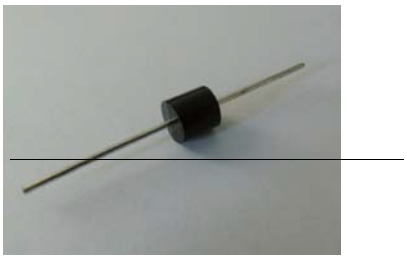
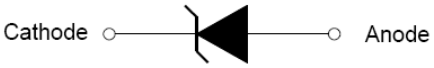
DESCRIPTION:

The 15KP series of high current uni/bi-directional transient suppressors are designed for A.C. line protection and high power DC bus clamping applications. These devices offer uni/bi-directional port protection from 17 volts to 280 volts. They provide a clamping voltage lower than the avalanche voltage. Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level. They can also be connected in series and/or parallel to create very high capacity protection solutions.



Bi-directional



Uni-direction

Symbol

FEATURES:

- ✧ Low zener impedance.
- ✧ Excellent clamping capability.
- ✧ JEDEC R-6/P-600 Molded Plastic.
- ✧ Repetition rate (duty cycle): 0.01%.
- ✧ Color band denoted cathode except bidirectional.
- ✧ High temperature soldering: 260℃/10s at terminals.
- ✧ Glass passivated chip junction in R-6/P600 package.
- ✧ 15000W Peak Pulse power capability at 10×1000μs waveform.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.

ABSOLUTE MAXIMUM RATINGS (T_A=25ºC, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000μs waveform	P_{PP}	15000	W
Peak pulse current of on 10/1000μs waveform	I_{PP}	See next table	A
Steady state power dissipation at T_L=75℃	$P_{M(AV)}$	8	W
Operating junction and Storage temperature range	T_{STG}, T_J	-55 to +150	℃
Peak forward surge current, 8.3ms single half sine-wave	I_{FSM}	400	A

ELECTRICAL CHARACTERISTICS (T_A=25℃)

Part Number		V_R	I_R@V_R	V_{BR}@I_T		I_T	V_C@I_{PP}	I_{PP}①
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
15KP17A	15KP17CA	17.0	5000	18.90	20.90	5	29.3	515.4
15KP18A	15KP18CA	18.0	5000	20.00	22.10	5	30.9	488.7
15KP20A	15KP20CA	20.0	1500	22.20	24.50	5	34.3	440.2
15KP22A	15KP22CA	22.0	500	24.40	26.90	5	37.1	407.0
15KP24A	15KP24CA	24.0	150	26.70	29.50	5	40.7	371.0
15KP26A	15KP26CA	26.0	50	28.90	31.90	5	44.0	343.2
15KP28A	15KP28CA	28.0	25	31.10	34.40	5	47.5	317.9
15KP30A	15KP30CA	30.0	15	33.30	36.80	5	50.7	297.8
15KP33A	15KP33CA	33.0	2	36.70	40.60	5	54.7	276.1
15KP36A	15KP36CA	36.0	2	40.00	44.20	5	59.8	252.5
15KP40A	15KP40CA	40.0	2	44.40	49.10	5	65.8	229.5
15KP43A	15KP43CA	43.0	2	47.80	52.80	5	69.8	216.3
15KP45A	15KP45CA	45.0	2	50.00	55.30	5	72.8	207.4
15KP48A	15KP48CA	48.0	2	53.30	58.90	5	77.7	194.3
15KP51A	15KP51CA	51.0	2	56.70	62.70	5	82.9	182.1
15KP54A	15KP54CA	54.0	2	60.00	66.30	5	87.7	172.2
15KP58A	15KP58CA	58.0	2	64.40	71.20	5	93.8	161.0
15KP60A	15KP60CA	60.0	2	66.70	73.70	5	97.4	155.0
15KP64A	15KP64CA	64.0	2	71.10	78.60	5	104.2	144.9
15KP70A	15KP70CA	70.0	2	77.80	86.00	5	113.6	132.9
15KP75A	15KP75CA	75.0	2	83.30	92.10	5	122.0	123.8
15KP78A	15KP78CA	78.0	2	86.70	95.80	5	126.1	119.7
15KP85A	15KP85CA	85.0	2	94.40	104.0	5	137.6	109.7
15KP90A	15KP90CA	90.0	2	100.0	111.0	5	145.6	103.7
15KP100A	15KP100CA	100.0	2	111.0	123.0	5	161.3	93.6
15KP110A	15KP110CA	110.0	2	122.0	135.0	5	178.6	84.5
15KP120A	15KP120CA	120.0	2	133.0	147.0	5	192.3	78.5
15KP130A	15KP130CA	130.0	2	144.0	159.0	5	208.3	72.5
15KP150A	15KP150CA	150.0	2	167.0	185.0	5	241.9	62.4
15KP160A	15KP160CA	160.0	2	178.0	197.0	5	258.6	58.4

ELECTRICAL CHARACTERISTICS (T_A=25℃, continued)

Part Number		V_R	I_R@V_R	V_{BR}@I_T		I_T	V_C@I_{PP}	I_{PP}①
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
15KP170A	15KP170CA	170.0	2	189.0	209.0	5	272.7	55.4
15KP180A	15KP180CA	180.0	2	200.0	221.0	5	288.5	52.3
15KP200A	15KP200CA	200.0	2	224.0	247.0	5	319.1	47.3
15KP220A	15KP220CA	220.0	2	246.0	272.0	5	352.5	42.8
15KP240A	15KP240CA	240.0	2	268.0	292.0	5	384.6	39.3
15KP260A	15KP260CA	260.0	2	289.0	317.0	5	416.7	36.2
15KP280A	15KP280CA	280.0	2	311.0	341.0	5	454.5	33.2

