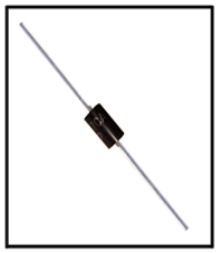
飞仕龙达 FEISHILONGDA

TVS 瞬变电压抑制二极管 Transient Voltage Suppressor [1.5KE Series]

特性/机械性能： FEATURES/MECHANICAL DATE


DO-201AE

- ◆ 1500W 峰值脉冲功率 1500W peak pulse power capability
- ◆ 优良的箝制能力 Excellent clamping capability
- ◆ 较小的箝位因子 Smaller clamping factor
- ◆ 快速响应时间：从: 0 v到 VBR，单向型小于1.0ps，双向型小于5.0ns
  Fast response time: typically less than 1.0ps from 0v to VBR for unidirectional and 5.0ns for bidirectional types.
- ◆ 耐焊接热：250℃/10S，引出端0.375”（9.5mm）处
  Resistance to soldering heat:250 ℃ /10S,terminal 0.375”（9.5mm）mm.
- ◆ 封 装: 模塑封装 Case: Molded plastic
- ◆ 塑封材料: 用UL94V-0认可的阻燃环氧料 Epoxy: UL94V-0 rate flame retardant
- ◆ 引 线：电镀轴式引线可焊性符合MIL-STD-202,方法208
  Lead: Axial lead solderable per MIL-STD-202, method 208
- ◆ 极 性: 色带表示阴极， Polarity: Color band denotes cathode except Bipolar
- ◆ 安装位置: 任意 Mounting position: Any

最大额定值及电气特性： MAXIMUM RATINGS AND CHARACTERISTICS

测量环境温度为25℃，除非另有规定。
Rating at 25℃ ambient temperature unless otherwise specified.

参数名称 Papt Number	符号Symbol	额定值 Value	单位Unit
最大峰值脉冲功率 Peak power dissipation	Pppm	最小（Min） 1500	W
最大峰值反向脉冲电流 (注释1) Peak pulse reverse current (Note1)	Ippm	见表（See Table）	A
稳态功率 (注释2) Steady state power dissipation (Note2)	Pm(AV)	5.0	W
最大峰值正向浪涌电流(注释3)仅对单向型 Maximum Peak Forward surge Current (Note3)For unidirectional only	IFSM	200.0	A
最大瞬态正向电压 @50A 仅对单向型 (注释4) Maximum instantaneous forward voltage @50A , For unidirectional only (Note4)	VF	3.5/5.0/7.5	V
工作及储存温度 Operating and Storage Temperature Range	TJ,TSTG	-55～+175	℃

注 释: NOTES:

1. 脉冲电流时间10 / 1000μs。10 / 1000μs waveform non-repetitive current pulse
2. T1=75℃，在引线9.5mm处，安装面积为（40×40×1mm ）的散热铜片。
   T1=75℃,lead lengths 0.375inches, Mounted on copper pad area of (40×40×1mm)
3. 使用单相正弦半波，时间10ms；或使用等效的方波，4周波/分。
   Measured on 10ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.
4. V(BR) ≤ 200V，VF最大值为3.5 V； 200V＜V(BR)＜440V，VF最大值为5.0V，V(BR) ≥440V，VF最大值为7.5V。
   VF=3.5V max. for devices of V(BR) ≤200V，and VF=5.0V max. for devices of 200V＜V(BR)＜440V，VF= 7.5V max. for devices of V(BR) ≥440V.
5. 封装除DO-201AE外，亦可采用DO-201AD形式。Besides DO-201AE it can be the case of DO-201AD

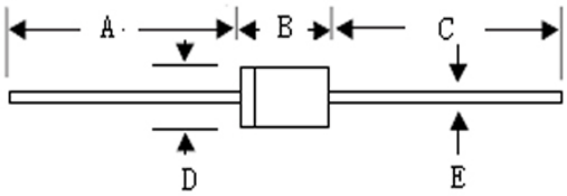
双向型器件应用说明:DEVICES FOR BIDIRECTIONAL APPLICATIONS :

1. 在型号名称后注有C 或CA，表示双向型。For bidirectional use C or CA suffix for types
2. 电气特性适用于两个方向。 Electrical characteristics apply in both directions.

