

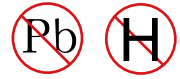


YEA SHIN TECHNOLOGY CO., LTD

P4KE Series

# Glass Passivated Junction Transient Voltage Suppressor

## 400W Peak Power Voltage 6.8 to 540V



### FEATURES

- Plastic package has Underwriters Laboratory
- Flammability Classification 94V-0
- Glass passivated chip junction in DO-41 package
- 600W surge capability at 1ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min
- Typical IR less than 1μA above 10V
- High temperature soldering guaranteed: 260°C/10 seconds/.375" (9.5mm) lead length/5lbs., (2.3kg) tension
- Pb free product at available : 99% Sn above meet RoHS environment substance directive request

### MECHANICAL DATA

- Case: JEDEC DO-41 Molded plastic
- Terminals: Axial leads, solderable per MIL-STD-202, Method 208
- Polarity: Color band denoted cathode except Bipolar
- Mounting Position: Any
- Quantify Per Reel : 5000 pcs

### DEVICES FOR BIPOLAR APPLICATIONS

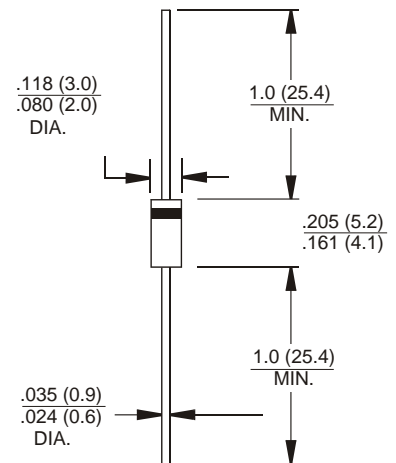
- For Bidirectional use C or CA Suffix for types
- Electrical characteristics apply in both directions.

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.

For Capacitive load derate current by 20%.

DO-41 Unit: inch (mm)



RATING	SYMBOL	VALUE	UNITS
Peak Power Dissipation on 10/1000us waveform (Note1.2 , Fig.1)	Ppp	400	Watts
Peak Forward Surge Current, 8.3ms single half sine - wave uni- directional only(JEDEC method) (Notes 2,3)	IFSM	40	Amps
Peak Pulse Current on 10/1000us waveform (Note1, Fig.3)	IPP	See Table 1	Amps
Operating and Storage Temperature Range	TJ, TSTG	-55 ~ +150	°C

NOTES:

- Non-repetitive current pulse, per Fig.3 and derated above TA = 25°C per Fig.2.
- Mounted on 5.0 mm<sup>2</sup> (0.13mm thick) land areas.
- Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

