

Glass Passivated Junction Transient Voltage Suppressor

Stand-Off Voltage - 6.8 to 550 Volts

1500 Watt Peak Pulse Power/6.5 Watt Steady State

Features

- Plastic package
- Glass passivated chip junction in DO-201 Package
- 1500W surge capability at 10/1000 μ s wave form
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0ps from 0 Volts to B_V min.
- Typical IR less than 1 μ A above 10V
- High temperature soldering guaranteed: 265°C/10 seconds/.375", (9.5mm) lead length, 5lbs., (2.3kg) tension
- Pb-free plated



Mechanical Data

- **Case:** JEDEC DO-201 Molded plastic
- **Terminals:** Solderable per MIL-STD-750, Method 2026
- **Polarity:** Color band denotes cathode except Bipolar
- **Mounting Position:** Any
- **Weight:** 0.045 ounce, 1.2 grams

Devices For Bipolar Application

- For Bidirectional use C or CA Suffix for types 1.5KE6.8 thru types 1.5KE550 (e.g. 1.5KE6.8C , 1.5KE550CA)
- Electrical characteristics apply in both directions

Maximum Ratings And Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

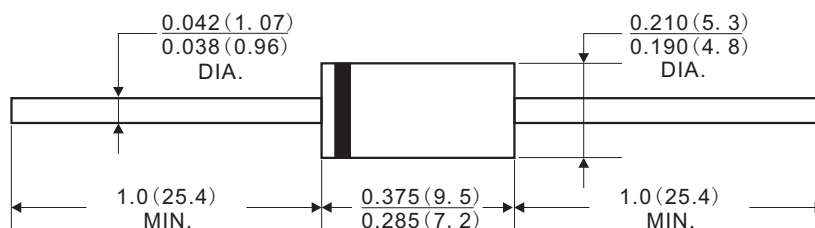
RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation at $T_A = 25^\circ\text{C}$, $T_P = 1\text{ms}$ (Note 1)	P_{PPM}	Minimum 1500	Watts
Steady State Power Dissipation at $T_L = 75^\circ\text{C}$, Lead lengths. 375", (9.5mm) (Note 2)	$P_{M(AV)}$	6.5	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note3)	I_{FSM}	200	Amps
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 $T_A = 25^\circ\text{C}$ per Fig. 2 .
2. Mounted on Copper Pad area of 1.6×1.6" (40×40mm) per Fig. 5
3. 8.3ms single half sine-wave , or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

Dimensions (DO-201)

Case Style 1.5KE(DO-201)



Dimensions in inches and (millimeters)

Electrical Characteristics

TABLE1

“*” Stand for commonly used models

1.5KE Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @IT	Breakdown Voltage @IT	Test Current	Maximum Clamping Voltage @Ipp	Peak Pulse Current	Reverse Leakage @VRWM
UNI-Polar	BI-Polar	VRWM(V)	VBR(V)Min.	VBR(V)Max.	IT(mA)	Vc(V)	Ipp(A)	IR(μA)
* 1.5KE6.8A	* 1.5KE6.8CA	5.80	6.45	7.14	10	10.5	144.8	600
1.5KE7.5A	1.5KE7.5CA	6.40	7.13	7.88	10	11.3	134.5	400
1.5KE8.2A	1.5KE8.2CA	7.02	7.79	8.61	10	12.1	125.6	200
1.5KE9.1A	1.5KE9.1CA	7.78	8.65	9.50	1	13.4	113.4	50
1.5KE10A	1.5KE10CA	8.55	9.50	10.50	1	14.5	104.8	10
1.5KE11A	1.5KE11CA	9.40	10.50	11.60	1	15.6	97.4	5
1.5KE12A	1.5KE12CA	10.20	11.40	12.60	1	16.7	91.0	5
1.5KE13A	1.5KE13CA	11.10	12.40	13.70	1	18.2	83.5	1
1.5KE15A	* 1.5KE15CA	12.80	14.30	15.80	1	21.2	71.7	1
1.5KE16A	1.5KE16CA	13.60	15.20	16.80	1	22.5	67.6	1
1.5KE18A	* 1.5KE18CA	15.30	17.10	18.90	1	25.2	60.3	1
1.5KE20A	1.5KE20CA	17.10	19.00	21.00	1	27.7	54.9	1
* 1.5KE22A	1.5KE22CA	18.80	20.90	23.10	1	30.6	49.7	1
1.5KE24A	1.5KE24CA	20.50	22.80	25.20	1	33.2	45.8	1
* 1.5KE27A	1.5KE27CA	23.10	25.70	28.40	1	37.5	40.5	1
* 1.5KE30A	* 1.5KE30CA	25.60	28.50	31.50	1	41.4	36.7	1
* 1.5KE33A	* 1.5KE33CA	28.20	31.40	34.70	1	45.7	33.3	1
1.5KE36A	1.5KE36CA	30.80	34.20	37.80	1	49.9	30.5	1
* 1.5KE39A	* 1.5KE39CA	33.30	37.10	41.00	1	53.9	28.2	1
1.5KE43A	* 1.5KE43CA	36.80	40.90	45.20	1	59.3	25.6	1
1.5KE47A	1.5KE47CA	40.20	44.70	49.40	1	64.8	23.5	1
1.5KE51A	1.5KE51CA	43.60	48.50	53.60	1	70.1	21.7	1