[1.5KE Series] Transient Voltage Suppressor 瞬变电压抑制二极管 TVS

产品外形尺寸： PRODUCT APPEARANCE SIZE

DO-201AE



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.0		25.4	
B	0.335	0.375	8.5	9.5
C	1.0		25.4	
D	0.197	0.220	5.0	5.6
E	0.0380	0.0420	0.96	1.06

电特性： ELECTRICAL CHARACTERISTICS

型 号 Device Type	击穿电压 Breakdown Voltage(Note1)		测试电流 Test Current	变位电压 Stand-off Volage	最大反向漏电流 @V_{WM} MaximumReverse leadage @V_{WM}	最大峰值脉冲浪涌电流 Maximum Peak Pulse Reverse Current	最大箝位电压 @Ippm Maximum Clamping Voltage @I ppm
	$V_{(BR)}$(V) MIN	$V_{(BR)}$(V) MAX	I_T(mA)	V_{WM}(V)	I_D(μA) (Note2)	I ppm (A)	V_C (V)
1.5KE6.8	6.12	7.48	**10.0**	5.50	1000.0	145.0	10.8
1.5KE6.8A	6.45	7.14	**10.0**	5.80	1000.0	150.0	10.5
1.5KE7.5	6.75	8.25	**10.0**	6.05	500.0	134.0	11.7
1.5KE7.5A	7.13	7.88	**10.0**	6.40	500.0	139.0	11.3
1.5KE8.2	7.38	9.02	**10.0**	6.63	200.0	126.0	12.5
1.5KE8.2A	7.79	8.61	**10.0**	7.02	200.0	130.0	12.1
1.5KE9.1	8.19	10.0	**1.0**	7.37	50.0	114.0	13.8
1.5KE9.1A	8.65	9.55	**1.0**	7.78	50.0	117.0	13.4
1.5KE10	9.00	11.0	**1.0**	8.10	10.0	105.0	15.0
1.5KE10A	9.50	10.5	**1.0**	8.55	10.0	108.0	14.5
1.5KE11	9.90	12.1	**1.0**	8.92	5.0	97.0	16.2
1.5KE11A	10.5	11.6	**1.0**	9.40	5.0	100.0	15.6
1.5KE12	10.8	13.2	**1.0**	9.72	5.0	91.0	17.3
1.5KE12A	11.4	12.6	**1.0**	10.2	5.0	94.0	16.7
1.5KE13	11.7	14.3	**1.0**	10.5	5.0	82.0	19.0
1.5KE13A	12.4	13.7	**1.0**	11.1	5.0	86.0	18.2
1.5KE15	13.5	16.5	**1.0**	12.1	5.0	71.0	22.0
1.5KE15A	14.3	15.8	**1.0**	12.8	5.0	74.0	21.2
1.5KE16	14.4	17.6	**1.0**	12.9	5.0	67.0	23.5
1.5KE16A	15.2	16.8	**1.0**	13.6	5.0	70.0	22.5
1.5KE18	16.2	19.8	**1.0**	14.5	5.0	59.0	26.5
1.5KE18A	17.1	18.9	**1.0**	15.3	5.0	60.0	25.2
1.5KE20	18.0	22.0	**1.0**	16.2	5.0	54.0	29.1
1.5KE20A	19.0	21.0	**1.0**	17.1	5.0	56.0	27.7
1.5KE22	19.8	24.2	**1.0**	17.8	5.0	49.0	31.9
1.5KE22A	20.9	23.1	**1.0**	18.8	5.0	51.0	30.6
1.5KE24	21.6	26.4	**1.0**	19.4	5.0	45.0	34.7
1.5KE24A	22.8	25.2	**1.0**	20.5	5.0	47.0	33.2

