

## TVS Diodes

### TRANSIENT VOLTAGE SUPPRESSOR

Breakdown Voltage: 6.8 to 440 V

Peak Pulse Power: 600 W

#### Features

- Plastic package has UL Flammability Classification 94V-0
- 600 W peak pulse power capability on 10/1000 $\mu$ s waveform, repetition rate (duty cycle): 0.01%
- Excellent clamping capability
- Low incremental surge resistance
- Very fast response time
- Halogen and Antimony Free(HAF), RoHS compliant

#### Mechanical Data

- **Case:** Molded plastic, DO-15
- **Lead:** Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
- **Polarity:** Color band denotes cathode except bipolar
- **Mounting Position:** Any

#### Description

- Devices for bidirectional applications
- Electrical characteristics apply in both directions

#### Absolute Maximum Ratings

Rating at 25 °C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load; for capacitive load, derate current by 20%.

Parameter	Symbol	Value	Unit
Peak Power Dissipation with a 10/1000 $\mu$ s Waveform <sup>1)</sup>	P <sub>PPM</sub>	Min. 600	W
Steady State Power Dissipation at T <sub>L</sub> = 75 °C, Lead Lengths 0.375"(9.5mm) <sup>2)</sup>	P <sub>tot</sub>	5	W
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDED Method) Unidirectional Only <sup>3)</sup>	I <sub>FSM</sub>	100	A
Maximum Instantaneous Forward Voltage at 50 A for Unidirectional Only <sup>4)</sup>	V <sub>F</sub>	3.5/5	V
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>Stg</sub>	- 55 to + 150	°C

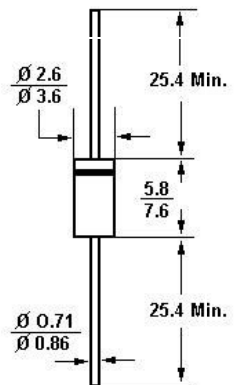
<sup>1)</sup> Non-repetitive current pulse, per Fig. 3 and derated above T<sub>A</sub> = 25 °C, per Fig. 2

<sup>2)</sup> Mounted on Copper pad area of 1.6 X 16" (40 X 40 mm) per Fig. 5

<sup>3)</sup> Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

<sup>4)</sup> V<sub>F</sub> = 3.5 V max. for P6KE200(A) & below; V<sub>F</sub> = 5 V max. for P6KE220(A) & above

DO-15



Dimensions in mm

**Electrical Characteristics (T<sub>a</sub> = 25 °C unless otherwise specified)**

Uni-directional / Bi-directional Type	Reverse Stand-off Voltage V <sub>WM</sub> (V)	Breakdown Voltage <sup>1)</sup>		Test Current I <sub>T</sub> (mA)	Maximum Clamping Voltage V <sub>C</sub> (V) at I <sub>PPM</sub>	Maximum Peak Pulse Current <sup>2)</sup> I <sub>PPM</sub> (A)	Maximum Reverse Leakage <sup>3)</sup> I <sub>D</sub> (µA) at V <sub>WM</sub>
		V <sub>BR</sub> (V) Min. at I <sub>T</sub>	V <sub>BR</sub> (V) Max. at I <sub>T</sub>				
RND P6KE6.8A / CA	5.8	6.45	7.14	10	10.5	57.1	1000
RND P6KE7.5A / CA	6.4	7.13	7.88	10	11.3	53.1	500
RND P6KE8.2A / CA	7.02	7.79	8.61	10	12.1	49.6	200
RND P6KE9.1A / CA	7.78	8.65	9.55	1	13.4	44.8	50
RND P6KE10A / CA	8.55	9.5	10.5	1	14.5	41.4	10
RND P6KE11A / CA	9.4	10.5	11.6	1	15.6	38.5	5
RND P6KE12A / CA	10.2	11.4	12.6	1	16.7	35.9	5
RND P6KE13A / CA	11.1	12.4	13.7	1	18.2	33	5
RND P6KE15A / CA	12.8	14.3	15.8	1	21.2	28.3	5
RND P6KE16A / CA	13.6	15.2	16.8	1	22.5	26.7	5
RND P6KE18A / CA	15.3	17.1	18.9	1	25.2	23.8	5
RND P6KE20A / CA	17.1	19	21	1	27.7	21.7	5
RND P6KE22A / CA	18.8	20.9	23.1	1	30.6	19.6	5
RND P6KE24A / CA	20.5	22.8	25.2	1	33.2	18.1	5
RND P6KE27A / CA	23.1	25.7	28.4	1	37.5	16	5
RND P6KE30A / CA	25.6	28.5	31.5	1	41.4	14.5	5
RND P6KE33A / CA	28.2	31.4	34.7	1	45.7	13.1	5
RND P6KE36A / CA	30.8	34.2	37.8	1	49.9	12	5
RND P6KE39A / CA	33.3	37.1	41	1	53.9	11.1	5
RND P6KE43A / CA	36.8	40.9	45.2	1	59.3	10.1	5
RND P6KE47A / CA	40.2	44.7	49.4	1	64.8	9.3	5
RND P6KE51A / CA	43.6	48.5	53.6	1	70.1	8.6	5

**Electrical Characteristics (T<sub>a</sub> = 25 °C unless otherwise specified)**

Uni-directional / Bi-directional Type	Reverse Stand-off Voltage V <sub>WM</sub> (V)	Breakdown Voltage <sup>1)</sup>		Test Current I <sub>T</sub> (mA)	Maximum Clamping Voltage V <sub>C</sub> (V) at I <sub>PPM</sub>	Maximum Peak Pulse Current <sup>2)</sup> I <sub>PPM</sub> (A)	Maximum Reverse Leakage <sup>3)</sup> I <sub>D</sub> (μA) at V <sub>WM</sub>
		V <sub>BR</sub> (V) Min. at I <sub>T</sub>	V <sub>BR</sub> (V) Max. at I <sub>T</sub>				
RND P6KE56A / CA	47.8	53.2	58.8	1	77	7.8	5
RND P6KE62A / CA	53	58.9	65.1	1	85	7.1	5
RND P6KE75A / CA	64.1	71.3	78.8	1	103	5.8	5
RND P6KE82A / CA	70.1	77.9	86.1	1	113	5.3	5
RND P6KE91A / CA	77.8	86.5	95.5	1	125	4.8	5
RND P6KE100A / CA	85.5	95	105	1	137	4.4	5
RND P6KE110A / CA	94	105	116	1	152	3.9	5
RND P6KE120A / CA	102	114	126	1	165	3.6	5
RND P6KE130A / CA	111	124	137	1	179	3.4	5
RND P6KE150A / CA	128	143	158	1	207	2.9	5
RND P6KE160A / CA	136	152	168	1	219	2.7	5
RND P6KE170A / CA	145	162	179	1	234	2.6	5
RND P6KE180A / CA	154	171	189	1	246	2.4	5
RND P6KE200A / CA	171	190	210	1	274	2.2	5
RND P6KE250A / CA	214	237	263	1	344	1.7	5
RND P6KE300A / CA	256	285	315	1	414	1.4	5
RND P6KE350A / CA	300	332	368	1	482	1.2	5
RND P6KE400A / CA	342	380	420	1	548	1.1	5
RND P6KE440A / CA	376	418	462	1	602	1	5

1) Pulse test: t<sub>p</sub> ≤ 50ms

2) Surge current waveform per Fig. 3 and Fig. 2

3) For bidirectional types having V<sub>RWM</sub> of 10V and less, the I<sub>D</sub> limit is doubled

RATINGS AND CHARACTERISTIC CURVES