Notes :

- 1.For bidirectional type having VRWM of 10 volts and less, the IR limit is double
- 2.For parts with A , the VBR is ± 5%

Electrical Characteristics

TABLE1

***Stand for commonly used models

1.5KE Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @IT	Breakdown Voltage @IT	Test Current	Maximum Clamping Voltage @Ipp	Peak Pulse Current	Reverse Leakage @VRWM
UNI-Polar	BI-Polar	VRWM(V)	VBR(V)Min.	VBR(V)Max.	IT(mA)	Vc(V)	Ipp(A)	IR(μA)
1.5KE56A	1.5KE56CA	47.80	53.20	58.80	1	77.0	19.7	1
1.5KE62A	* 1.5KE62CA	53.00	58.90	65.10	1	85.0	17.9	1
1.5KE68A	* 1.5KE68CA	58.10	64.60	71.40	1	92.0	16.5	1
* 1.5KE75A	* 1.5KE75CA	64.10	71.30	78.80	1	103.0	14.8	1
1.5KE82A	1.5KE82CA	70.10	77.90	86.10	1	113.0	13.5	1
1.5KE91A	1.5KE91CA	77.80	86.50	95.50	1	125.0	12.2	1
1.5KE100A	1.5KE100CA	85.50	95.00	105.00	1	137.0	11.1	1
1.5KE110A	1.5KE110CA	94.00	105.00	116.00	1	152.0	10.0	1
1.5KE120A	1.5KE120CA	102.00	114.00	126.00	1	165.0	9.2	1
1.5KE130A	1.5KE130CA	111.00	124.00	137.00	1	179.0	8.5	1
1.5KE150A	1.5KE150CA	128.00	143.00	158.00	1	207.0	7.3	1
1.5KE160A	1.5KE160CA	136.00	152.00	168.00	1	219.0	6.9	1
1.5KE170A	1.5KE170CA	145.00	162.00	179.00	1	234.0	6.5	1
1.5KE180A	1.5KE180CA	154.00	171.00	189.00	1	246.0	6.2	1
1.5KE200A	*1.5KE200CA	171.00	190.00	210.00	1	274.0	5.5	1
1.5KE220A	1.5KE220CA	185.00	209.00	231.00	1	328.0	4.6	1
1.5KE250A	*1.5KE250CA	214.00	237.00	263.00	1	344.0	4.4	1
1.5KE300A	1.5KE300CA	256.00	285.00	315.00	1	414.0	3.7	1
* 1.5KE350A	1.5KE350CA	300.00	332.00	368.00	1	482.0	3.2	1
* 1.5KE400A	1.5KE400CA	342.00	380.00	420.00	1	548.0	2.8	1
1.5KE440A	1.5KE440CA	376.00	418.00	462.00	1	602.0	2.5	1
1.5KE480A	1.5KE480CA	408.00	456.00	504.00	1	658.0	2.3	1
1.5KE510A	1.5KE510CA	434.00	485.00	535.00	1	698.0	2.1	1
1.5KE530A	1.5KE530CA	450.00	503.50	556.50	1	725.0	2.1	1
1.5KE540A	1.5KE540CA	459.00	513.00	567.00	1	740.0	2.0	1
1.5KE550A	*1.5KE550CA	467.00	522.50	577.50	1	760.0	2.0	1