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型 号 Device Type	击穿电压 Breakdown Voltage(Note1)		测试电流 Test Current	变位电压 Stand-off Volage	最大反向漏电流 @V_{WM} MaximumReverse leadage @V_{WM}	最大峰值脉冲浪涌电流 Maximum Peak Pulse Reverse Current	最大箝位电压 @Ippm Maximum Clamping Voltage @I ppm
	$V_{(BR)}$(V) MIN	$V_{(BR)}$(V) MAX大	I_T(mA)	V_{WM}(V)	I_D(μA) (Note2)	I ppm (A)	V_C (V)
1.5KE27	24.3	29.7	1.0	21.8	5.0	40.0	39.1
1.5KE27A	25.7	28.4	1.0	23.1	5.0	42.0	37.5
1.5KE30	27.0	33.0	1.0	24.3	5.0	36.0	43.5
1.5KE30A	28.5	31.5	1.0	25.6	5.0	38.0	41.4
1.5KE33	29.7	36.3	1.0	26.8	5.0	33.0	47.7
1.5KE33A	31.4	34.7	1.0	28.2	5.0	34.0	45.7
1.5KE36	32.4	39.6	1.0	29.1	5.0	30.0	52.0
1.5KE36A	34.2	37.8	1.0	30.8	5.0	31.0	49.9
1.5KE39	35.1	42.9	1.0	31.6	5.0	27.0	56.4
1.5KE39A	37.1	41.0	1.0	33.3	5.0	29.0	53.9
1.5KE43	38.7	47.3	1.0	34.8	5.0	25.0	61.9
1.5KE43A	40.9	45.2	1.0	36.8	5.0	26.0	59.3
1.5KE47	42.3	51.7	1.0	38.1	5.0	23.0	67.8
1.5KE47A	44.7	49.4	1.0	40.2	5.0	24.0	64.8
1.5KE51	45.9	56.1	1.0	41.3	5.0	21.0	73.5
1.5KE51A	48.5	53.6	1.0	43.6	5.0	22.0	70.1
1.5KE56	50.4	61.6	1.0	45.4	5.0	19.0	80.5
1.5KE56A	53.2	58.8	1.0	47.8	5.0	20.0	77.0
1.5KE62	55.8	68.2	1.0	50.2	5.0	17.0	89.0
1.5KE62A	58.9	65.1	1.0	53.0	5.0	18.0	85.0
1.5KE68	61.2	74.8	1.0	55.1	5.0	16.0	98.0
1.5KE68A	64.6	71.4	1.0	58.1	5.0	17.0	92.0
1.5KE75	67.5	82.5	1.0	60.7	5.0	14.0	108
1.5KE75A	71.3	78.8	1.0	64.1	5.0	15.0	103
1.5KE82	73.8	90.2	1.0	66.4	5.0	13.0	118
1.5KE82A	77.9	86.1	1.0	70.1	5.0	13.9	113
1.5KE91	81.9	100.0	1.0	73.7	5.0	12.0	131
1.5KE91A	86.5	95.5	1.0	77.8	5.0	12.6	125
1.5KE100	90.0	110	1.0	81.0	5.0	10.9	144
1.5KE100A	95.0	105	1.0	85.5	5.0	11.4	137
1.5KE110	99.0	121	1.0	89.2	5.0	9.9	158
1.5KE110A	105	116	1.0	94.0	5.0	10.3	152
1.5KE120	108	132	1.0	97.2	5.0	9.1	173
1.5KE120A	114	126	1.0	102	5.0	9.5	165
1.5KE130	117	143	1.0	106	5.0	8.4	187
1.5KE130A	124	137	1.0	111	5.0	8.7	179
1.5KE150	135	165	1.0	121	5.0	7.3	215
1.5KE150A	143	158	1.0	128	5.0	7.6	207

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	$V_{(BR)}$(V) MIN	$V_{(BR)}$(V) MAX	I_T(mA)	V_{WM}(V)	I_D(μA) (Note2)	I ppm (A)	Vc (V)
1.5KE160	144	176	1.0	130	5.0	6.8	230
1.5KE160A	152	168	1.0	136	5.0	7.1	219
1.5KE170	153	187	1.0	138	5.0	6.4	244
1.5KE170A	162	179	1.0	145	5.0	6.7	234
1.5KE180	162	198	1.0	146	5.0	6.1	258
1.5KE180A	171	189	1.0	154	5.0	6.4	246
1.5KE200	180	220	1.0	162	5.0	5.4	287
1.5KE200A	190	210	1.0	171	5.0	5.7	274
1.5KE220	198	242	1.0	175	5.0	4.5	344
1.5KE220A	209	231	1.0	185	5.0	4.8	328
1.5KE250	225	275	1.0	202	5.0	4.3	360
1.5KE250A	237	263	1.0	214	5.0	4.5	344
1.5KE300	270	330	1.0	243	5.0	3.6	430
1.5KE300A	285	315	1.0	256	5.0	3.8	414
1.5KE350	315	385	1.0	284	5.0	3.1	504
1.5KE350A	333	368	1.0	300	5.0	3.2	482
1.5KE400	360	440	1.0	324	5.0	2.7	574
1.5KE400A	380	420	1.0	342	5.0	2.8	548
1.5KE440	396	484	1.0	356	5.0	2.4	631
1.5KE440A	418	462	1.0	376	5.0	2.6	602
1.5KE480	432	528	1.0	389	5.0	2.19	686
1.5KE480A	456	504	1.0	408	5.0	2.28	658
1.5KE500	450	550	1.0	400	5.0	2.15	698
1.5KE500A	475	525	1.0	428	5.0	2.25	667
1.5KE510	459	561	1.0	413	5.0	2.06	729
1.5KE510A	485	535	1.0	434	5.0	2.15	698
1.5KE540	486	594	1.0	437	5.0	1.94	772
1.5KE540A	513	567	1.0	459	5.0	2.03	740
1.5KE550	495	605	1.0	440	5.0	1.85	811
1.5KE550A	523	578	1.0	470	5.0	1.93	779
1.5KE600	540	660	1.0	480	5.0	1.73	870
1.5KE600A	570	630	1.0	513	5.0	1.77	850