# DEVICE CHARACTERISTICS

## P4KE Series

Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Current
			$V_{BR} @ I_T$		$I_T$	$I_R @ V_{RWM}$		$V_c @ I_{pp}$	$I_{pp}$
		$V_{RWM}$	Min.	Max.		UNI	BI		
UNI	BI	V	V	V	mA	uA	uA	V	A
400W Transient Voltage Suppressor									
P4KE6.8	P4KE6.8C	5.5	6.12	7.48	10	1000	2000	10.8	37.0
P4KE6.8A	P4KE6.8CA	5.8	6.45	7.14	10	1000	2000	10.5	38.1
P4KE7.5	P4KE7.5C	6.1	6.75	8.25	10	500	1000	11.7	34.2
P4KE7.5A	P4KE7.5CA	6.4	7.13	7.88	10	500	1000	11.3	35.4
P4KE8.2	P4KE8.2C	6.6	7.38	9.02	10	200	400	12.5	32.0
P4KE8.2A	P4KE8.2CA	7.0	7.79	8.61	10	200	400	12.1	33.1
P4KE9.1	P4KE9.1C	7.4	8.19	10.00	1	50	100	13.8	29.0
P4KE9.1A	P4KE9.1CA	7.8	8.65	9.55	1	50	100	13.4	29.9
P4KE10	P4KE10C	8.1	9.00	11.00	1	10	20	15.0	26.7
P4KE10A	P4KE10CA	8.6	9.50	10.50	1	10	20	14.5	27.6
P4KE11	P4KE11C	8.9	9.90	12.10	1	5	10	16.2	24.7
P4KE11A	P4KE11CA	9.4	10.50	11.60	1	5	10	15.6	25.6
P4KE12	P4KE12C	9.7	10.80	13.20	1	5	5	17.3	23.1
P4KE12A	P4KE12CA	10.2	11.40	12.60	1	5	5	16.7	24.0
P4KE13	P4KE13C	10.5	11.70	14.30	1	5	5	19.0	21.1
P4KE13A	P4KE13CA	11.1	12.40	13.70	1	5	5	18.2	22.0
P4KE15	P4KE15C	12.1	13.50	16.50	1	5	5	22.0	18.2
P4KE15A	P4KE15CA	12.8	14.30	15.80	1	5	5	21.2	18.9
P4KE16	P4KE16C	12.9	14.40	17.60	1	5	5	23.5	17.0
P4KE16A	P4KE16CA	13.6	15.20	16.80	1	5	5	22.5	17.8
P4KE18	P4KE18C	14.5	16.20	19.80	1	5	5	26.5	15.1
P4KE18A	P4KE18CA	15.3	17.10	18.90	1	5	5	25.2	15.9
P4KE20	P4KE20C	16.2	18.00	22.00	1	5	5	29.1	13.7
P4KE20A	P4KE20CA	17.1	19.00	21.00	1	5	5	27.7	14.4
P4KE22	P4KE22C	17.8	19.80	24.20	1	5	5	31.9	12.5
P4KE22A	P4KE22CA	18.8	20.90	23.10	1	5	5	30.6	13.1
P4KE24	P4KE24C	19.4	21.60	26.40	1	5	5	34.7	11.5
P4KE24A	P4KE24CA	20.5	22.80	25.20	1	5	5	33.2	12.0
P4KE27	P4KE27C	21.8	24.30	29.70	1	5	5	39.1	10.2
P4KE27A	P4KE27CA	23.1	25.70	28.40	1	5	5	37.5	10.7
P4KE30	P4KE30C	24.3	27.00	33.00	1	5	5	43.5	9.2
P4KE30A	P4KE30CA	25.6	28.50	31.50	1	5	5	41.4	9.7
P4KE33	P4KE33C	26.8	29.70	36.30	1	5	5	47.7	8.4
P4KE33A	P4KE33CA	28.2	31.40	34.70	1	5	5	45.7	8.8
P4KE36	P4KE36C	29.1	32.40	39.60	1	5	5	52.0	7.7
P4KE36A	P4KE36CA	30.8	34.20	37.80	1	5	5	49.9	8.0
P4KE39	P4KE39C	31.6	35.10	42.90	1	5	5	56.4	7.1
P4KE39A	P4KE39CA	33.3	37.10	41.00	1	5	5	53.9	7.4
P4KE43	P4KE43C	34.8	38.70	47.30	1	5	5	61.9	6.5
P4KE43A	P4KE43CA	36.8	40.90	45.20	1	5	5	59.3	6.7
P4KE47	P4KE47C	38.1	42.30	51.70	1	5	5	67.8	5.9
P4KE47A	P4KE47CA	40.2	44.70	49.40	1	5	5	64.8	6.2
P4KE51	P4KE51C	41.3	45.90	56.10	1	5	5	73.5	5.4
P4KE51A	P4KE51CA	43.6	48.50	53.60	1	5	5	70.1	5.7
P4KE56	P4KE56C	45.4	50.40	61.60	1	5	5	80.5	5.0
P4KE56A	P4KE56CA	47.8	53.20	58.80	1	5	5	77.0	5.2

