



# 产品承认书

## Product Approval Sheet

编号 NO.	3KP-A/0-T
日期 Date	2021.10.20

客户 (Customer)	
品名 (Product)	TVS
系列 (Series)	3KP

料号 (Part No.)		规格描述 (Specification)	备注 (Remark)
贝特电子 Betterfuse			
客户 Customer			

### 环保符合性说明 (Instructions for HSF)

本产品符合:  RoHS 2.0  HF  REACH  LEAD FREE  其他备注

供应商-贝特 Supplier-Better fuse		确认合格章 (Confirm qualified Signet)	客 户 (Customer)	零件承认章 (Approval Signet)
制 作 Make	陈文珊			
审 核 Check	高飞			
确 认 Approval	项伟荣			

### 联络 (Contact)

业务 (Sales)	电话 (Telephone)	手机 (Cellphone)	邮箱 (E-mail)

零件承认后敬请回签一份给我司留存, 或将承认后的封面回传至我司邮箱, 谢谢!

Please sign a copy of the parts for our company or fax the acknowledged cover to our E-mail. Thanks!



## 变更履历 Modified Information

序号 (No.)	日期 (Date)	修订内容 (Modified Content)	页码 (Page)	版本 (Edition)	制定人 (Prepared by)	审核人 (Checked by)
1	2021.10.20	Draft	/	A/0	Wenshan Chen	Fei Gao

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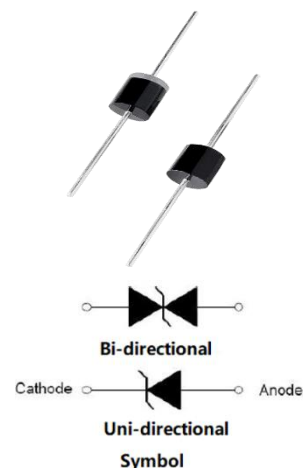


## 1. Description

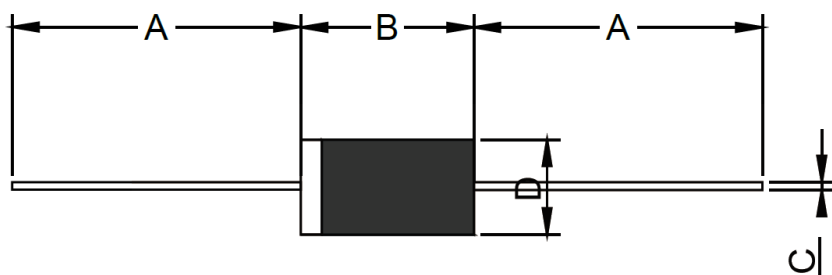
The 3KP series of high current uni/bi-directional transient suppressors are designed for A.C. line protection and high power DC bus clamping applications. These devices offer uni/bi-directional port protection from 5.0 volts to 220 volts. They provide a clamping voltage lower than the avalanche voltage. 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.

## 2. 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°C/10s at terminals.
- ✧ 3000W Peak Pulse power capability at 10×1000μs waveform.
- ✧ Fast response time: typically less than 1.0ps from 0V to  $V_{BR}$  min.
- ✧ Glass passivated chip junction in R-6/P-600 package.
- ✧ Meets MSL level 1, per J-STD-020.



## 3. Size



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

4. Electrical Characteristics( $T_A=25^{\circ}\text{C}$ )

Part Number		$V_R$	$I_R@V_R$	$V_{BR}@I_T$		$I_T$	$V_C@I_{PP}$	$I_{PP}^{\circ}$
Uni-Polar	Bi-Polar	V	$\mu\text{A}$	Min(V)	Max(V)	mA	Max(V)	A
3KP5.0A	3KP5.0CA	5.0	5000	6.40	7.00	10	9.2	326.1
3KP6.0A	3KP6.0CA	6.0	5000	6.67	7.37	10	10.3	291.3
3KP6.5A	3KP6.5CA	6.5	2000	7.22	7.98	10	11.2	267.9
3KP7.0A	3KP7.0CA	7.0	1000	7.78	8.60	10	12.0	250.0
3KP7.5A	3KP7.5CA	7.5	250	8.33	9.21	1	12.9	232.6
3KP8.0A	3KP8.0CA	8.0	150	8.89	9.83	1	13.6	220.6
3KP8.5A	3KP8.5CA	8.5	50	9.44	10.40	1	14.4	208.3
3KP9.0A	3KP9.0CA	9.0	20	10.00	11.10	1	15.4	194.8
3KP10A	3KP10CA	10.0	15	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	2	15.60	17.20	1	23.2	129.3
3KP15A	3KP15CA	15.0	2	16.70	18.50	1	24.4	123.0
3KP16A	3KP16CA	16.0	2	17.80	19.70	1	26.0	115.4
3KP17A	3KP17CA	17.0	2	18.90	20.90	1	27.6	108.7
3KP18A	3KP18CA	18.0	2	20.00	22.10	1	29.2	102.7
3KP20A	3KP20CA	20.0	2	22.20	24.50	1	32.4	92.6
3KP22A	3KP22CA	22.0	2	24.40	26.90	1	35.5	84.5
3KP24A	3KP24CA	24.0	2	26.70	29.50	1	38.9	77.1
3KP26A	3KP26CA	26.0	2	28.90	31.90	1	42.1	71.3
3KP28A	3KP28CA	28.0	2	31.10	34.40	1	45.4	66.1
3KP30A	3KP30CA	30.0	2	33.30	36.80	1	48.4	62.0
3KP33A	3KP33CA	33.0	2	36.70	40.60	1	53.3	56.3
3KP36A	3KP36CA	36.0	2	40.00	44.20	1	58.1	51.6
3KP40A	3KP40CA	40.0	2	44.40	49.10	1	64.5	46.5
3KP43A	3KP43CA	43.0	2	47.80	52.80	1	69.4	43.2
3KP45A	3KP45CA	45.0	2	50.00	55.30	1	72.7	41.3
3KP48A	3KP48CA	48.0	1	53.30	58.90	1	77.4	38.8



Part Number		V <sub>R</sub>	I <sub>R</sub> @V <sub>R</sub>	V <sub>BR</sub> @I <sub>T</sub>		I <sub>T</sub>	V <sub>C</sub> @I <sub>PP</sub>	I <sub>PP</sub> ①
Uni-Polar	Bi-Polar	V	μA	Min(V)	Max(V)	mA	Max(V)	A
3KP51A	3KP51CA	51.0	2	56.70	62.70	1	82.4	36.4
3KP54A	3KP54CA	54.0	2	60.00	66.30	1	87.1	34.4
3KP58A	3KP58CA	58.0	2	64.40	71.20	1	93.6	32.1
3KP60A	3KP60CA	60.0	2	66.70	73.70	1	96.8	31.0
3KP64A	3KP64CA	64.0	2	71.10	78.60	1	103.0	29.1
3KP70A	3KP70CA	70.0	2	77.80	86.00	1	113.0	26.5
3KP75A	3KP75CA	75.0	2	83.30	92.10	1	121.0	24.8
3KP78A	3KP78CA	78.0	2	86.70	95.80	1	126.0	23.8
3KP85A	3KP85CA	85.0	2	94.40	104.0	1	137.0	21.9
3KP90A	3KP90CA	90.0	2	100.0	111.0	1	146.0	20.5
3KP100A	3KP100CA	100.0	2	100.0	111.0	1	162.0	18.5
3KP110A	3KP110CA	110.0	2	111.0	123.0	1	177.0	16.9
3KP120A	3KP120CA	120.0	2	122.0	135.0	1	193.0	15.5
3KP130A	3KP130CA	130.0	2	133.0	147.0	1	209.0	14.4
3KP150A	3KP150CA	150.0	2	144.0	159.0	1	243.0	12.3
3KP160A	3KP160CA	160.0	2	167.0	185.0	1	259.0	11.6
3KP170A	3KP170CA	170.0	2	178.0	197.0	1	275.0	10.9
3KP180A	3KP180CA	180.0	2	189.0	209.0	1	292.0	10.3
3KP190A	3KP190CA	190.0	2	211.0	233.0	1	310.0	9.7
3KP200A	3KP200CA	200.0	2	224.0	247.0	1	329.2	9.3
3KP210A	3KP210CA	210.0	2	237.0	263.0	1	349.5	8.8
3KP220A	3KP220CA	220.0	2	246.0	272.0	1	371.1	8.4

① Surge waveform: 10/1000μs

V<sub>R</sub>: Stand-off Voltage -- Maximum voltage that can be applied

V<sub>BR</sub>: Breakdown Voltage

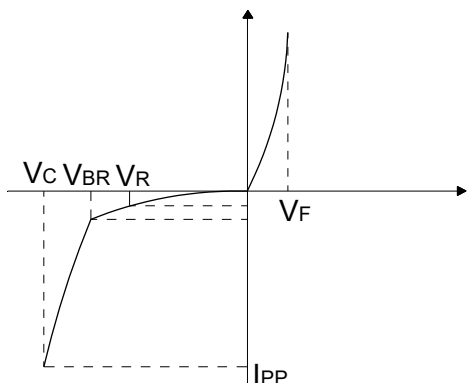
V<sub>C</sub>: Clamping Voltage -- Peak voltage measured across the suppressor at a specified I<sub>pp</sub>

I<sub>R</sub>: Reverse Leakage Current

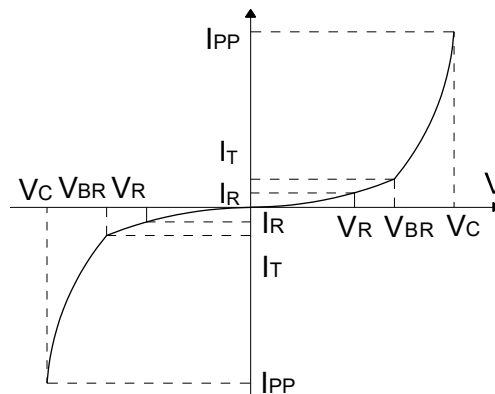


**5. Ratings And V-I Characteristics Curves( $T_A=25^{\circ}\text{C}$ , Unless otherwise noted)**

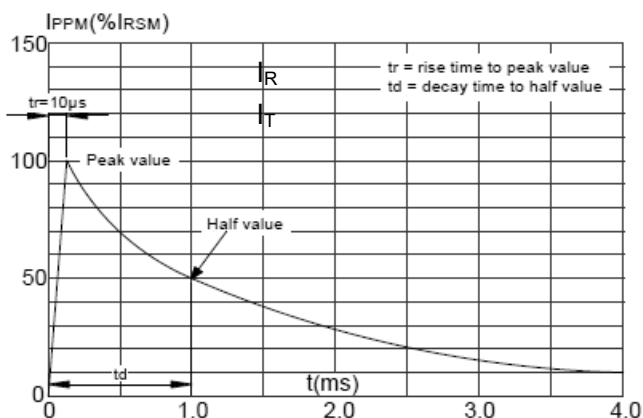
**FIG.1: V-I curve characteristics (Uni-directional)**



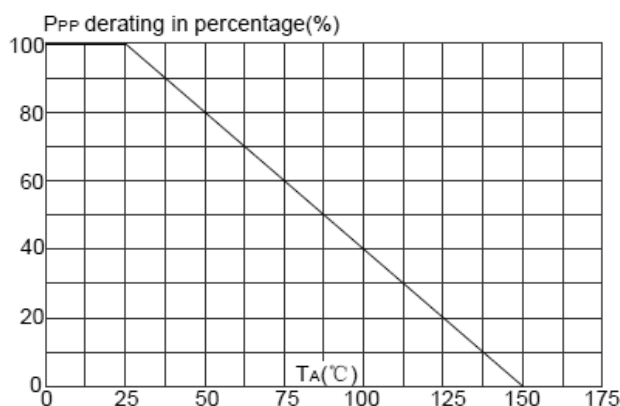
**FIG.2: V-I curve characteristic (Bi-directional)**



**FIG.3: Pulse waveform**



**FIG.4: Pulse derating curve**



**6. Absolute Maximum Ratings( $T_A=25^{\circ}\text{C}$ ,  $RH=45\%-75\%$ , unless otherwise noted)**

Parameter	Symbol	Value	Unit
Operating junction and Storage temperature range	$T_{STG}, T_J$	-55 to +150	$^{\circ}\text{C}$
Peak pulse current of on 10/1000 $\mu\text{s}$ waveform	$I_{PP}$	See next table	A
Steady state power dissipation at $T_L=75^{\circ}\text{C}$	$P_{M(AV)}$	6.5	W
Peak pulse power dissipation on 10/1000 $\mu\text{s}$ waveform	$P_{PP}$	3000	W
Peak forward surge current, 8.3ms single half sine-wave	$I_{FSM}$	300	A

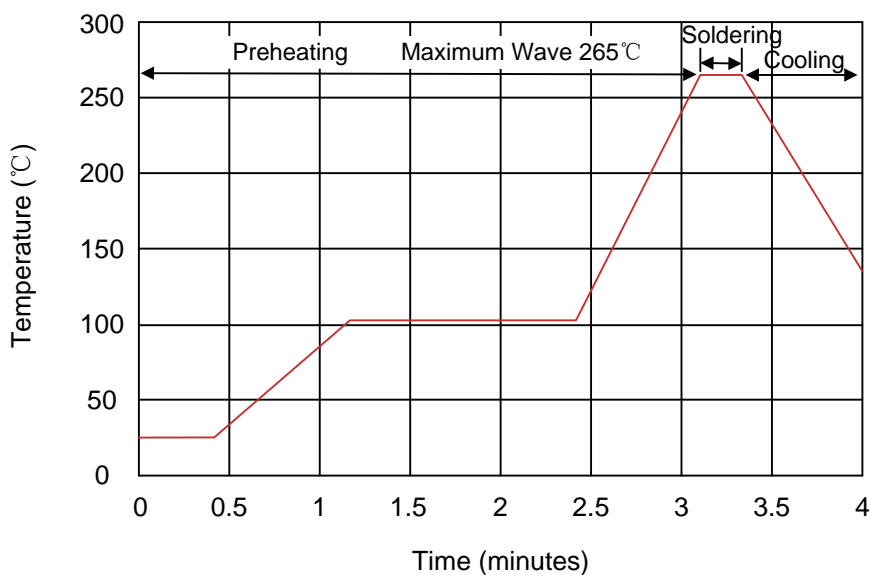


## 7. Package Information

Part No.	Case Type	Quantity	Packing Option
3KPXXCA/A	R-6/P-600	300	Box

## 8. Soldering Parameters

Wave Soldering



Item	Conditions
Peak Temperature	265°C
Dipping Time	10 seconds
Soldering	1 time