TLC Electronic	Transient Voltage Suppressors	DOC.NO.: 3KP Series

INDIVIDUAL SPECIFICATION SHEET

Product Name: Transient Voltage Suppressors

Part Number: 3KP Series

Revision: A

Dongguan TLC Electronic Technology Co., LTD

No.18,5th GaoLi Road,TangXia Town,DongGuan,GuangDong,P.R China 523710

TEL: 86-0769-3892 0511

FAX: 86-0769-8793 2077

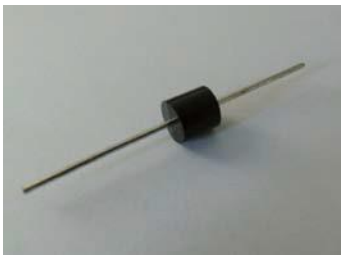
Http: www.tlcet.com.cn

Rev.	Effective Date	Changed Contents
A	2018-11-29	New Release

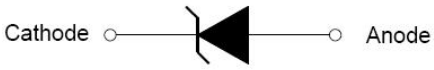
PREPEARED BY	APPROVED BY

DESCRIPTION:

The 3KP 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 5.0 volts to 220 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

mbol

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.
- ✧ 3000W 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}	3000	W
Peak pulse current of on 10/1000μs waveform	I_{PP}	See next table	A
Steady state power dissipation at T_L=75℃	$P_{M(AV)}$	6.5	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}	300	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
3KP5.0A	3KP5.0CA	5.0	150	6.40	7.00	10	9.2	326.1
3KP6.0A	3KP6.0CA	6.0	100	6.67	7.37	10	10.3	291.3
3KP6.5A	3KP6.5CA	6.5	50	7.22	7.98	10	11.2	267.9
3KP7.0A	3KP7.0CA	7.0	20	7.78	8.60	10	12.0	250.0
3KP7.5A	3KP7.5CA	7.5	10	8.33	9.21	1	12.9	232.6
3KP8.0A	3KP8.0CA	8.0	10	8.89	9.83	1	13.6	220.6
3KP8.5A	3KP8.5CA	8.5	10	9.44	10.40	1	14.4	208.3
3KP9.0A	3KP9.0CA	9.0	10	10.00	11.10	1	15.4	194.8
3KP10A	3KP10CA	10.0	5	11.10	12.30	1	17.0	176.5
3KP11A	3KP11CA	11.0	5	12.20	13.50	1	18.2	164.8
3KP12A	3KP12CA	12.0	2	13.30	14.70	1	19.9	150.8
3KP13A	3KP13CA	13.0	2	14.40	15.90	1	21.5	139.5
3KP14A	3KP14CA	14.0	1	15.60	17.20	1	23.2	129.3
3KP15A	3KP15CA	15.0	1	16.70	18.50	1	24.4	123.0
3KP16A	3KP16CA	16.0	1	17.80	19.70	1	26.0	115.4
3KP17A	3KP17CA	17.0	1	18.90	20.90	1	27.6	108.7
3KP18A	3KP18CA	18.0	1	20.00	22.10	1	29.2	102.7
3KP20A	3KP20CA	20.0	1	22.20	24.50	1	32.4	92.6
3KP22A	3KP22CA	22.0	1	24.40	26.90	1	35.5	84.5
3KP24A	3KP24CA	24.0	1	26.70	29.50	1	38.9	77.1
3KP26A	3KP26CA	26.0	1	28.90	31.90	1	42.1	71.3
3KP28A	3KP28CA	28.0	1	31.10	34.40	1	45.4	66.1
3KP30A	3KP30CA	30.0	1	33.30	36.80	1	48.4	62.0
3KP33A	3KP33CA	33.0	1	36.70	40.60	1	53.3	56.3
3KP36A	3KP36CA	36.0	1	40.00	44.20	1	58.1	51.6
3KP40A	3KP40CA	40.0	1	44.40	49.10	1	64.5	46.5
3KP43A	3KP43CA	43.0	1	47.80	52.80	1	69.4	43.2
3KP45A	3KP45CA	45.0	1	50.00	55.30	1	72.7	41.3
3KP48A	3KP48CA	48.0	1	53.30	58.90	1	77.4	38.8
3KP51A	3KP51CA	51.0	1	56.70	62.70	1	82.4	36.4