# DEVICE CHARACTERISTICS

## P4KE Series

Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Curren
			$V_{BR} @ I_T$		$I_T$	$I_R @ V_{RWM}$		Vc @ Ipp	Ipp
		$V_{RWM}$	Min.	Max.		UNI	BI		
UNI	BI	V	V	V	mA	uA	uA	V	A
400W Transient Voltage Suppressor									
P4KE62	P4KE62C	50.2	55.80	68.20	1	5	5	89.0	4.5
P4KE62A	P4KE62CA	53.0	58.90	65.10	1	5	5	85.0	4.7
P4KE68	P4KE68C	55.1	61.20	74.80	1	5	5	98.0	4.1
P4KE68A	P4KE68CA	58.1	64.40	71.40	1	5	5	92.0	4.3
P4KE75	P4KE75C	60.7	67.50	82.50	1	5	5	108.0	3.7
P4KE75A	P4KE75CA	64.1	71.30	78.80	1	5	5	103.0	3.9
P4KE82	P4KE82C	66.4	73.80	90.20	1	5	5	118.0	3.4
P4KE82A	P4KE82CA	70.1	77.90	86.10	1	5	5	113.0	3.5
P4KE91	P4KE91C	73.7	81.90	100.00	1	5	5	131.0	3.1
P4KE91A	P4KE91CA	77.8	86.50	95.50	1	5	5	125.0	3.2
P4KE100	P4KE100C	81.0	90.00	110.00	1	5	5	144.0	2.8
P4KE100A	P4KE100CA	85.5	95.00	105.00	1	5	5	137.0	2.9
P4KE110	P4KE110C	89.2	99.00	121.00	1	5	5	158.0	2.5
P4KE110A	P4KE110CA	94.0	105.00	116.00	1	5	5	152.0	2.6
P4KE120	P4KE120C	97.2	108.00	132.00	1	5	5	173.0	2.3
P4KE120A	P4KE120CA	102.0	114.00	126.00	1	5	5	165.0	2.4
P4KE130	P4KE130C	105.0	117.00	143.00	1	5	5	187.0	2.1
P4KE130A	P4KE130CA	111.0	124.00	137.00	1	5	5	179.0	2.2
P4KE150	P4KE150C	121.0	135.00	165.00	1	5	5	215.0	1.9
P4KE150A	P4KE150CA	128.0	143.00	158.00	1	5	5	207.0	1.9
P4KE160	P4KE160C	130.0	144.00	176.00	1	5	5	230.0	1.7
P4KE160A	P4KE160CA	136.0	152.00	168.00	1	5	5	219.0	1.8
P4KE170	P4KE170C	138.0	153.00	187.00	1	5	5	244.0	1.6
P4KE170A	P4KE170CA	145.0	162.00	179.00	1	5	5	234.0	1.7
P4KE180	P4KE180C	146.0	162.00	198.00	1	5	5	258.0	1.6
P4KE180A	P4KE180CA	154.0	171.00	189.00	1	5	5	246.0	1.6
P4KE200	P4KE200C	162.0	180.00	220.00	1	5	5	287.0	1.4
P4KE200A	P4KE200CA	171.0	190.00	210.00	1	5	5	274.0	1.5
P4KE220	P4KE220C	175.0	198.00	242.00	1	5	5	344.0	1.2
P4KE220A	P4KE220CA	185.0	209.00	231.00	1	5	5	328.0	1.2
P4KE250	P4KE250C	202.0	225.00	275.00	1	5	5	360.0	1.1
P4KE250A	P4KE250CA	214.0	237.00	263.00	1	5	5	344.0	1.2
P4KE300	P4KE300C	243.0	270.00	330.00	1	5	5	430.0	0.9
P4KE300A	P4KE300CA	256.0	285.00	315.00	1	5	5	414.0	1.0
P4KE350	P4KE350C	284.0	315.00	385.00	1	5	5	504.0	0.8
P4KE350A	P4KE350CA	300.0	333.00	368.00	1	5	5	482.0	0.8
P4KE400	P4KE400C	324.0	360.00	440.00	1	5	5	574.0	0.7
P4KE400A	P4KE400CA	342.0	380.00	420.00	1	5	5	548.0	0.7
P4KE440	P4KE440C	356.0	396.00	484.00	1	5	5	631.0	0.6
P4KE440A	P4KE440CA	376.0	418.00	462.00	1	5	5	602.0	0.7
P4KE480	P4KE480C	389.0	432.00	528.00	1	5	5	686.0	0.6
P4KE480A	P4KE480CA	408.0	456.00	504.00	1	5	5	658.0	0.6
P4KE510	P4KE510C	413.0	459.00	561.00	1	5	5	729.0	0.6
P4KE510A	P4KE510CA	434.0	485.00	535.00	1	5	5	698.0	0.6
P4KE540	P4KE540C	437.0	486.00	594.00	1	5	5	772.0	0.5
P4KE540A	P4KE540CA	459.0	513.00	567.00	1	5	5	740.0	0.5

Note:

1. For parts 'without A' denotes 10% tolerance device.
2. Suffix 'A' denotes 5% tolerance device.
3. Add suffix 'C' after part number to specify Bi-directional devices.

