

TRANSZORB® Transient Voltage Suppressors



DO-204AC (DO-15)

PRIMARY CHARACTERISTICS	
V_{WM}	5.8 V to 459 V
V_{BR} uni-directional	6.8 V to 540 V
V_{BR} bi-directional	6.8 V to 440 V
P_{PPM}	600 W
P_D	5.0 W
I_{FSM} (uni-directional only)	100 A
T_J max.	175 °C
Polarity	Uni-directional, bi-directional
Package	DO-204AC (DO-15)

FEATURES

- Glass passivated chip junction
- Available in uni-directional and bi-directional
- 600 W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle): 0.01 %
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified

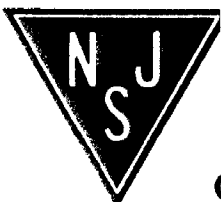
DEVICES FOR BI-DIRECTION APPLICATIONS

For bi-directional types, use CA suffix (e.g. P6KE440CA).
 Electrical characteristics apply in both directions.

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation with a 10/1000 μ s waveform ⁽¹⁾ (fig. 1)	P_{PPM}	600	W
Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾	I_{PPM}	See next table	A
Power dissipation on infinite heatsink at $T_L = 75$ °C (fig. 5)	P_D	5.0	W
Peak forward surge current 8.3 ms single half sine-wave ⁽²⁾	I_{FSM}	100	A
Maximum instantaneous forward voltage at 50 A for uni-directional only ⁽³⁾	V_F	3.5/5.0	V
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 175	°C

Notes

- ⁽¹⁾ Non-repetitive current pulse, per fig. 3 and derated above $T_A = 25$ °C per fig. 2
⁽²⁾ Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum
⁽³⁾ $V_F = 3.5$ V for P6KE220A and below; $V_F = 5.0$ V for P6KE250A and above