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
3KP54A	3KP54CA	54.0	1	60.00	66.30	1	87.1	34.4
3KP58A	3KP58CA	58.0	1	64.40	71.20	1	93.6	32.1
3KP60A	3KP60CA	60.0	1	66.70	73.70	1	96.8	31.0
3KP64A	3KP64CA	64.0	1	71.10	78.60	1	103.0	29.1
3KP70A	3KP70CA	70.0	1	77.80	86.00	1	113.0	26.5
3KP75A	3KP75CA	75.0	1	83.30	92.10	1	121.0	24.8
3KP78A	3KP78CA	78.0	1	86.70	95.80	1	126.0	23.8
3KP85A	3KP85CA	85.0	1	94.40	104.0	1	137.0	21.9
3KP90A	3KP90CA	90.0	1	100.0	111.0	1	146.0	20.5
3KP100A	3KP100CA	100.0	1	111.0	123.0	1	162.0	18.5
3KP110A	3KP110CA	110.0	1	122.0	135.0	1	177.0	16.9
3KP120A	3KP120CA	120.0	1	133.0	147.0	1	193.0	15.5
3KP130A	3KP130CA	130.0	1	144.0	159.0	1	209.0	14.4
3KP150A	3KP150CA	150.0	1	167.0	185.0	1	243.0	12.3
3KP160A	3KP160CA	160.0	1	178.0	197.0	1	259.0	11.6
3KP170A	3KP170CA	170.0	1	189.0	209.0	1	275.0	10.9
3KP180A	3KP180CA	180.0	1	200.0	221.0	1	292.0	10.3
3KP190A	3KP190CA	190.0	1	211.0	233.0	1	310.0	9.7
3KP200A	3KP200CA	200.0	1	224.0	247.0	1	329.2	9.3
3KP210A	3KP210CA	210.0	1	237.0	263.0	1	349.5	8.8
3KP220A	3KP220CA	220.0	1	246.0	272.0	1	371.1	8.4

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)

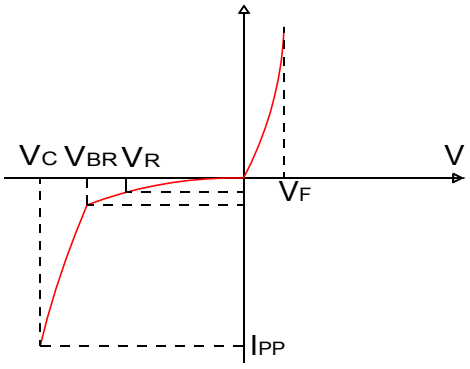


FIG.2:V- I curve characteristics (Bi-directional)

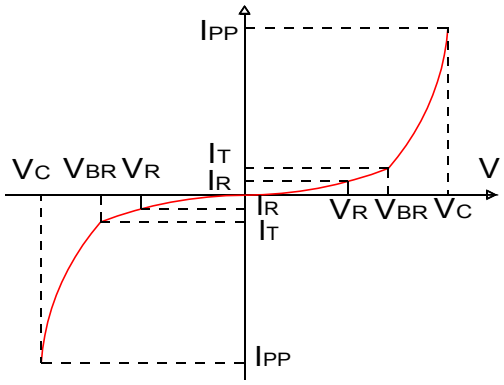


FIG.3: Pulse waveform

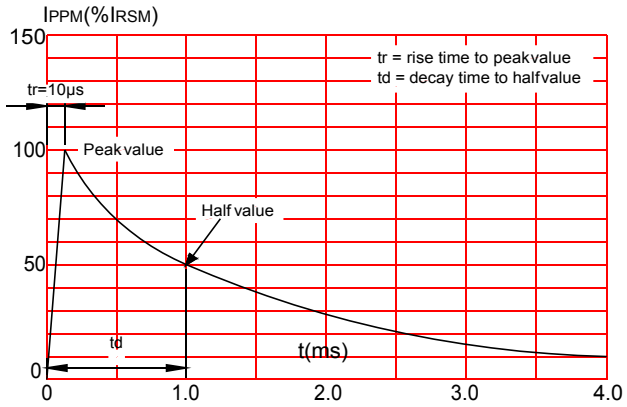
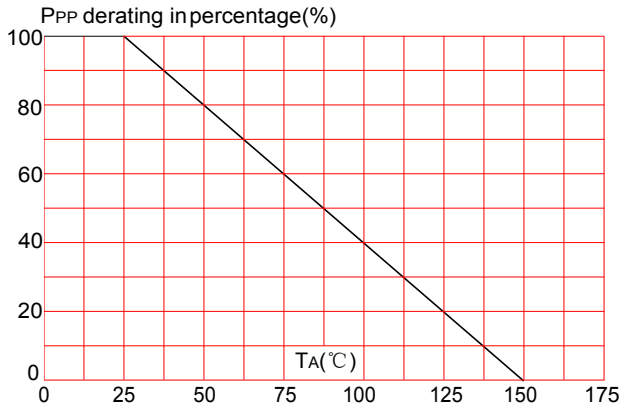


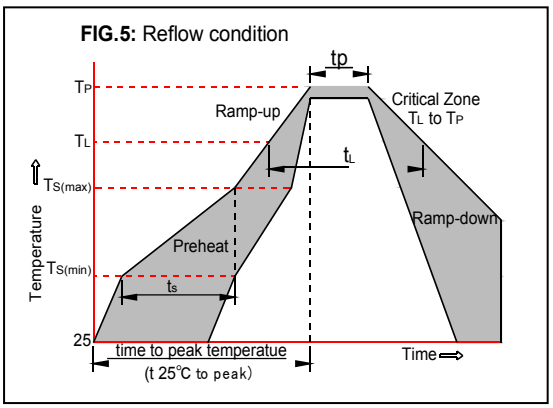
FIG.4: Pulse derating curve



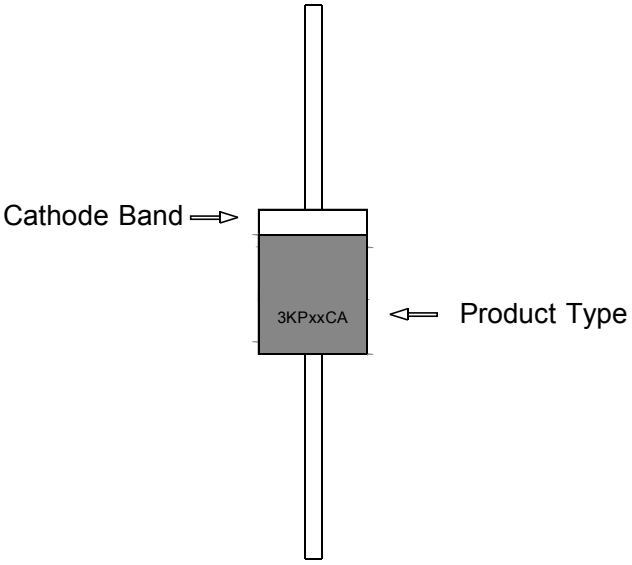
SOLDERING PARAMETERS

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

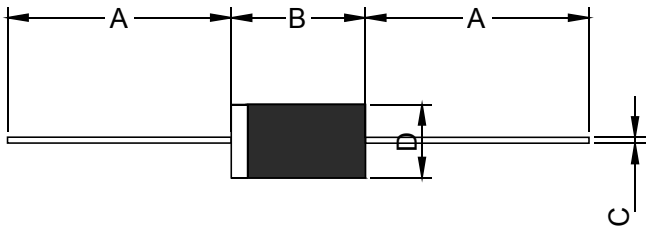


MARKING & ORDERING INFORMATION



3KP XX C A
(1) (2) (3) (4)
(1)Series:3000 watts series
(2)Reverse Stand-off Voltage
(3)Bi-directional
(4)5% V_{BR} Voltage tolerance

PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	1.000	-	25.40	-
B	0.339	0.370	8.60	9.40
C	0.048	0.052	1.20	1.40
D	0.340	0.360	8.60	9.10