# DEVICE CHARACTERISTICS

## P4KE Series

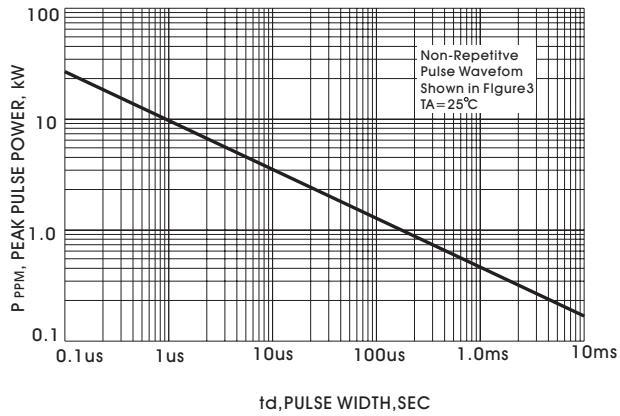


FIGURE 1-PEAK PULSE POWER RATING VERSUS PULSE TIME CURVE

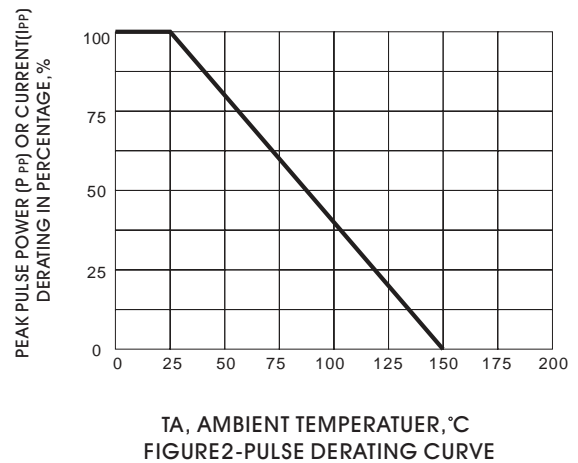


FIGURE 2-PULSE DERATING CURVE

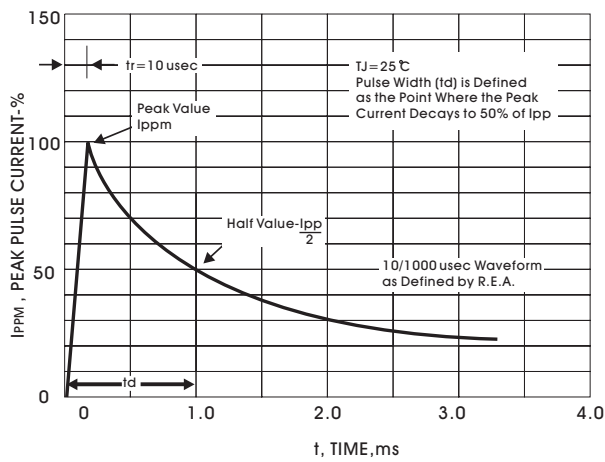


FIGURE 3-PULSE WAVEFORM

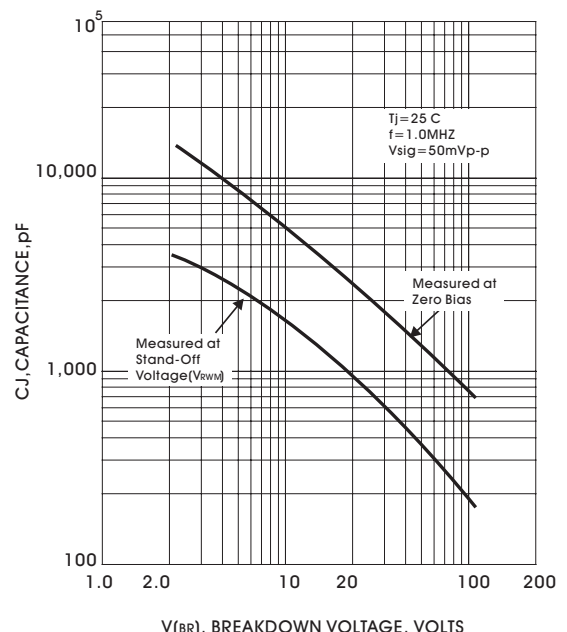


FIG. 4-TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

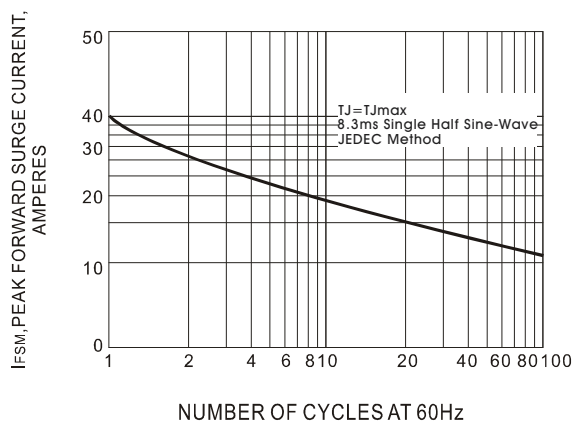


FIG. 5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT UNIDIRECTIONAL