Notes :

- 1.For bidirectional type having VRWM of 10 volts and less, the IR limit is double
- 2.For parts with A , the VBR is ± 5%

Rating And Characteristic Curves

Fig.1 Peak Pulse Power Rating Curve

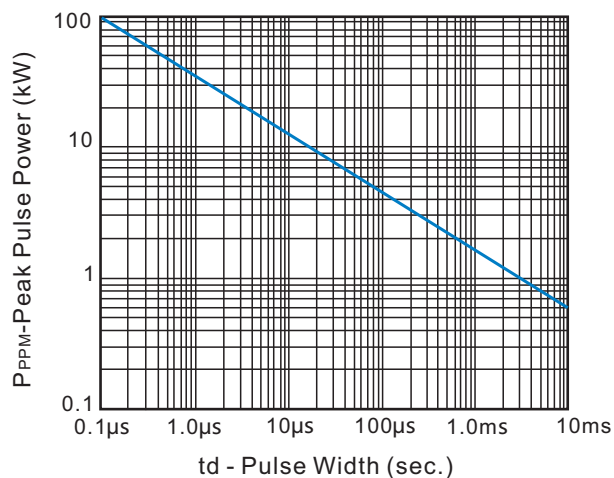


Fig.2 Pulse Derating Curve

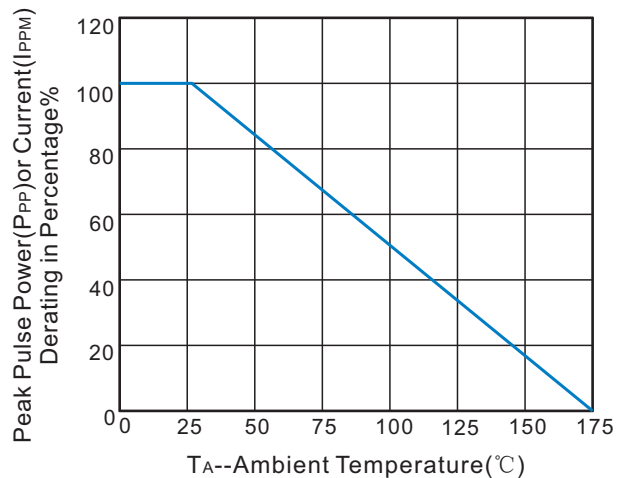


