



YEA SHIN TECHNOLOGY CO., LTD

1.5KE Series

# Glass Passivated Junction Transient Voltage Suppressor

## 1500W Peak Power Voltage 6.8 to 540V



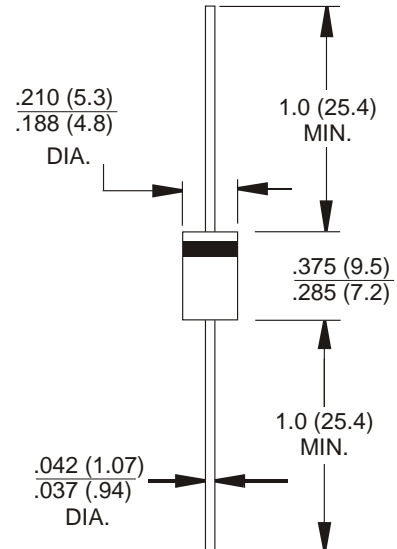
DO-201AE Unit:inch(mm)

### FEATURES

- Plastic package has Underwriters Laboratory
- Flammability Classification 94V-0
- 1500W surge capability at 1.0ms
- 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-201AE molded plastic
- Terminals: Axial leads, solderable per MIL-STD-202, Method 208
- Polarity: Color band denoted cathode except Bipolar
- Mounting Position: Any



### DEVICES FOR BIPOLAR APPLICATIONS

- For Bidirectional use C or CA Suffix for types 1.5KE6.8 thru types 1.5KE540A.
- 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%.

RATING	SYMBOL	VALUE	UNITS
Peak Power Dissipation on 10/1000us waveform (Note1.2 , Fig.1)	Ppp	1500	Watts
Peak Forward Surge Current, 8.3ms single half sine - wave uni- directional only (JEDEC method) (Notes 2,3)	IFSM	200	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

