

## Transient Voltage Suppressor

**Breakdown Voltage 5.0 to 170 Volts**  
**Peak Pulse Power 500 Watts**

### Features

- Breakdown Voltages ( $V_{BR}$ ) from 5.0 to 170V
- 500W peak pulse power capability with a 10/1000 $\mu$ s waveform, repetitive rate (duty cycle):0.01%
- Fast Response Time
- Low incremental surge resistance
- Excellent clamping capability
- Available in uni-directional and bi-directional
- High temperature soldering guaranteed: 265 $^{\circ}$ C /10 seconds, 0.375" (9.5mm) lead length, 5lbs. (2.3kg) tension

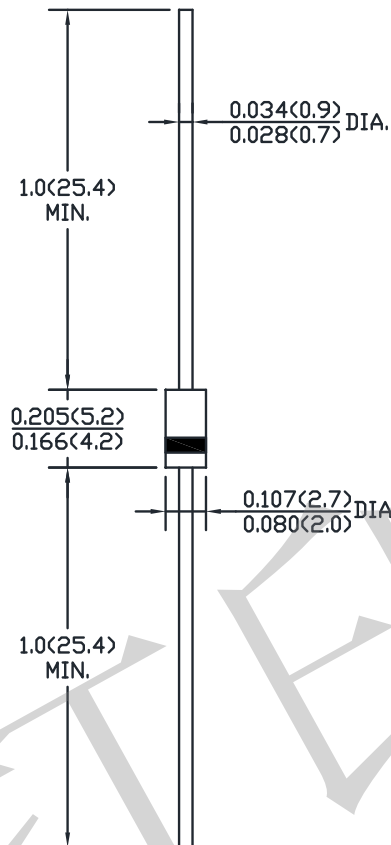
### Application

- Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFE, signal lines of sensor units for consumer, computer, industrial, automotive and telecommunication

### Mechanical Data

- **Case:** Void-free transfer molded thermosetting epoxy body meeting UL94V-O
- **Terminals:** Tin-Lead or ROHS Compliant annealed matte-Tin plating readily solderable per MIL-STD-750, Method 2026
- **Marking:** Body marked with part number
- **Polarity:** Band denotes cathode. Bidirectional not marked
- **Weight:** 0.3g (Approximately)

#### CASE: DO-204AL (DO-41)



Dimensions in inches and (millimeters)

### Maximum Ratings and Electrical Characteristics @ 25 $^{\circ}$ C unless otherwise specified

Symbol	Conditions	Value	Unit
$P_{PPM}$	Peak pulse power capability with a 10/1000 $\mu$ s	500	W
$I_{PPM}$	Peak pulse current with a 10/1000 $\mu$ s	SEE TABLE 1	A
$P_{M(AV)}$	Steady state power at $T_L=25^{\circ}$ C 0.375"(10mm) from body	2.77	W
	Steady state power at $T_A=25^{\circ}$ C when mounted on FR4 PC described for thermal resistance	1.19	W
$I_{FSM}$	Peak forward surge current, 8.3ms single half sine-wave unidirectional only	70	A
$V_F$	Maximum instantaneous forward voltage at 30A for unidirectional only(1)	3.5	V
$R_{\theta JL}$	Thermal resistance junction to lead	45	$^{\circ}$ C/W
$R_{\theta JA}$	Thermal resistance junction to ambient	105	$^{\circ}$ C/W
$T_J, T_{STG}$	Operating and Storage Temperature	-65 to +150	$^{\circ}$ C

Notes:

(1) Measured on 8.3ms single half sine-wave

**Electrical Characteristics @ 25°C (Unless Otherwise Noted) TABLE1**

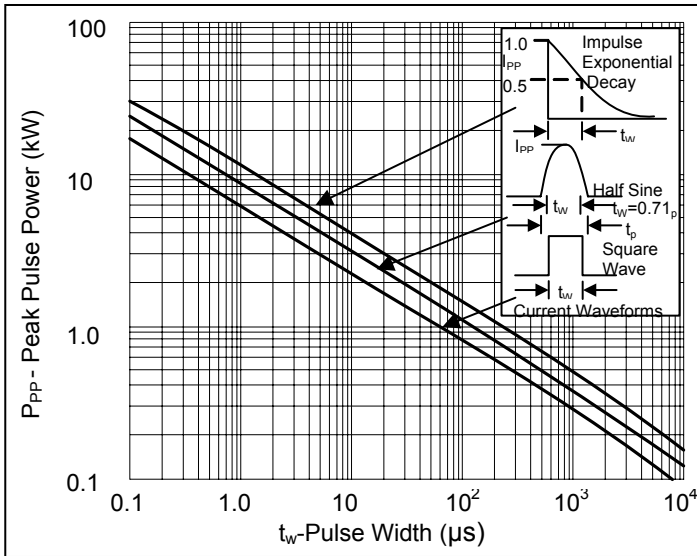
Part Number	Breakdown Voltage $V_{BR} @ I_{BR}$			Rated Stand Off Voltage	Maximum Standby current $I_D @ V_{WM}$	Maximum Peak Pulse Current	Maximum Clamping Voltage $V_C @ I_{PP}$	Maximum Temperature Coefficient of $V_{(BR)}$
	MIN	MAX						
	$V_{BR}(V)$		$I_{BR}(mA)$					
P5KE5.0	6.40	7.30	10	5.0	600	52.0	9.6	.057
P5KE5.0A	6.40	7.00	10	5.0	600	54.3	9.2	.057
P5KE6.0	6.67	8.15	10	6.0	600	43.9	11.4	.059
P5KE6.0A	6.67	7.37	10	6.0	600	48.5	10.3	.059
P5KE6.5	7.22	8.82	10	6.5	400	40.7	12.3	.061
P5KE6.5A	7.22	7.98	10	6.5	400	44.7	11.2	.061
P5KE7.0	7.78	9.51	10	7.0	150	37.8	13.3	.065
P5KE7.0A	7.78	8.60	10	7.0	150	41.7	12.0	.065
P5KE7.5	8.33	10.20	1	7.5	50	35.0	14.3	.067
P5KE7.5A	8.33	9.21	1	7.5	50	38.8	12.9	.067
P5KE8.0	8.89	10.90	1	8.0	25	33.3	15.0	.070
P5KE8.0A	8.89	9.83	1	8.0	25	36.7	13.6	.070
P5KE8.5	9.44	11.50	1	8.5	5	31.4	15.9	.073
P5KE8.5A	9.44	10.40	1	8.5	5	34.7	14.4	.073
P5KE9.0	10.00	12.20	1	9.0	1	29.5	16.9	.076
P5KE9.0A	10.00	11.10	1	9.0	1	32.5	15.4	.076
P5KE10	11.10	13.60	1	10.0	1	26.6	18.8	.078
P5KE10A	11.10	12.30	1	10.0	1	29.4	17.0	.078
P5KE11	12.20	14.90	1	11.0	1	24.9	20.1	.081
P5KE11A	12.20	13.50	1	11.0	1	27.4	18.2	.081
P5KE12	13.30	16.30	1	12.0	1	22.7	22.0	.082