① Surge waveform: 10/1000μs

V_R： Stand-off Voltage -- Maximum voltage that can be applied V_{BR}: Breakdown Voltage

V_C： Clamping Voltage -- Peak voltage measured across the suppressor at a specified Ipp I_R: Reverse Leakage Current

RATINGS AND V-I CHARACTERISTICS CURVES (T_A=25ºC, unless otherwise noted)

FIG.1:V- I curve characteristics (Uni-directional)

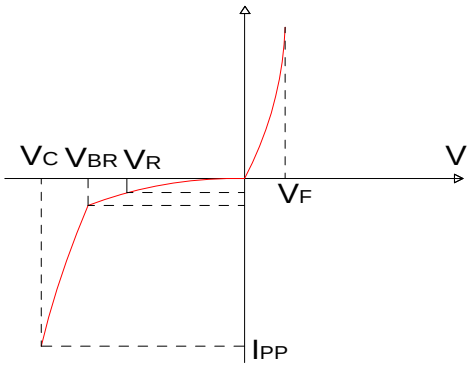


FIG.2:V- I curve characteristics (Bi-directional)

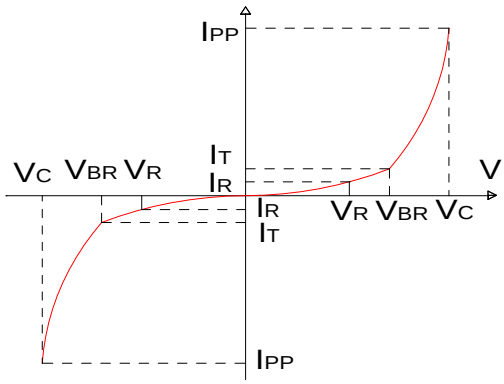


FIG.3: Pulse waveform

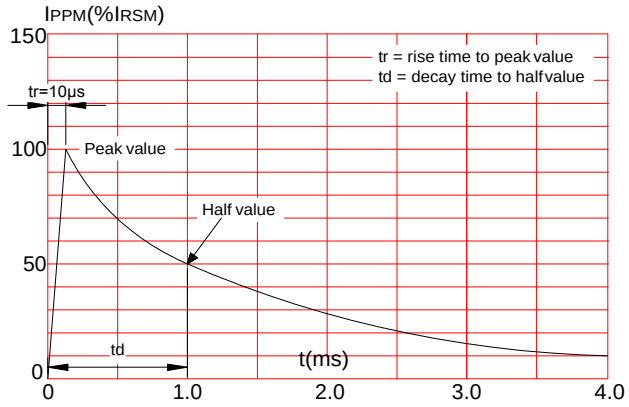
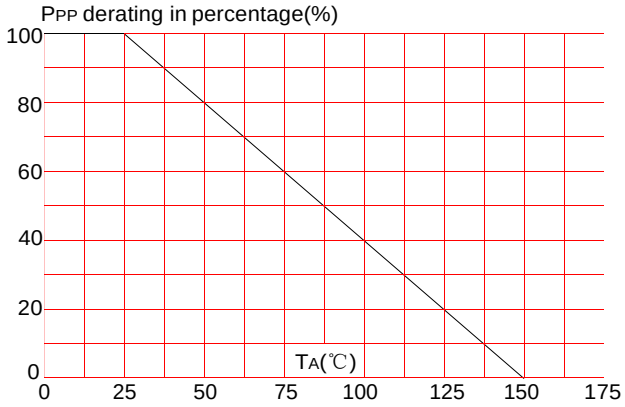


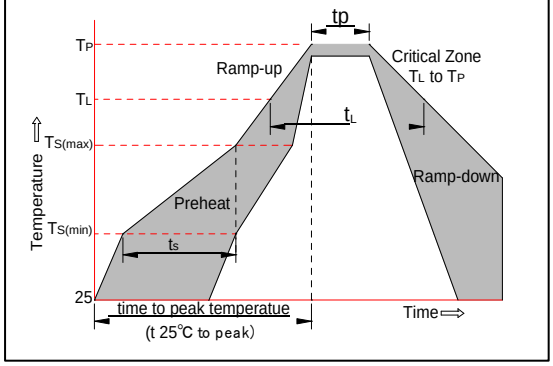
FIG.4: Pulse derating curve



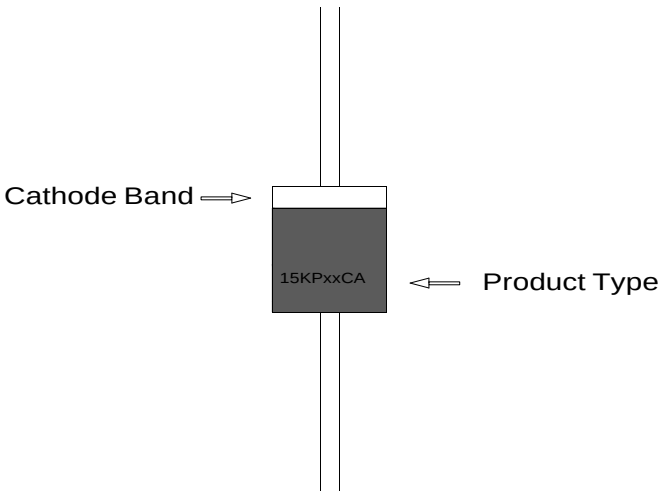
SOLDERING PARAMETERS

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

FIG.5: Reflow condition



MARKING & ORDERING INFORMATION



15KP XX C A
(1) (2) (3) (4)

(1)Series:15000 watts series
(2)Reverse Stand-off Voltage
(3)Bi-directional
(4)5% V_{BR} Voltage tolerance

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