P6KE6.8A thru P6KE540A

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)								
DEVICE TYPE	BREAKDOWN VOLTAGE V_{BR} AT I_T ⁽¹⁾ (V)		TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V_{WM} ⁽³⁾ I_D (μA)	MAXIMUM PEAK PULSE CURRENT I_{PPM} ⁽²⁾ (A)	MAXIMUM CLAMPING VOLTAGE AT I_{PPM} V_C (V)	MAXIMUM TEMPERATURE COEFFICIENT AT V_{BR} ($\%/^\circ\text{C}$)
	MIN.	MAX.						
(+)P6KE6.8A	6.45	7.14	10	5.80	1000	57.1	10.5	0.057
(+)P6KE7.5A	7.13	7.88	10	6.40	500	53.1	11.3	0.061
(+)P6KE8.2A	7.79	8.61	10	7.02	200	49.6	12.1	0.065
(+)P6KE9.1A	8.65	9.55	1.0	7.78	50	44.8	13.4	0.068
(+)P6KE10A	9.50	10.5	1.0	8.55	10	41.4	14.5	0.073
(+)P6KE11A	10.5	11.6	1.0	9.40	5.0	38.5	15.6	0.075
(+)P6KE12A	11.4	12.6	1.0	10.2	5.0	35.9	16.7	0.078
(+)P6KE13A	12.4	13.7	1.0	11.1	5.0	33.0	18.2	0.081
(+)P6KE15A	14.3	15.8	1.0	12.8	1.0	28.3	21.2	0.084
(+)P6KE16A	15.2	16.8	1.0	13.6	1.0	26.7	22.5	0.086
(+)P6KE18A	17.1	18.9	1.0	15.3	1.0	23.8	25.2	0.088
(+)P6KE20A	19.0	21.0	1.0	17.1	1.0	21.7	27.7	0.090
(+)P6KE22A	20.9	23.1	1.0	18.8	1.0	19.6	30.6	0.092
(+)P6KE24A	22.8	25.2	1.0	20.5	1.0	18.1	33.2	0.094
(+)P6KE27A	25.7	28.4	1.0	23.1	1.0	16.0	37.5	0.096
(+)P6KE30A	28.5	31.5	1.0	25.6	1.0	14.5	41.4	0.097
(+)P6KE33A	31.4	34.7	1.0	28.2	1.0	13.1	45.7	0.098
(+)P6KE36A	34.2	37.8	1.0	30.8	1.0	12.0	49.9	0.099
(+)P6KE39A	37.1	41.0	1.0	33.3	1.0	11.1	53.9	0.100
(+)P6KE43A	40.9	45.2	1.0	36.8	1.0	10.1	59.3	0.101
(+)P6KE47A	44.7	49.4	1.0	40.2	1.0	9.3	64.8	0.101
(+)P6KE51A	48.5	53.6	1.0	43.6	1.0	8.6	70.1	0.102
(+)P6KE56A	53.2	58.8	1.0	47.8	1.0	7.8	77.0	0.103
(+)P6KE62A	58.9	65.1	1.0	53.0	1.0	7.1	85.0	0.104
(+)P6KE68A	64.6	71.4	1.0	58.1	1.0	6.5	92.0	0.104
(+)P6KE75A	71.3	78.8	1.0	64.1	1.0	5.8	103	0.105
(+)P6KE82A	77.9	86.1	1.0	70.1	1.0	5.3	113	0.105
(+)P6KE91A	86.5	95.5	1.0	77.8	1.0	4.8	125	0.106
(+)P6KE100A	95.0	105	1.0	85.5	1.0	4.4	137	0.106
(+)P6KE110A	105	116	1.0	94.0	1.0	3.9	152	0.107
(+)P6KE120A	114	126	1.0	102	1.0	3.6	165	0.107
(+)P6KE130A	124	137	1.0	111	1.0	3.4	179	0.107
(+)P6KE150A	143	158	1.0	128	1.0	2.9	207	0.108
(+)P6KE160A	152	168	1.0	136	1.0	2.7	219	0.108
(+)P6KE170A	162	179	1.0	145	1.0	2.6	234	0.108
(+)P6KE180A	171	189	1.0	154	1.0	2.4	246	0.108
(+)P6KE200A	190	210	1.0	171	1.0	2.2	274	0.108
(+)P6KE220A	209	231	1.0	185	1.0	1.8	328	0.108
(+)P6KE250A	237	263	1.0	214	1.0	1.7	344	0.110
(+)P6KE300A	285	315	1.0	256	1.0	1.4	414	0.110
(+)P6KE350A	333	368	1.0	300	1.0	1.2	482	0.110
(+)P6KE400A	380	420	1.0	342	1.0	1.1	548	0.110
(+)P6KE440A	418	462	1.0	376	1.0	1.00	602	0.110
P6KE480A	456	504	1.0	408	1.0	0.91	658	0.110
P6KE510A	485	535	1.0	434	1.0	0.86	698	0.110
P6KE540A	513	567	1.0	459	1.0	0.81	740	0.110

Notes

- (1) Pulse test: $t_p \leq 50\text{ ms}$
- (2) Surge current waveform per fig. 3 and derate per fig. 2
- (3) For bi-directional types with V_{WM} of 10 V and less the I_D limit is doubled
- (4) All terms and symbols are consistent with ANSI/IEEE CA62.35
- (5) Underwriters laboratory recognition for the classification of protectors (QVGG2) under the UL standard for safety 497B and file number E136766 for both uni-directional and bi-directional devices

P6KE6.8A thru P6KE540A

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance, junction to lead	$R_{\theta JL}$	20	°C/W
Typical thermal resistance, junction to ambient	$R_{\theta JA}$	75	

ORDERING INFORMATION (Example)				
PREFERRED PIN	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
P6KE6.8A-E3/54	0.432	54	4000	13" diameter paper tape and reel
P6KE6.8AHE3/54 ⁽¹⁾	0.432	54	4000	13" diameter paper tape and reel

Note

⁽¹⁾ AEC-Q101 qualified

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