P5KE12A	13.30	14.70	1	12.0	1	25.1	19.9	.082
P5KE13	14.40	17.60	1	13.0	1	21.0	23.8	.084
P5KE13A	14.40	15.90	1	13.0	1	23.2	21.5	.084
P5KE14	15.60	19.10	1	14.0	1	19.4	25.8	.086
P5KE14A	15.60	17.20	1	14.0	1	21.5	23.2	.086
P5KE15	16.70	20.40	1	15.0	1	18.8	26.9	.087
P5KE15A	16.70	18.50	1	15.0	1	20.6	24.4	.087
P5KE16	17.80	21.80	1	16.0	1	17.6	28.8	.088
P5KE16A	17.80	19.70	1	16.0	1	19.2	26.0	.088
P5KE17	18.90	23.10	1	17.0	1	16.4	30.5	.090
P5KE17A	18.90	20.90	1	17.0	1	18.1	27.6	.090
P5KE18	20.00	24.40	1	18.0	1	15.5	32.2	.092
P5KE18A	20.00	22.10	1	18.0	1	17.2	29.2	.092
P5KE20	22.20	27.10	1	20.0	1	13.9	35.8	.093
P5KE20A	22.20	24.50	1	20.0	1	15.4	32.4	.093
P5KE22	24.40	29.80	1	22.0	1	12.7	39.4	.094
P5KE22A	24.40	26.90	1	22.0	1	14.1	35.5	.094
P5KE24	26.70	32.60	1	24.0	1	11.6	43.0	.096
P5KE24A	26.70	29.50	1	24.0	1	12.8	38.9	.096
P5KE26	28.90	35.30	1	26.0	1	10.7	46.6	.097
P5KE26A	28.90	31.90	1	26.0	1	11.9	42.1	.097
P5KE28	31.10	38.00	1	28.0	1	9.9	50.0	.098
P5KE28A	31.10	34.40	1	28.0	1	11.0	45.4	.098
P5KE30	33.30	40.70	1	30.0	1	9.3	53.5	.099
P5KE30A	33.30	36.80	1	30.0	1	10.3	48.4	.099
P5KE33	36.70	44.90	1	33.0	1	8.5	59.0	.100
P5KE33A	36.70	40.60	1	33.0	1	9.4	53.3	.100
P5KE36	40.0	48.9	1	36.0	1	7.8	64.3	.101
P5KE36A	40.0	44.2	1	36.0	1	8.6	58.1	.101
P5KE40	44.4	54.3	1	40.0	1	7.0	71.4	.101
P5KE40A	44.40	49.1	1	40.0	1	7.8	64.5	.101

