



# 产品承认书

## Product Approval Sheet

编号 NO.	1.5KE-A/0-T
日期 Date	2021.10.20

客户 (Customer)	
品名 (Product)	TVS
系列 (Series)	1.5KE

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)
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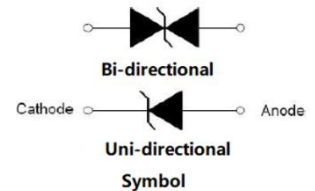


## 1. Description

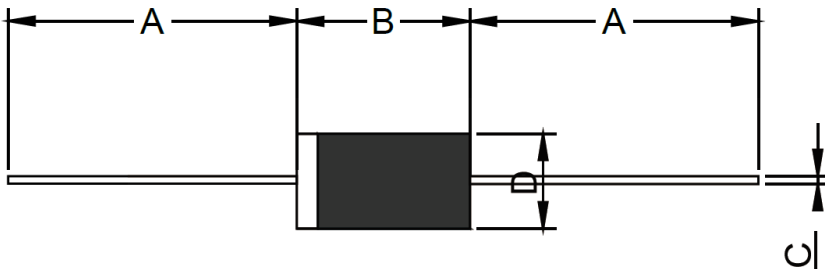
The 1.5KE series of high current uni/bi-directional transient suppressors are designed for A.C. line protection and high power DC bus clamping applications. These devices offer uni/bi-directional port protection from 6.8 volts to 440 volts. They provide a clamping voltage lower than the avalanche voltage. 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 DO-27/DO-201 Molded Plastic.
- ✧ Repetition rate (duty cycle): 0.01%.
- ✧ Color band denoted cathode except bidirectional.
- ✧ High temperature soldering: 260°C/10s at terminals.
- ✧ 1500W 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 DO-27/DO-201 package.
- ✧ Meets MSL level 1, per J-STD-020.



## 3. Size



Ref.	Dimensions			
	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	0.945	-	24.0	-
B	0.285	0.375	7.20	9.50
C	0.038	0.057	0.96	1.45
D	0.190	0.221	4.80	5.60

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
1.5KE6.8A	1.5KE6.8CA	5.8	1000	6.45	7.14	10	10.5	147.1
1.5KE7.5A	1.5KE7.5CA	6.4	500	7.13	7.88	10	11.3	132.8
1.5KE8.2A	1.5KE8.2CA	7.02	200	7.79	8.61	10	12.1	124.0
1.5KE9.1A	1.5KE9.1CA	7.78	50	8.65	9.55	1	13.4	112.0
1.5KE10A	1.5KE10CA	8.55	10	9.50	10.50	1	14.5	103.5
1.5KE11A	1.5KE11CA	9.4	5	10.50	11.60	1	15.6	96.2
1.5KE12A	1.5KE12CA	10.2	5	11.40	12.60	1	16.7	89.8
1.5KE13A	1.5KE13CA	11.1	1	12.40	13.70	1	18.2	82.5
1.5KE15A	1.5KE15CA	12.8	1	14.30	15.80	1	21.2	70.8
1.5KE16A	1.5KE16CA	13.6	1	15.20	16.80	1	22.5	66.7
1.5KE18A	1.5KE18CA	15.3	1	17.10	18.90	1	25.2	59.6
1.5KE20A	1.5KE20CA	17.1	1	19.00	21.00	1	27.7	54.2
1.5KE22A	1.5KE22CA	18.8	1	20.90	23.10	1	30.6	49.1
1.5KE24A	1.5KE24CA	20.5	1	22.80	25.20	1	33.2	45.2
1.5KE27A	1.5KE27CA	23.1	1	25.70	28.40	1	37.5	40.0
1.5KE30A	1.5KE30CA	25.6	1	28.50	31.50	1	41.4	36.3
1.5KE33A	1.5KE33CA	28.2	1	31.40	34.70	1	45.7	32.9
1.5KE36A	1.5KE36CA	30.8	1	34.20	37.80	1	49.9	30.1
1.5KE39A	1.5KE39CA	33.3	1	37.10	41.00	1	53.9	27.9
1.5KE43A	1.5KE43CA	36.8	1	40.90	45.20	1	59.3	25.3
1.5KE47A	1.5KE47CA	40.2	1	44.70	49.40	1	64.8	23.2
1.5KE51A	1.5KE51CA	43.6	1	48.50	53.60	1	70.1	21.4
1.5KE56A	1.5KE56CA	47.8	1	53.20	58.80	1	77.0	19.5
1.5KE62A	1.5KE62CA	53.0	1	58.90	65.10	1	85.0	17.7
1.5KE68A	1.5KE68CA	58.1	1	64.60	71.40	1	92.0	16.4
1.5KE75A	1.5KE75CA	64.1	1	71.30	78.80	1	103.0	14.6
1.5KE82A	1.5KE82CA	70.1	1	77.90	86.10	1	113.0	13.3
1.5KE91A	1.5KE91CA	77.8	1	86.50	95.50	1	125.0	12.0
1.5KE100A	1.5KE100CA	85.5	1	95.00	105.0	1	137.0	11.0