Fig.3 Pulse Waverform

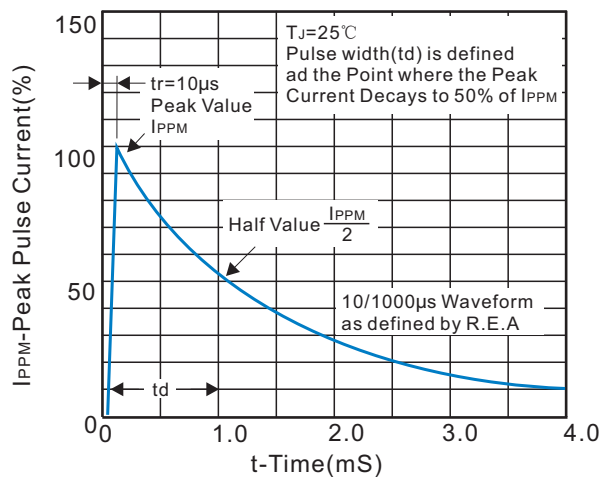


Fig.4 Typical Junction Capacitance

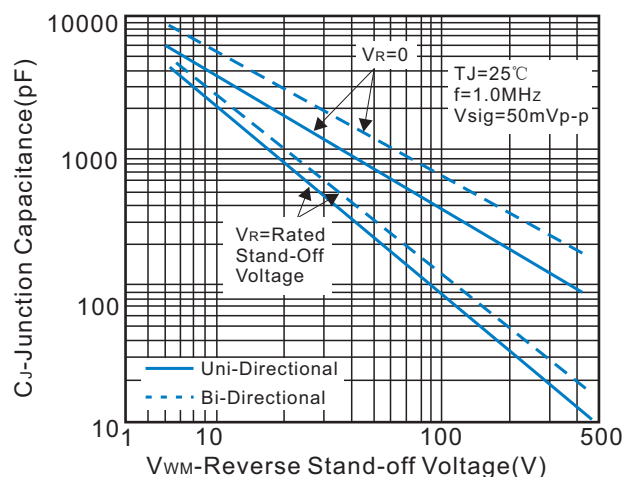


Fig.5 Steady State Power Dissipation Derating Curve

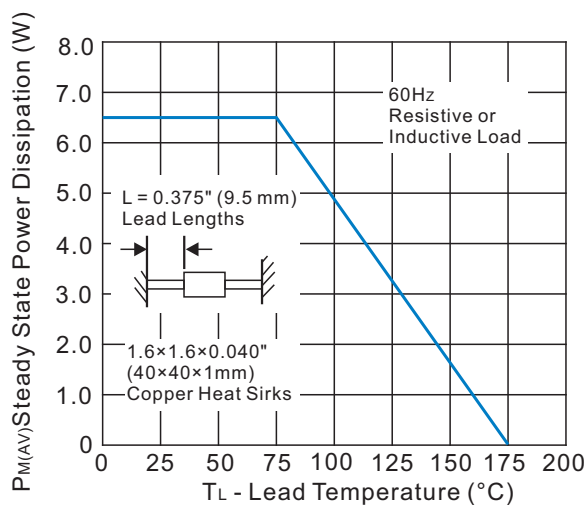
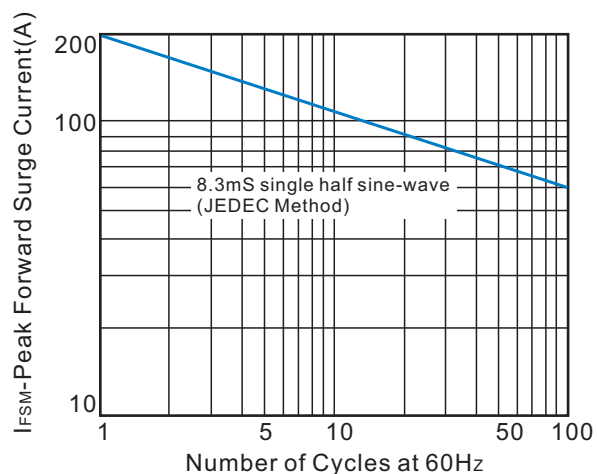