**Electrical Characteristics @ 25°C (Unless Otherwise Noted) TABLE1**

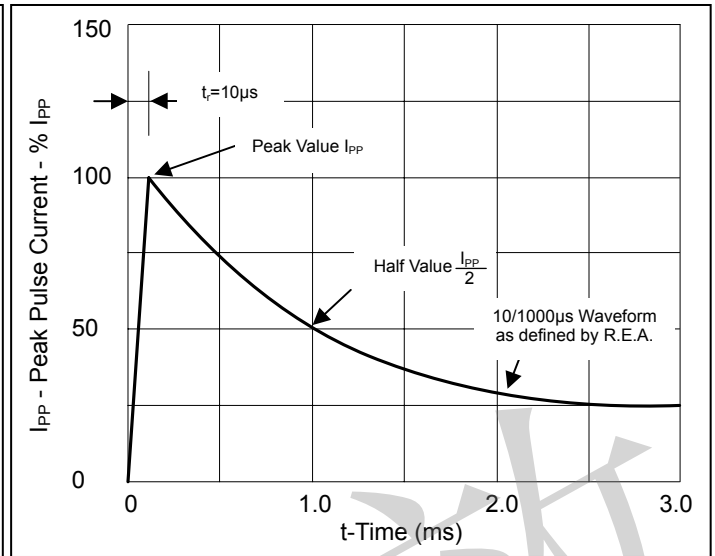
Part Number	Breakdown Voltage $V_{BR}$ @ $I_{BR}$			Rated Stand Off Voltage	Maximum Standby current $I_D$ @ $V_{WM}$	Maximum Peak Pulse Current	Maximum Clamping Voltage $V_C$ @ $I_{PP}$	Maximum Temperature Coefficient of $V_{BR}$
	MIN	MAX						
	$V_{BR}(V)$		$I_{BR}(mA)$					
P5KE43	47.8	58.4	1	43.0	1	6.5	76.7	.102
P5KE43A	47.8	52.8	1	43.0	1	7.2	69.4	.102
P5KE45	50.0	61.1	1	45.0	1	6.2	80.3	.102
P5KE45A	50.0	55.3	1	45.0	1	6.9	72.7	.102
P5KE48	53.3	65.1	1	48.0	1	5.8	85.5	.103
P5KE48A	53.3	58.9	1	48.0	1	6.5	77.4	.103
P5KE51	56.7	69.3	1	51.0	1	5.5	91.1	.103
P5KE51A	56.7	62.7	1	51.0	1	6.1	82.4	.103
P5KE54	60.0	73.3	1	54.0	1	5.2	96.3	.104
P5KE54A	60.0	66.3	1	54.0	1	5.7	87.1	.104
P5KE58	64.4	78.7	1	58.0	1	4.9	103.0	.104
P5KE58A	64.4	71.2	1	58.0	1	5.3	93.6	.104
P5KE60	66.7	81.5	1	60.0	1	4.7	107.0	.104
P5KE60A	66.7	73.7	1	60.0	1	5.2	96.8	.104
P5KE64	71.1	86.9	1	64.0	1	4.4	114.0	.105
P5KE64A	71.1	78.6	1	64.0	1	4.9	103.0	.105
P5KE70	77.8	95.1	1	70.0	1	4.0	125.0	.105
P5KE70A	77.8	86.0	1	70.0	1	4.4	113.0	.105
P5KE75	83.3	102.0	1	75.0	1	3.7	134.0	.105
P5KE75A	83.3	92.1	1	75.0	1	4.1	121.0	.105
P5KE78	86.7	106.0	1	78.0	1	3.6	139.0	.106
P5KE78A	86.7	95.8	1	78.0	1	4.0	126.0	.106
P5KE85	94.4	115.0	1	85.0	1	3.3	151.0	.106
P5KE85A	94.4	104.0	1	85.0	1	3.6	137.0	.106
P5KE90	100.0	122.0	1	90.0	1	3.1	160.0	.107
P5KE90A	100.0	111.0	1	90.0	1	3.4	146.0	.107
P5KE100	111.0	136.0	1	100.0	1	2.8	179.0	.107
P5KE100A	111.0	123.0	1	100.0	1	3.1	162.0	.107
P5KE110	122.0	149.0	1	110.0	1	2.6	196.0	.107
P5KE110A	122.0	135.0	1	110.0	1	2.8	177.0	.107
P5KE120	133.0	163.0	1	120.0	1	2.3	214.0	.107
P5KE120A	133.0	147.0	1	120.0	1	2.0	193.0	.107
P5KE130	144.0	176.0	1	130.0	1	2.2	231.0	.108
P5KE130A	144.0	159.0	1	130.0	1	2.4	209.0	.108
P5KE150	167.0	204.0	1	150.0	1	1.9	268.0	.108
P5KE150A	167.0	185.0	1	150.0	1	2.1	243.0	.108
P5KE160	178.0	218.0	1	160.0	1	1.7	287.0	.108
P5KE160A	178.0	197.0	1	160.0	1	1.9	259.0	.108
P5KE170	189.0	231.0	1	170.0	1	1.6	304.0	.108
P5KE170A	189.0	209.0	1	170.0	1	1.8	275.0	.108