注 释:Note: 1.V（BR）值在施加IT 300μs后测量, IT 为方波或等效的脉冲波形。
2.对于双向型，V_{RWM}在10V及10V以下，ID值加倍。
3.表面贴装型将“1.5KE”改为“1.5SMC”。
1. V（BR）measured after IT applied for 300μs, IT = square pulse or equivalent
2. For bidirectional types having V_{RWM} of 10 volts and 10 volts less, the ID limit is doubled.
3. The SMT type will be "1.5SMC" instead of "1.5KE".

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特性曲线图： RATINGS AND CHARACTERISTIC CURVES

Fig. 1 – Peak Pulse Power Rating Curve

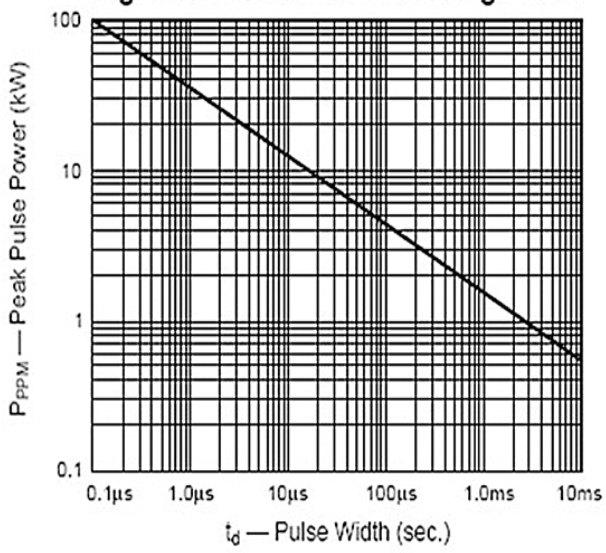


Fig. 2 – Pulse Derating Curve

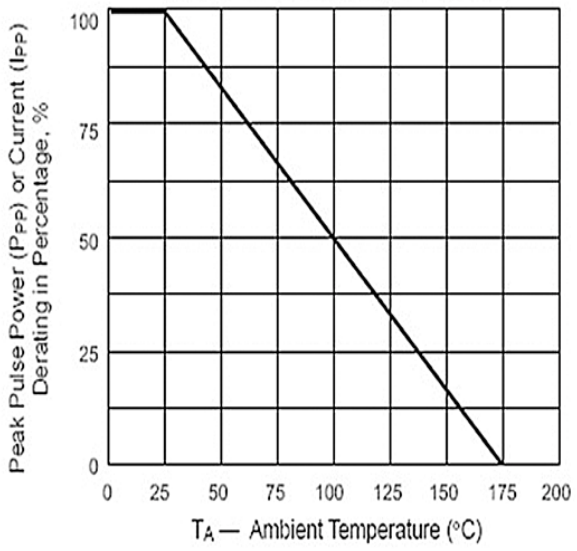


Fig. 3 – Pulse Waveform

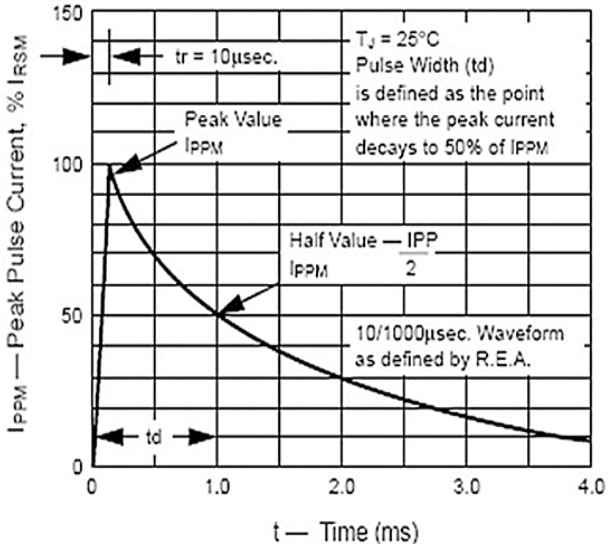
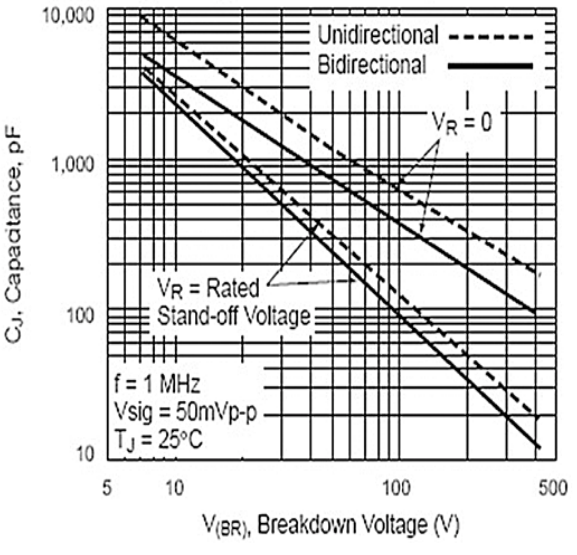