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
1.5KE110A	1.5KE110CA	94.0	1	105.0	116.0	1	152.0	10.0
1.5KE120A	1.5KE120CA	102.0	1	114.0	126.0	1	165.0	9.1
1.5KE130A	1.5KE130CA	111.0	1	124.0	137.0	1	179.0	8.4
1.5KE150A	1.5KE150CA	128.0	1	143.0	158.0	1	207.0	7.3
1.5KE160A	1.5KE160CA	136.0	1	152.0	168.0	1	219.0	6.9
1.5KE170A	1.5KE170CA	145.0	1	162.0	179.0	1	234.0	6.5
1.5KE180A	1.5KE180CA	154.0	1	171.0	189.0	1	246.0	6.1
1.5KE200A	1.5KE200CA	171.0	1	190.0	210.0	1	274.0	5.5
1.5KE220A	1.5KE220CA	185.0	1	209.0	231.0	1	328.0	4.6
1.5KE250A	1.5KE250CA	214.0	1	237.0	263.0	1	344.0	4.4
1.5KE300A	1.5KE300CA	256.0	1	285.0	315.0	1	414.0	3.7
1.5KE350A	1.5KE350CA	300.0	1	332.0	368.0	1	482.0	3.2
1.5KE400A	1.5KE400CA	342.0	1	380.0	420.0	1	548.0	2.8
1.5KE440A	1.5KE440CA	376.0	1	418.0	462.0	1	602.0	2.5

① Surge waveform: 10/1000μs

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

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

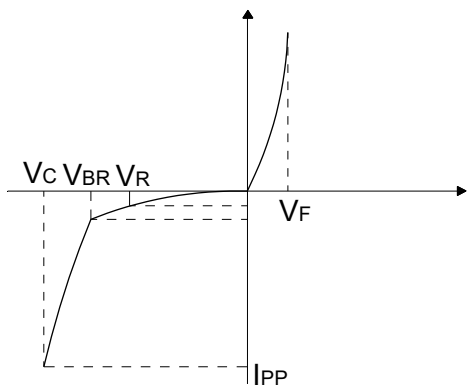
V<sub>C</sub>: Clamping Voltage -- Peak voltage measured across the suppressor at a specified I<sub>pp</sub>