1. For bi-directional construction, indicate a C or CA suffix after part number, i.e. P5KE170C or P5KE170CA

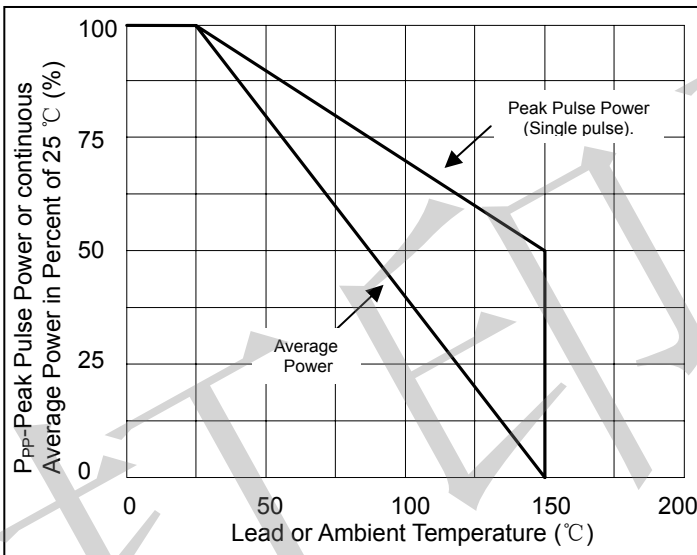
## Characteristic Curve



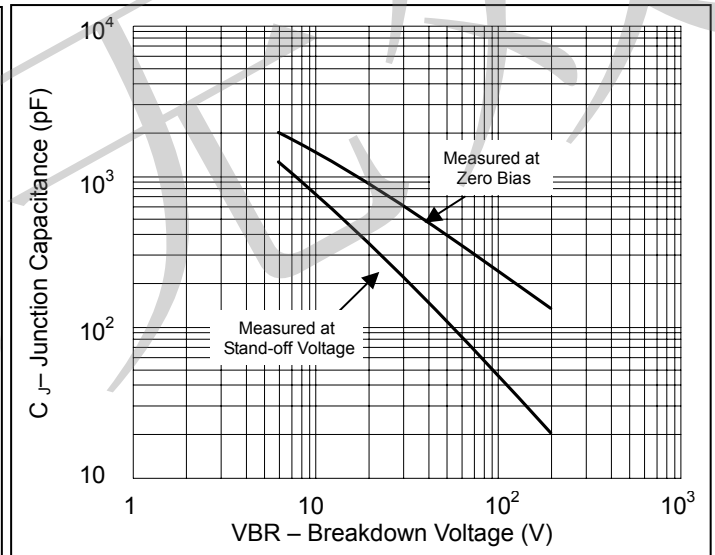
**Fig. 1 Peak Pulse Power vs. Pulse Time**



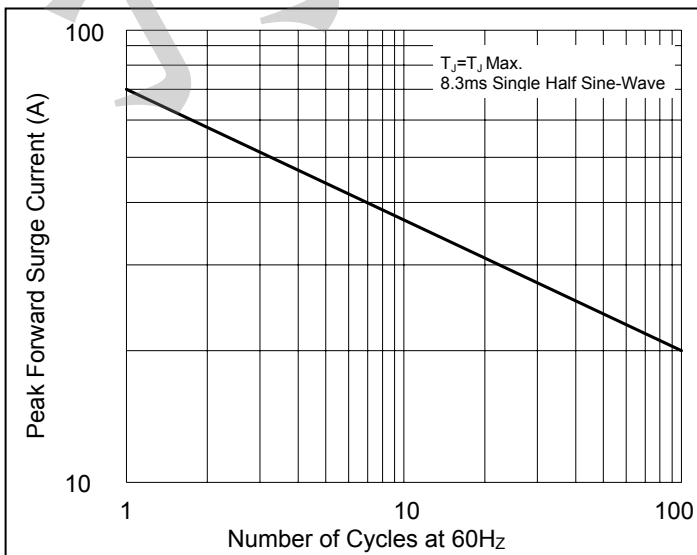
**Fig. 2 Pulse Waveform for Exponential Surge**



**Fig. 3 Derating Curve**



**Fig. 4 Typical Capacitance vs. Breakdown Voltage (Unipolar)**



**Fig. 5 Max. Non-Repetitive Forward Surge Current Uni-Directional Only**