## 1.5KE Series

Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Current
			V <sub>BR</sub> @ I <sub>T</sub>			I <sub>R</sub> @ V <sub>RWM</sub>			
		V <sub>RWM</sub>	Min.	Max.	I <sub>T</sub>	UNI	BI	V <sub>c</sub> @ I <sub>pp</sub>	I <sub>pp</sub>
UNI	BI	V	V	V	mA	uA	uA	V	A
1500W Transient Voltage Suppressor									
1.5KE6.8	1.5KE6.8C	5.5	6.12	7.48	10	1000	2000	10.8	139.0
1.5KE6.8A	1.5KE6.8CA	5.8	6.45	7.14	10	1000	2000	10.5	143.0
1.5KE7.5	1.5KE7.5C	6.1	6.75	8.25	10	500	1000	11.7	128.0
1.5KE7.5A	1.5KE7.5CA	6.4	7.13	7.88	10	500	1000	11.3	133.0
1.5KE8.2	1.5KE8.2C	6.6	7.38	9.02	10	200	400	12.5	120.0
1.5KE8.2A	1.5KE8.2CA	7.0	7.79	8.61	10	200	400	12.1	124.0
1.5KE9.1	1.5KE9.1C	7.4	8.19	10.00	1	50	100	13.8	109.0
1.5KE9.1A	1.5KE9.1CA	7.8	8.65	9.55	1	50	100	13.4	112.0
1.5KE10	1.5KE10C	8.1	9.00	11.00	1	10	20	15.0	100.0
1.5KE10A	1.5KE10CA	8.6	9.50	10.50	1	10	20	14.5	103.0
1.5KE11	1.5KE11C	8.9	9.90	12.10	1	5	10	16.2	92.6
1.5KE11A	1.5KE11CA	9.4	10.50	11.60	1	5	10	15.6	96.2
1.5KE12	1.5KE12C	9.7	10.80	13.20	1	5	10	17.3	86.7
1.5KE12A	1.5KE12CA	10.2	11.40	12.60	1	5	5	16.7	89.8
1.5KE13	1.5KE13C	10.5	11.70	14.30	1	5	5	19.0	78.9
1.5KE13A	1.5KE13CA	11.1	12.40	13.70	1	5	5	18.2	82.4
1.5KE15	1.5KE15C	12.1	13.50	16.50	1	5	5	22.0	68.2
1.5KE15A	1.5KE15CA	12.8	14.30	15.80	1	5	5	21.2	70.8
1.5KE16	1.5KE16C	12.9	14.40	17.60	1	5	5	23.5	63.8
1.5KE16A	1.5KE16CA	13.6	15.20	16.80	1	5	5	22.5	66.7
1.5KE18	1.5KE18C	14.5	16.20	19.80	1	5	5	26.5	56.6
1.5KE18A	1.5KE18CA	15.3	17.10	18.90	1	5	5	25.2	59.5
1.5KE20	1.5KE20C	16.2	18.00	22.00	1	5	5	29.1	51.5
1.5KE20A	1.5KE20CA	17.1	19.00	21.00	1	5	5	27.7	54.2
1.5KE22	1.5KE22C	17.8	19.80	24.20	1	5	5	31.9	47.0
1.5KE22A	1.5KE22CA	18.8	20.90	23.10	1	5	5	30.6	49.0
1.5KE24	1.5KE24C	19.4	21.60	26.40	1	5	5	34.7	43.2
1.5KE24A	1.5KE24CA	20.5	22.80	25.20	1	5	5	33.2	45.2
1.5KE27	1.5KE27C	21.8	24.30	29.70	1	5	5	39.1	38.4
1.5KE27A	1.5KE27CA	23.1	25.70	28.40	1	5	5	37.5	40.0
1.5KE30	1.5KE30C	24.3	27.00	33.00	1	5	5	43.5	34.5
1.5KE30A	1.5KE30CA	25.6	28.50	31.50	1	5	5	41.4	36.2
1.5KE33	1.5KE33C	26.8	29.70	36.30	1	5	5	47.7	31.4
1.5KE33A	1.5KE33CA	28.2	31.40	34.70	1	5	5	45.7	32.8
1.5KE36	1.5KE36C	29.1	32.40	39.60	1	5	5	52.0	28.8
1.5KE36A	1.5KE36CA	30.8	34.20	37.80	1	5	5	49.9	31.0
1.5KE39	1.5KE39C	31.6	35.10	42.90	1	5	5	56.4	26.6
1.5KE39A	1.5KE39CA	33.3	37.10	41.00	1	5	5	53.9	27.8
1.5KE43	1.5KE43C	34.8	38.70	47.30	1	5	5	61.9	24.2
1.5KE43A	1.5KE43CA	36.8	40.90	45.20	1	5	5	59.3	25.3
1.5KE47	1.5KE47C	38.1	42.30	51.70	1	5	5	67.8	22.1
1.5KE47A	1.5KE47CA	40.2	44.70	49.40	1	5	5	64.8	23.1
1.5KE51	1.5KE51C	41.3	45.90	56.10	1	5	5	73.5	20.4
1.5KE51A	1.5KE51CA	43.6	48.50	53.60	1	5	5	70.1	21.4
1.5KE56	1.5KE56C	45.4	50.40	61.60	1	5	5	80.5	18.6
1.5KE56A	1.5KE56CA	47.8	53.20	58.80	1	5	5	77.0	19.5

