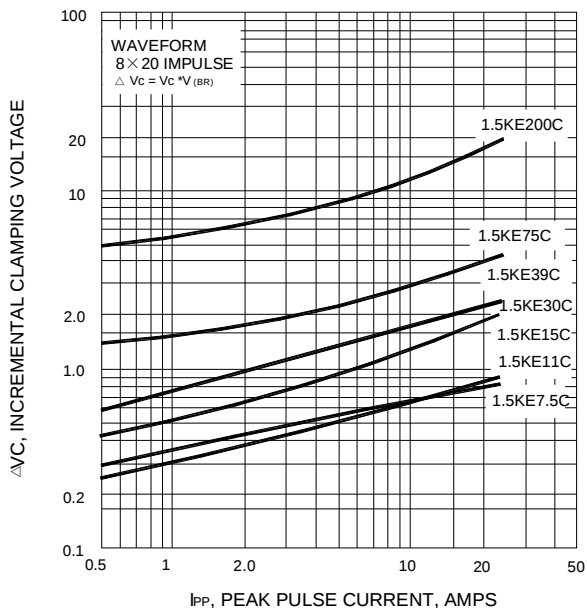
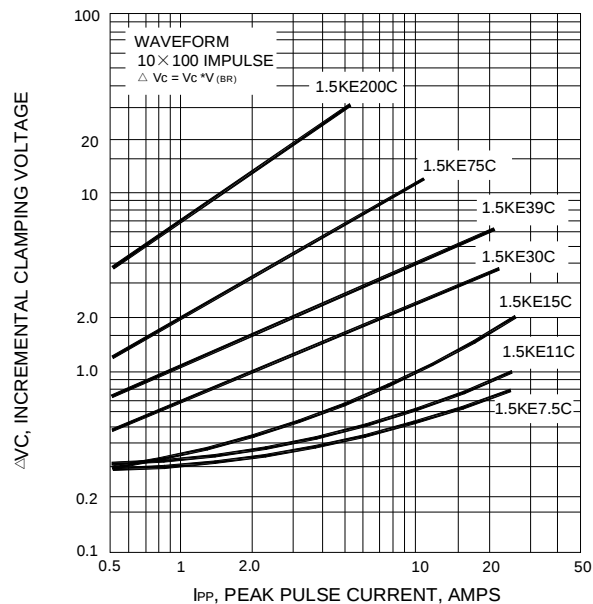


FIG.10- INCREMENTAL CLAMPING VOLTAGE CURVE
BIDIRECTIONAL





GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSORS

1.5KE6.8 THRU 1.5KE440CA(GPP)

Breakdown Voltage 6.8 to 440 Volts

1.5KE6.8J THRU 1.5KE440CAJ(OPEN JUNCTION)

Peak Pulse Power 1500 Watts

RATING AND CHARACTERISTIC CURVES 1.5KE6.8/J THRU 1.5KE440CA/J

FIG.11- INSTANTANEOUS FORWARD VOLTAGE CHARACTERISTICS CURVE

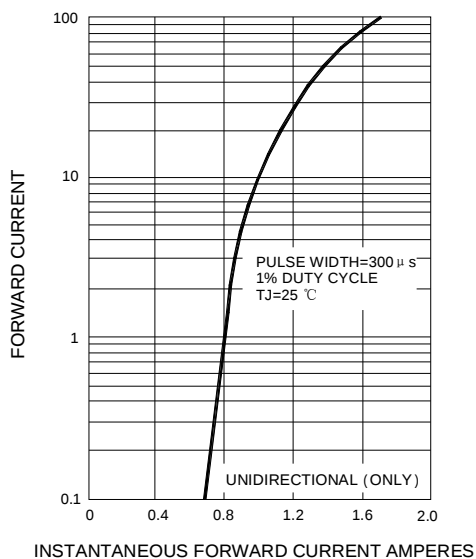


FIG.12- BREAKDOWN VOLTAGE TEMPERATURE COEFFICIENT CURVE