Fig. 4 - Typical Junction Capacitance



特性曲线图： RATINGS AND CHARACTERISTIC CURVES

Fig. 5 – Steady State Power Derating Curve

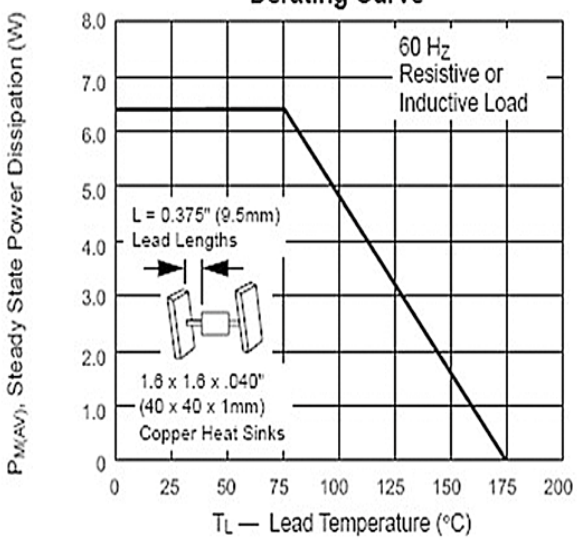


Fig. 6 - Maximum Non-repetitive Peak Forward Surge Current Unidirectional Only

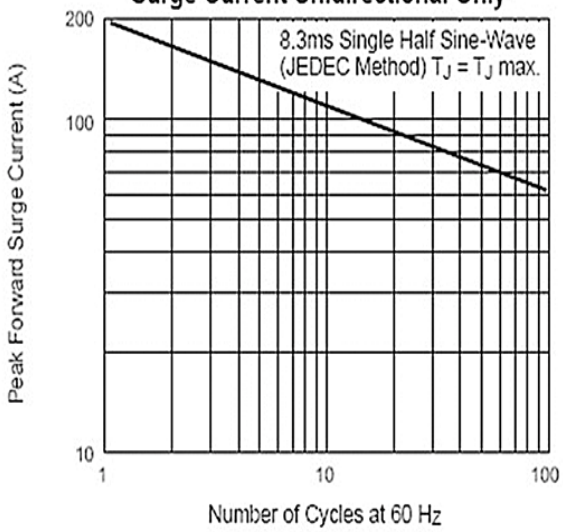


Fig. 7 – Incremental Clamping Voltage Curve (Unidirectional)

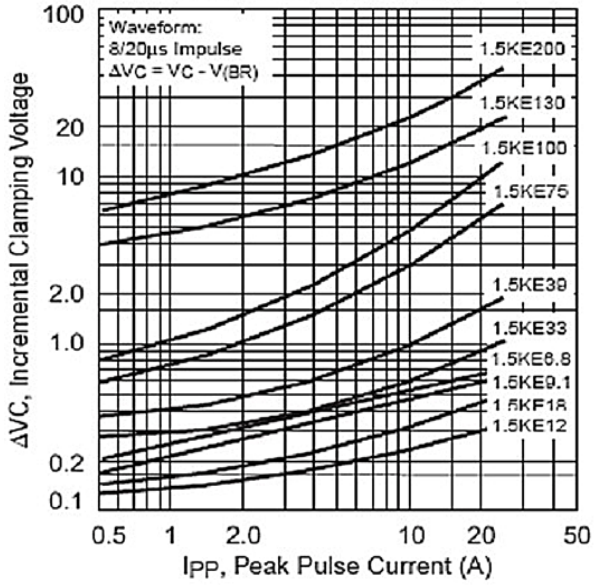


Fig. 8 – Incremental Clamping Voltage Curve (Unidirectional)