# DEVICE CHARACTERISTICS

## 1.5KE 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
<b>1500W Transient Voltage Suppressor</b>									
1.5KE62	1.5KE62C	50.2	55.80	68.20	1	5	5	89.0	16.9
1.5KE62A	1.5KE62CA	53.0	58.90	65.10	1	5	5	85.0	17.6
1.5KE68	1.5KE68C	55.1	61.20	74.80	1	5	5	98.0	15.3
1.5KE68A	1.5KE68CA	58.1	64.40	71.40	1	5	5	83.0	16.3
1.5KE75	1.5KE75C	60.7	67.50	82.50	1	5	5	109.0	13.9
1.5KE75A	1.5KE75CA	64.1	71.30	78.80	1	5	5	104.0	14.6
1.5KE82	1.5KE82C	66.4	73.80	90.20	1	5	5	118.0	12.7
1.5KE82A	1.5KE82CA	70.1	77.90	86.10	1	5	5	113.0	13.3
1.5KE91	1.5KE91C	73.7	81.90	100.00	1	5	5	131.0	11.5
1.5KE91A	1.5KE91CA	77.8	86.50	95.50	1	5	5	125.0	12.0
1.5KE100	1.5KE100C	81.0	90.00	110.00	1	5	5	144.0	10.4
1.5KE100A	1.5KE100CA	85.5	95.00	105.00	1	5	5	137.0	10.9
1.5KE110	1.5KE110C	89.2	99.00	121.00	1	5	5	158.0	9.5
1.5KE110A	1.5KE110CA	94.0	105.00	116.00	1	5	5	152.0	9.9
1.5KE120	1.5KE120C	97.2	108.00	132.00	1	5	5	173.0	8.7
1.5KE120A	1.5KE120CA	102.0	114.00	126.00	1	5	5	165.0	9.1
1.5KE130	1.5KE130C	105.0	117.00	143.00	1	5	5	187.0	8.0
1.5KE130A	1.5KE130CA	111.0	124.00	137.00	1	5	5	179.0	8.4
1.5KE150	1.5KE150C	121.0	135.00	165.00	1	5	5	215.0	7.0
1.5KE150A	1.5KE150CA	128.0	143.00	158.00	1	5	5	207.0	7.2
1.5KE160	1.5KE160C	130.0	144.00	176.00	1	5	5	230.0	6.5
1.5KE160A	1.5KE160CA	136.0	152.00	168.00	1	5	5	219.0	6.8
1.5KE170	1.5KE170C	138.0	153.00	187.00	1	5	5	244.0	6.1
1.5KE170A	1.5KE170CA	145.0	162.00	179.00	1	5	5	234.0	6.4
1.5KE180	1.5KE180C	146.0	162.00	198.00	1	5	5	258.0	5.8
1.5KE180A	1.5KE180CA	154.0	171.00	189.00	1	5	5	246.0	6.1
1.5KE200	1.5KE200C	162.0	180.00	220.00	1	5	5	287.0	5.2
1.5KE200A	1.5KE200CA	171.0	190.00	210.00	1	5	5	274.0	5.5
1.5KE220	1.5KE220C	175.0	198.00	242.00	1	5	5	344.0	4.4
1.5KE220A	1.5KE220CA	185.0	209.00	231.00	1	5	5	328.0	4.6
1.5KE250	1.5KE250C	202.0	225.00	275.00	1	5	5	360.0	4.2
1.5KE250A	1.5KE250CA	214.0	237.00	263.00	1	5	5	344.0	4.4
1.5KE300	1.5KE300C	243.0	270.00	330.00	1	5	5	430.0	3.5
1.5KE300A	1.5KE300CA	256.0	285.00	315.00	1	5	5	414.0	3.6
1.5KE350	1.5KE350C	284.0	315.00	385.00	1	5	5	504.0	3.0
1.5KE350A	1.5KE350CA	300.0	333.00	368.00	1	5	5	482.0	3.1
1.5KE400	1.5KE400C	324.0	360.00	440.00	1	5	5	574.0	2.6
1.5KE400A	1.5KE400CA	342.0	380.00	420.00	1	5	5	548.0	2.7
1.5KE440	1.5KE440C	356.0	396.00	484.00	1	5	5	631.0	2.4
1.5KE440A	1.5KE440CA	376.0	418.00	462.00	1	5	5	602.0	2.5
1.5KE480	1.5KE480C	389.0	432.00	528.00	1	5	5	686.0	2.2
1.5KE480A	1.5KE480CA	408.0	456.00	504.00	1	5	5	658.0	2.3
1.5KE510	1.5KE510C	413.0	459.00	561.00	1	5	5	729.0	2.1
1.5KE510A	1.5KE510CA	434.0	485.00	535.00	1	5	5	698.0	2.2
1.5KE540	1.5KE540C	437.0	486.00	594.00	1	5	5	772.0	1.9
1.5KE540A	1.5KE540CA	459.0	513.00	567.00	1	5	5	740.0	2.0