Fig.6 Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

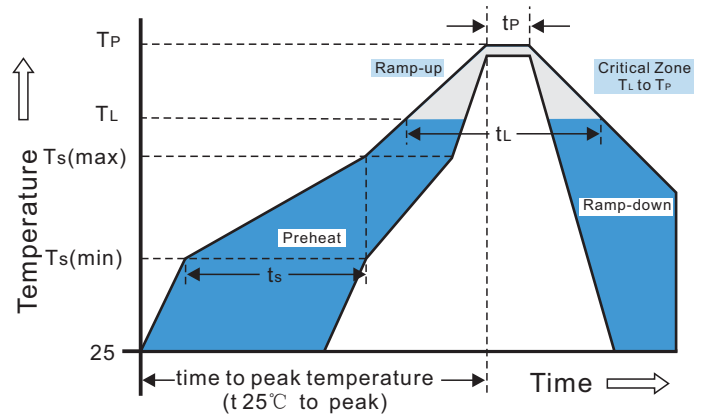


Recommended Soldering Conditions

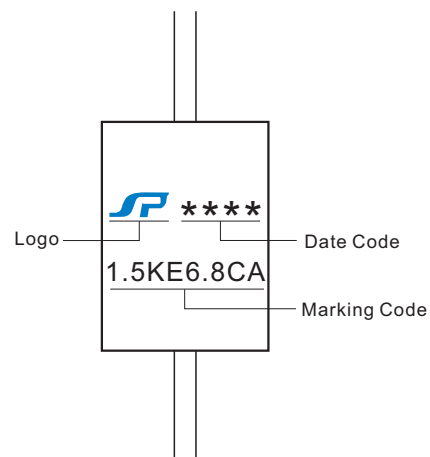
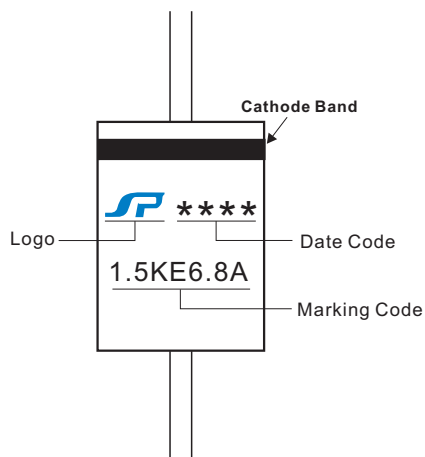
Recommended Conditions

Reflow Condition		Pb-Free assembly (see Fig.1)
Pre Heat	-Temperature Min($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time(Min to Max)(t_s)	60-180secs
Average ramp up rate (Liquidus Temp(T_L) to peak)		3°C/sec.Max.
$T_{s(max)}$ to T_L -Ramp-up Rate		3°C/sec.Max.
Reflow	-Temperature(T_L)(Liquidus)	+217°C
	-Temperature(t_L)	60-150secs
Peak Temp(T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp(t_P)		30 secs.Max.
Ramp-down Rate		6°C/sec.Max.
Time 25°C to Peak Temp(T_P)		8 min.Max.
Do not exceed		+260°C

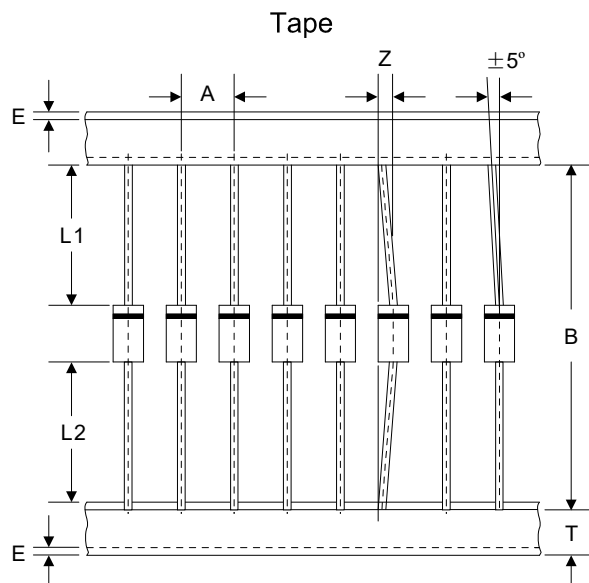
Reflow Soldering



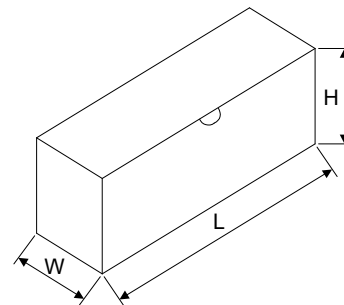
Marking Code



Packaging



Box



Dimensions in millimeters

A	B	Z	T	E	L1-L2
10.0±0.5	52.0±1.0	1.2Max	6.0±0.4	1.0Max	1.0Max

L	W	H	Quantity
250.0±5.0	78.0±5.0	114.0±5.0	1000PCS