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

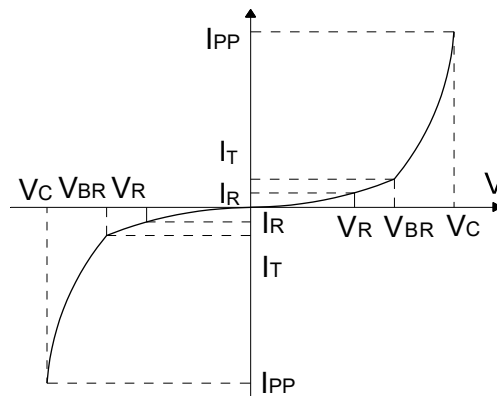


**5. Ratings And V-I Characteristics Curves( $T_A=25^{\circ}\text{C}$ , Unless otherwise noted)**

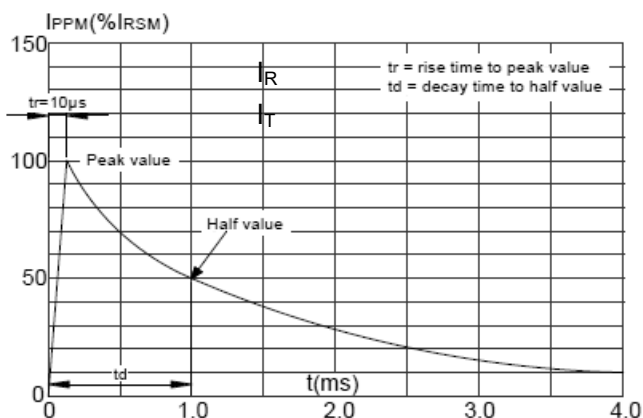
**FIG.1: V-I curve characteristics (Uni-directional)**



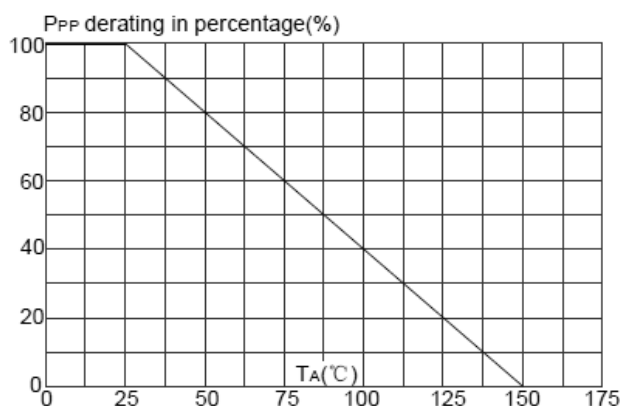
**FIG.2: V-I curve characteristic (Bi-directional)**



**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	$P_{PP}$	1500	W
Peak forward surge current, 8.3ms single half sine-wave	$I_{FSM}$	200	A

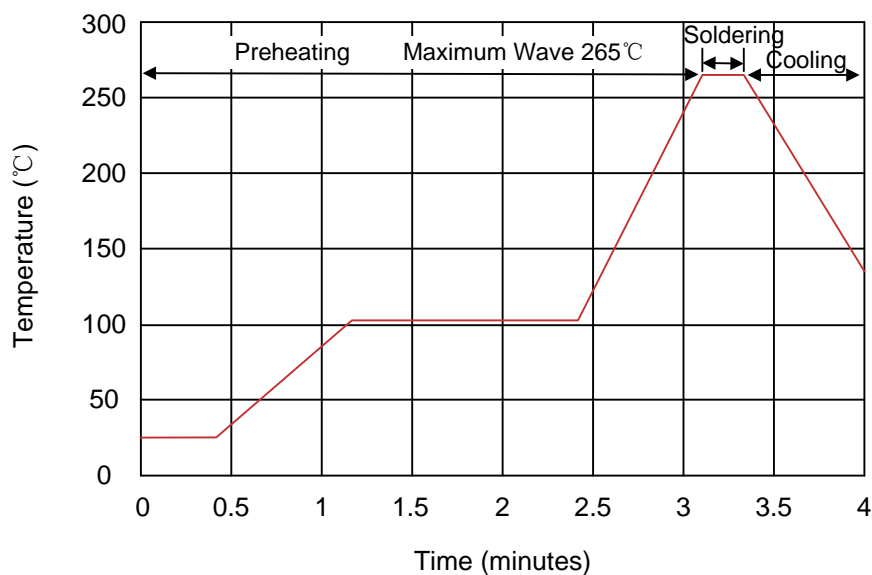


## 7. Package Information

Part No.	Case Type	Quantity	Packing Option
1.5KEXXCA/A	DO-27/DO-201	1000	Box

## 8. Soldering Parameters

### Wave Soldering



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