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

## 1.5KE Series

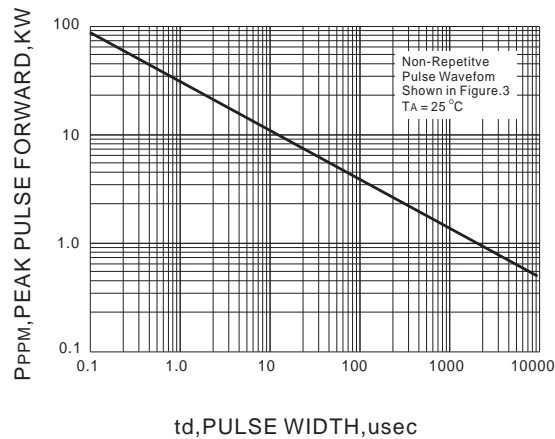


Fig.1 PEAK PULSE POWER RATING CURVE

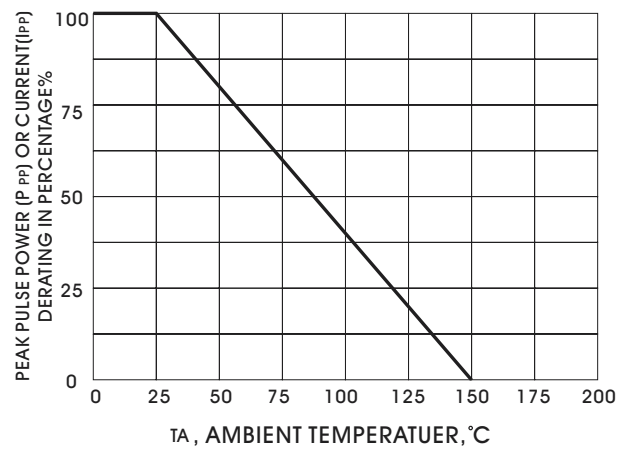


Fig.2 DERATING CURVE

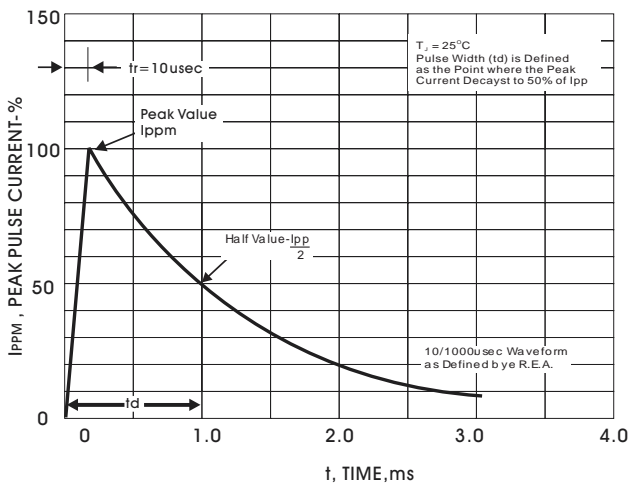


Fig.3 PULSE WAVE FORM

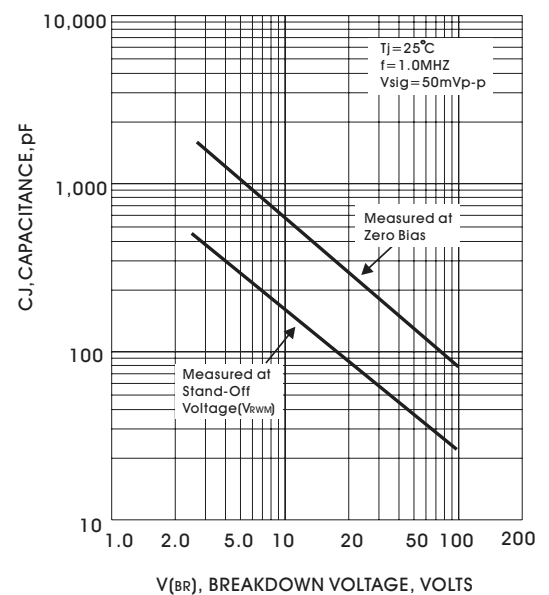


Fig.4 TYPICAL CAPACITANCE

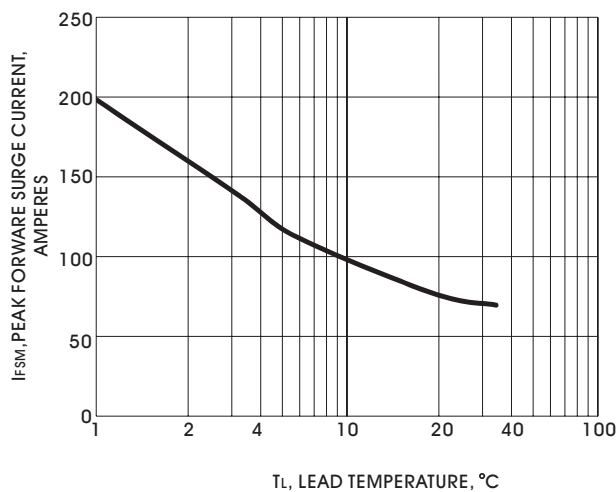


Fig.5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT