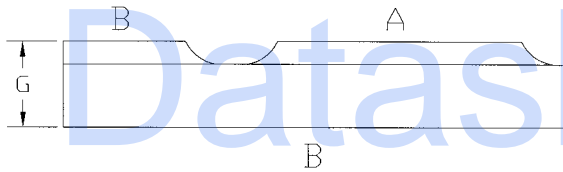
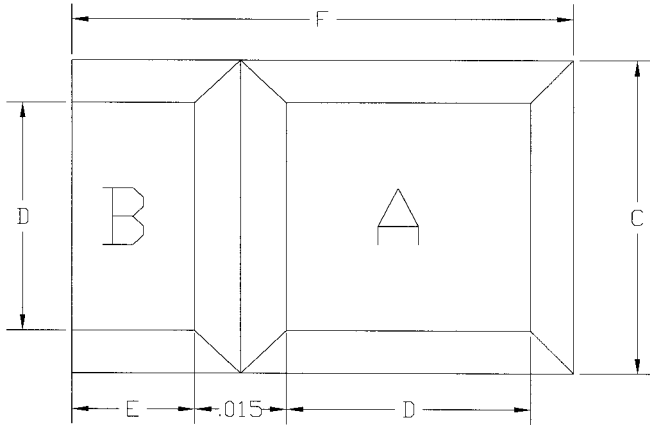


# SUSSEX

SEMICONDUCTOR, INC.

12251 TOWN LAKE DRIVE, FORT MYERS, FLORIDA, 33913 • TEL: (941) 768-6800 • FAX: (941) 768-6868

**400 TO 1500 WATT UNIPOLAR  
TRANSIENT SUPPRESSOR FLIP-  
DIE**



**GLASS PASSIVATED SURFACE MOUNT UNIPOLAR FLIP-DIE**

**400 TO 5000 WATT MAXIMUM POWER HANDLING**

**REVERSE VOLTAGES - 6.8 TO 440 VOLTS**

## 400 TO 1500 WATT UNIPOLAR FLIP-DIE SPECIFICATIONS

- ◆ Exclusive Sussex Semiconductor Flip-Die Technology
- ◆ Each Die Fully Glass Passivated: Needs No Encapsulation
- ◆ Space Saving Substitute For SMA, SMB, and SMC Packages
- ◆ Electrical Equivalent to P4KE, P6KE, SA, and 1.5KE Series Axial Leaded Devices
- ◆ Unipolar
- ◆ Each Device Individually Inspected
- ◆ Available in Waffle Packs or Tape and Reel
- ◆ Operating Temperature: -65 to 150°C
- ◆ Storage Temperature: -65 to 175°C
- ◆ Metallization: Ni-Ni-Au
- ◆ Polarity:
 

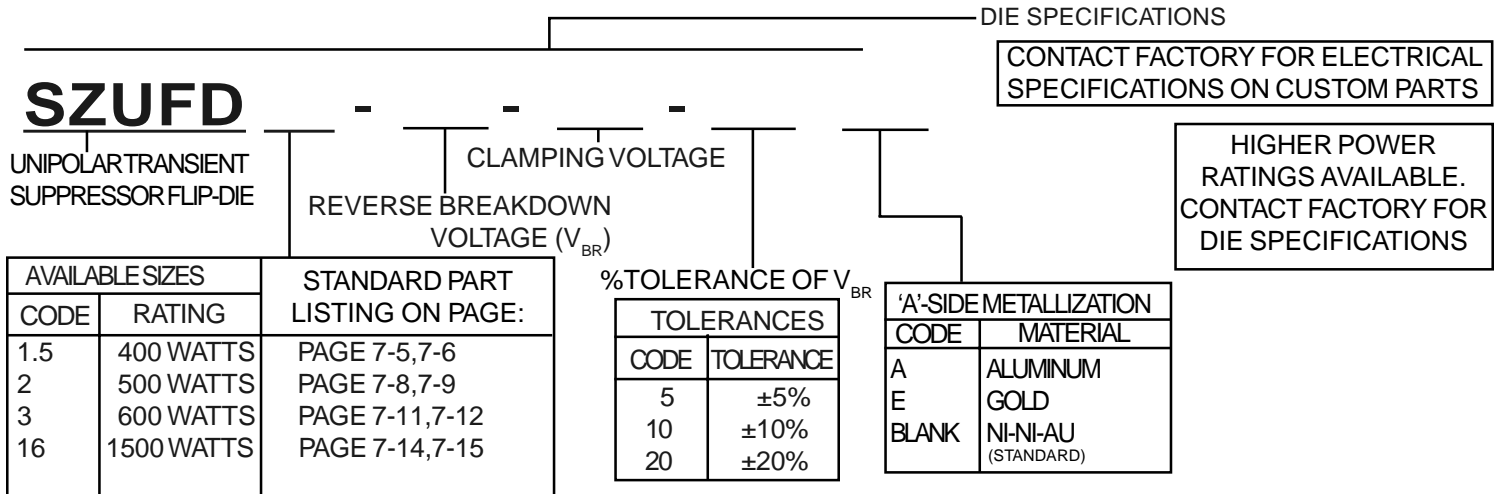
6.8 to 10 Breakdown Volts ( $V_{BR}$ )	11 to 440 Breakdown Volts ( $V_{BR}$ )
A-Cathode	A-Anode
B-Anode	B-Cathode

**TABLE 3A - FLIP-DIE DIMENSION SPECIFICATIONS**

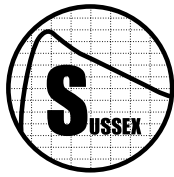
◆ ALL TOLERANCES ARE  $\pm .005$ " ◆ ALL DIMENSIONS ARE IN INCHES

SIZE CODE	C	D	E	F	G
FD1.5	0.055	0.040	0.020	0.083	0.015
FD2	0.070	0.055	0.027	0.105	0.015
FD3	0.085	0.070	0.033	0.120	0.015
FD16	0.115	0.100	0.050	0.173	0.015

## CUSTOM ORDERING SPECIFIER







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## 400 WATT TRANSIENT SUPPRESSOR DIE SPECIFICATIONS

TABLE 5A - 400 WATT TRANSIENT SUPPRESSOR DIE ELECTRICAL SPECIFICATIONS (NOTE 1)

INDUSTRY STANDARD PART NUMBERS (NOTE 2) 400 WATT P4KE SERIES	SUSSEX ORDER CODE REFER TO PAGE 7-7 FOR ORDER SPECIFIER	STANDOFF VOLTAGE (V <sub>SO</sub> ) Volts	MAX. REVERSE LEAKAGE (I <sub>R</sub> ) @ V <sub>SO</sub> (NOTE 3) µA	REVERSE BREAKDOWN VOLTAGE (V <sub>BR</sub> ) @ I <sub>T</sub> (NOTE 4)		TEST CURRENT (I <sub>T</sub> ) mA	MAX. CLAMPING VOLTAGE (V <sub>CL</sub> ) @ PEAK PULSE CURRENT (I <sub>PP</sub> ) (NOTE 5)		MAX. TEMP. COEFFICIENT OF V <sub>BR</sub> (%/°C)
				MIN. Volts	MAX. Volts		V <sub>CL</sub> Volts	I <sub>PP</sub> Amps	
				P4KE6.8	6.8-10.8-10		5.50	1000	
P4KE6.8A	6.8-10.5-5	5.80	1000	6.45	7.14	10	10.5	40.0	0.057
P4KE7.5	7.5-11.7-10	6.05	500	6.75	8.25	10	11.7	35.0	0.061
P4KE7.5A	7.5-11.3-5	6.40	500	7.13	7.88	10	11.3	37.0	0.061
P4KE8.2	8.2-12.5-10	6.63	200	7.38	9.02	10	12.5	33.0	0.065
P4KE8.2A	8.2-12.1-5	7.02	200	7.79	8.61	10	12.1	34.0	0.065
P4KE9.1	9.1-13.8-10	7.37	50	8.19	10.00	1	13.8	30.0	0.068
P4KE9.1A	9.1-13.4-5	7.78	50	8.65	9.55	1	13.4	31.0	0.068
P4KE10	10-15.0-10	8.10	10	9.00	11.00	1	15.0	28.0	0.073
P4KE10A	10-14.5-5	8.55	10	9.50	10.50	1	14.5	29.0	0.073
P4KE11	11-16.2-10	8.92	5.0	9.90	12.10	1	16.2	26.0	0.075
P4KE11A	11-15.6-5	9.40	5.0	10.50	11.60	1	15.6	27.0	0.075
P4KE12	12-17.3-10	9.72	5.0	10.80	13.20	1	17.3	24.0	0.078
P4KE12A	12-16.7-5	10.20	5.0	11.40	12.60	1	16.7	25.0	0.078
P4KE13	13-19.0-10	10.50	5.0	11.70	14.30	1	19.0	22.0	0.061
P4KE13A	13-18.2-5	11.10	5.0	12.40	13.70	1	18.2	23.0	0.081
P4KE15	15-22.0-10	12.10	5.0	13.50	16.50	1	22.0	19.0	0.084
P4KE15A	15-21.2-5	12.80	5.0	14.30	15.80	1	21.2	20.0	0.084
P4KE16	16-23.5-10	12.90	5.0	14.40	17.60	1	23.5	17.8	0.086
P4KE16A	16-22.5-5	13.60	5.0	15.20	16.80	1	22.5	18.6	0.086
P4KE18	18-26.5-10	14.50	5.0	16.20	19.80	1	26.5	16.0	0.088
P4KE18A	18-25.2-5	15.30	5.0	17.10	18.90	1	25.2	16.5	0.088
P4KE20	20-29.1-10	16.20	5.0	18.00	22.00	1	29.1	14.0	0.090
P4KE20A	20-27.7-5	17.10	5.0	19.00	21.00	1	27.7	15.0	0.090
P4KE22	22-31.9-10	17.80	5.0	19.80	24.20	1	31.9	13.0	0.092
P4KE22A	22-30.6-5	18.80	5.0	20.90	23.10	1	30.6	13.7	0.092
P4KE24	24-34.7-10	19.40	5.0	21.60	26.40	1	34.7	12.0	0.091
P4KE24A	24-33.2-5	20.50	5.0	22.80	25.20	1	33.2	12.6	0.094
P4KE27	27-39.1-10	21.80	5.0	24.30	29.70	1	39.0	10.7	0.096
P4KE27A	27-37.5-5	23.10	5.0	25.70	28.40	1	37.5	11.0	0.096
P4KE30	30-43.5-10	24.30	5.0	27.00	33.00	1	43.5	9.6	0.097
P4KE30A	30-41.4-5	25.60	5.0	28.50	31.50	1	41.4	10.0	0.097
P4KE33	33-47.7-10	26.80	5.0	29.70	36.30	1	47.7	8.8	0.098
P4KE33A	33-45.7-5	28.20	5.0	31.40	34.70	1	45.7	9.0	0.098
P4KE36	36-52.0-10	29.10	5.0	32.40	39.60	1	52.0	8.0	0.099
P4KE36A	36-49.9-5	30.80	5.0	34.20	37.80	1	49.9	8.4	0.099
P4KE39	39-56.4-10	31.60	5.0	35.10	42.90	1	56.4	7.4	0.100
P4KE39A	39-53.9-5	33.30	5.0	37.10	41.00	1	53.9	7.7	0.100
P4KE43	43-61.9-10	34.80	5.0	38.70	47.30	1	61.9	6.7	0.101
P4KE43A	43-59.3-5	36.80	5.0	40.90	45.20	1	59.3	7.0	0.101
P4KE47	47-67.8-10	38.10	5.0	42.30	51.70	1	67.8	6.2	0.101
P4KE47A	47-64.8-5	40.20	5.0	44.70	49.40	1	64.8	6.4	0.101
P4KE51	51-70.1-10	41.30	5.0	45.90	56.10	1	73.5	5.7	0.102

THIS TABLE CONTINUES

### NOTES

- NOTE 1:** ♦ ELECTRICAL CHARACTERISTICS ARE AT A JUNCTION TEMPERATURE (T<sub>J</sub>) OF 25°C
- NOTE 2:** ♦ INDUSTRY STANDARD PART NUMBERS REFER TO PACKAGED DEVICES. THE DIES INDICATED BY THESE NUMBERS, IF PROPERLY PACKAGED, WILL OPERATE WITH THE SAME PERFORMANCE
- NOTE 3:** ♦ FOR BIPOLAR DEVICES WITH A V<sub>BR</sub> OF 10 VOLTS OR LESS, THE I<sub>R</sub> LIMIT IS DOUBLED
- NOTE 4:** ♦ DUAL DIE V<sub>BR</sub> IS MEASURED FROM TOP TO TOP OF DIE. V<sub>BR</sub> MEASURED FROM TOP TO BOTTOM WILL RESULT IN A LOWER V<sub>BR</sub>
- NOTE 5:** ♦ SURGE CURRENT WAVEFORM SHOWN IN FIGURE 2A ON PAGE 7-7  
♦ PEAK PULSE POWER DERATING SHOWN IN FIGURE 3A ON PAGE 7-7



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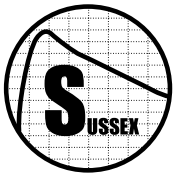
### 400 WATT TRANSIENT SUPPRESSOR DIE SPECIFICATIONS

TABLE 5A - 400 WATT TRANSIENT SUPPRESSOR DIE ELECTRICAL SPECIFICATIONS (NOTE 1)

INDUSTRY STANDARD PART NUMBERS (NOTE 2) 400 WATT P4KE SERIES	SUSSEX ORDER CODE  REFER TO PAGE 7-7 FOR ORDER SPECIFIER	STANDOFF VOLTAGE (V <sub>SO</sub> ) Volts	MAX. REVERSE LEAKAGE (I <sub>R</sub> ) @ V <sub>SO</sub> (NOTE 3) µA	REVERSE BREAKDOWN VOLTAGE (V <sub>BR</sub> ) @ I <sub>R</sub> (NOTE 4)		TEST CURRENT (I <sub>T</sub> ) mA	MAX. CLAMPING VOLTAGE (V <sub>CL</sub> ) @ PEAK PULSE CURRENT (I <sub>PP</sub> ) (NOTE 5)		MAX. TEMP. COEFFICIENT OF V <sub>BR</sub> (%/°C)
				MIN. Volts	MAX. Volts		V <sub>CL</sub> Volts	I <sub>PP</sub> Amps	
P4KE51A	51-70.1-5	43.60	5.0	48.50	53.60	1	70.1	6.0	0.102
P4KE56	56-80.5-10	45.40	5.0	50.40	61.60	1	80.5	5.2	0.103
P4KE56A	56-77.0-5	47.80	5.0	53.20	58.80	1	77.0	5.4	0.103
P4KE62	62-89.0-10	50.20	5.0	55.80	68.80	1	89.0	4.7	0.104
P4KE62A	62-85.0-5	53.00	5.0	58.90	65.10	1	85.0	5.0	0.104
P4KE68	68-96.0-10	55.10	5.0	61.20	74.80	1	96.0	4.2	0.104
P4KE68A	68-92.0-5	58.10	5.0	64.60	71.40	1	92.0	4.5	0.104
P4KE75	75-108.0-10	60.70	5.0	67.50	82.50	1	108.0	3.8	0.105
P4KE75A	75-103.0-5	64.10	5.0	71.30	78.80	1	103.0	4.0	0.105
P4KE82	82-118.0-10	66.40	5.0	73.80	90.20	1	118.0	3.5	0.105
P4KE82A	82-113.0-5	70.10	5.0	77.90	86.10	1	113.0	3.7	0.105
P4KE91	91-131.0-10	73.70	5.0	81.90	100.00	1	131.0	3.2	0.106
P4KE91A	91-125.0-5	77.80	5.0	86.50	95.50	1	125.0	3.3	0.106
P4KE100	100-144.0-10	81.00	5.0	90.00	110.00	1	144.0	2.9	0.106
P4KE100A	100-137.0-5	85.50	5.0	95.00	105.00	1	137.0	3.0	0.106
P4KE110	110-158.0-10	89.20	5.0	99.00	121.00	1	158.0	2.6	0.107
P4KE110A	110-152.0-5	94.00	5.0	105.00	116.00	1	152.0	2.7	0.107
P4KE120	120-173.0-10	97.20	5.0	108.00	132.00	1	173.0	2.4	0.107
P4KE120A	120-165.0-5	102.00	5.0	114.00	126.00	1	165.0	2.5	0.107
P4KE130	130-187.0-10	105.00	5.0	117.00	143.00	1	187.0	2.2	0.107
P4KE130A	130-179.0-5	111.00	5.0	124.00	137.00	1	179.0	2.3	0.107
P4KE150	150-215.0-10	121.00	5.0	135.00	165.00	1	215.0	1.9	0.108
P4KE150A	150-207.0-5	128.00	5.0	143.00	158.00	1	207.0	2.0	0.108
P4KE160	160-230.0-10	130.00	5.0	144.00	176.00	1	230.0	1.8	0.108
P4KE160A	160-219.0-5	136.00	5.0	152.00	168.00	1	219.0	1.9	0.108
P4KE170	170-244.0-10	138.00	5.0	153.00	187.00	1	244.0	1.7	0.108
P4KE170A	170-234.0-5	145.00	5.0	162.00	179.00	1	234.0	1.8	0.108
P4KE180	180-256.0-10	146.00	5.0	162.00	198.00	1	256.0	1.6	0.108
P4KE180A	180-246.0-5	154.00	5.0	171.00	189.00	1	246.0	1.7	0.108
P4KE200	200-287.0-10	162.00	5.0	180.00	220.00	1	287.0	1.4	0.108
P4KE200A	200-274.0-5	171.00	5.0	190.00	210.00	1	274.0	1.51	0.108
P4KE220	220-344.0-10	175.00	5.0	198.00	242.00	1	344.0	1.2	0.108
P4KE220A	220-328.0-5	185.00	5.0	209.00	231.00	1	328.0	1.3	0.108
P4KE250	250-360.0-10	202.00	5.0	225.00	275.00	1	360.0	1.1	0.110
P4KE250A	250-344.0-5	214.00	5.0	237.00	267.00	1	344.0	1.2	0.110
P4KE300	300-430.0-10	243.00	5.0	270.00	330.00	1	430.0	0.97	0.110
P4KE300A	300-414.0-5	256.00	5.0	285.00	315.00	1	414.0	1.0	0.110
P4KE350	350-504.0-10	284.00	5.0	315.00	385.00	1	504.0	0.83	0.110
P4KE350A	350-482.0-5	300.00	5.0	332.00	368.00	1	482.0	0.87	0.110
P4KE400	400-574.0-10	324.00	5.0	360.00	440.00	1	571.0	0.73	0.110
P4KE400A	400-548.0-5	342.00	5.0	380.00	420.00	1	548.0	0.76	0.110
P4KE440	440-598.0-10	356.00	5.0	396.00	484.00	1	598.0	0.66	0.110
P4KE440A	440-590.0-5	376.00	5.0	418.00	462.00	1	590.0	0.69	0.110

### NOTES

- NOTE 1:** ♦ ELECTRICAL CHARACTERISTICS ARE AT A JUNCTION TEMPERATURE (T<sub>J</sub>) OF 25°C
- NOTE 2:** ♦ INDUSTRY STANDARD PART NUMBERS REFER TO PACKAGED DEVICES. THE DIES INDICATED BY THESE NUMBERS, IF PROPERLY PACKAGED, WILL OPERATE WITH THE SAME PERFORMANCE
- NOTE 3:** ♦ FOR BIPOLAR DEVICES WITH A V<sub>BR</sub> OF 10 VOLTS OR LESS, THE I<sub>R</sub> LIMIT IS DOUBLED
- NOTE 4:** ♦ DUAL DIE V<sub>BR</sub> IS MEASURED FROM TOP TO TOP OF DIE V<sub>BR</sub>. MEASURED FROM TOP TO BOTTOM WILL RESULT IN A LOWER V<sub>BR</sub>
- NOTE 5:** ♦ SURGE CURRENT WAVEFORM SHOWN IN FIGURE 1A ON PAGE 7-7  
♦ PEAK PULSE POWER DERATING SHOWN IN FIGURE 2A ON PAGE 7-7



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**400 WATT DIE SPECIFICATIONS  
CONTINUED**

## ORDERING SPECIFIER

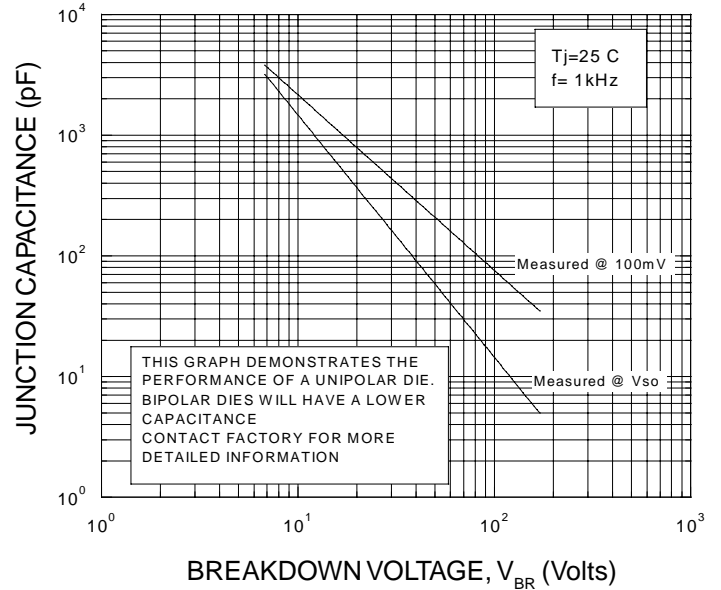
**6.8 - 10.8 - 10**

ORDER CODE FROM  
PREVIOUS PAGES

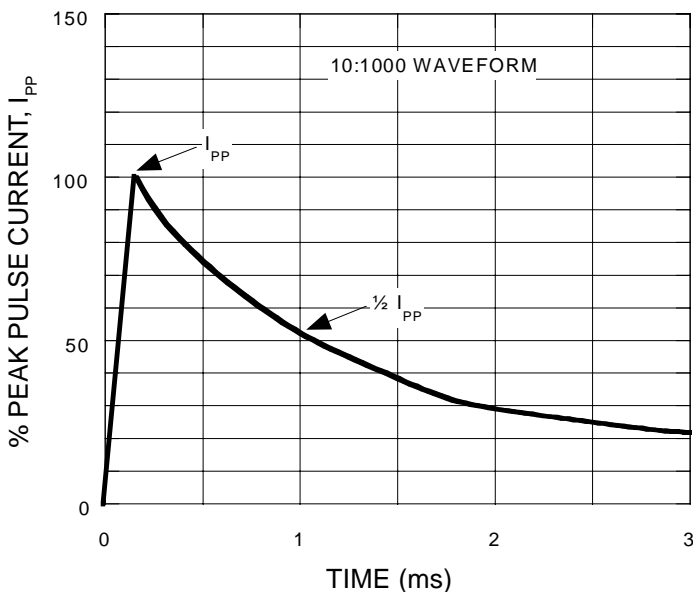
**TABLE 6A - AVAILABLE DIE SIZES**

CODE	DIE TYPE	DIE SPECIFICATIONS REFER TO:
SZU1.5	400 WATT UNIPOLAR DIE	PAGE 7-1
SZZ1.5	400 WATT BIPOLAR DIE	PAGE 7-2
SZUFD1.5	400 WATT UNIPOLAR FLIP-DIE	PAGE 7-3
SZZD1.5	400 WATT BIPOLAR DUAL-DIE	PAGE 7-4

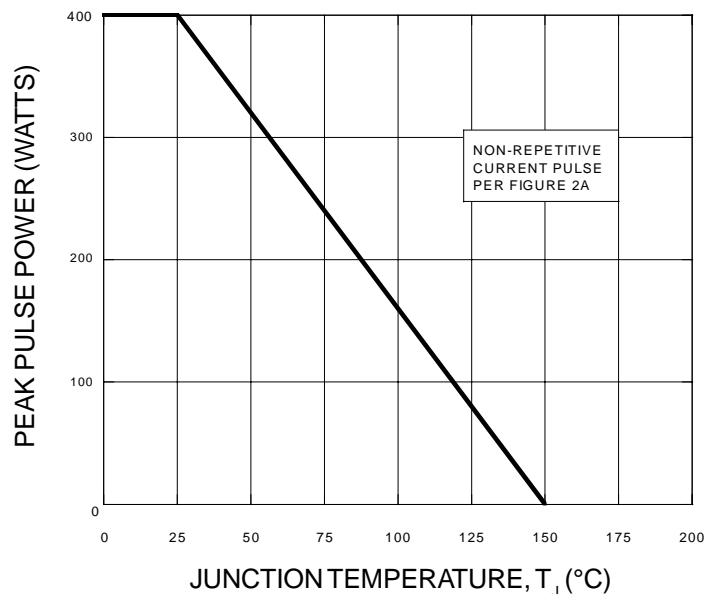
**FIGURE 1A - TYPICAL JUNCTION CAPACITANCE**



**FIGURE 2A - PULSE WAVEFORM**



**FIGURE 3A - PULSE DERATING CURVE**





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## 500 WATT TRANSIENT SUPPRESSOR DIE SPECIFICATIONS

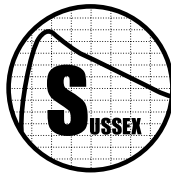
TABLE 7A - 500 WATT TRANSIENT SUPPRESSOR DIE ELECTRICAL SPECIFICATIONS (NOTE 1)

INDUSTRY STANDARD PART NUMBERS  (NOTE 2) <b>500 WATT SA SERIES</b>	SUSSEX ORDER CODE  REFER TO PAGE 7-10 FOR ORDER SPECIFIER	STANDOFF VOLTAGE  (V <sub>SO</sub> )  Volts	MAX. REVERSE LEAKAGE (I <sub>R</sub> ) @ V <sub>SO</sub>  (NOTE 3)  µA	REVERSE BREAKDOWN VOLTAGE (V <sub>BR</sub> ) @ I <sub>T</sub>  (NOTE 4)		TEST CURRENT  (I <sub>T</sub> )  mA	MAX. CLAMPING VOLTAGE (V <sub>CL</sub> ) @ PEAK PULSE CURRENT (I <sub>PP</sub> ) (NOTE 5)		MAX. TEMP. COEFFICIENT  OF V <sub>BR</sub>  (mV/°C)
				MIN. Volts	MAX. Volts		V <sub>CL</sub> Volts	I <sub>PP</sub> Amps	
				SA5.0	6.8-9.6-6.5		5	600	
SA5.0A	6.7-9.2-4.4	5	600	6.4	7.0	10	9.2	57.0	5.00
SA6.0	6.4-11.4-9.9	6	600	6.7	8.2	10	11.4	46.0	5.00
SA6.0A	7.0-10.3-4.9	6	600	6.7	7.4	10	10.3	50.0	5.00
SA6.5	8.0-12.3-9.9	6.5	400	7.2	8.8	10	12.3	42.0	5.00
SA6.5A	7.6-11.2-5	6.5	400	7.2	8.0	10	11.2	46.0	5.00
SA7.0	8.6-13.3-10	7	150	7.8	9.5	10	13.3	39.0	6.00
SA7.0A	8.1-12-5	7	150	7.8	8.6	10	12.0	43.0	6.00
SA7.5	9.2-14.3-10	7.5	50	8.3	10.2	1	14.3	36.0	7.00
SA7.5A	8.7-12.9-5	7.5	50	8.3	9.2	1	12.9	40.0	7.00
SA8.0	9.8-15-10	8	25	8.9	10.9	1	15.0	35.0	7.00
SA8.0A	9.3-13.6-5	8	25	8.9	9.8	1	13.6	38.0	7.00
SA8.5	10.4-15.9-9.8	8.5	10	9.4	11.5	1	15.9	33.0	8.00
SA8.5A	9.9-14.4-4.8	8.5	10	9.4	10.4	1	14.4	36.0	8.00
SA9	11.1-16.9-9.9	9	5	10.0	12.2	1	16.9	31.0	9.00
SA9.0A	10.5-15.4-5.2	9	5	10.0	11.1	1	15.4	34.0	9.00
SA10	12.3-18.8-10	10	1	11.1	13.6	1	18.8	27.0	10.00
SA10A	11.7-17-5.1	10	1	11.1	12.3	1	17.0	30.0	10.00
SA11	13.5-20.1-9.9	11	1	12.2	14.9	1	20.1	26.0	11.00
SA11A	12.8-18.2-5	11	1	12.2	13.5	1	18.2	28.0	11.00
SA12	14.8-22-10	12	1	13.3	16.3	1	22.0	23.0	12.00
SA12A	14-19.9-5	12	1	13.3	14.7	1	19.9	26.3	12.00
SA13	16-23.8-10	13	1	14.4	17.6	1	23.8	22.0	13.00
SA13A	15.1-21.5-4.9	13	1	14.4	15.9	1	21.5	24.0	13.00
SA14	17.3-25.8-10	14	1	15.6	19.1	1	25.8	20.3	14.00
SA14A	16.4-23.2-4.8	14	1	15.6	17.2	1	23.2	22.6	14.00
SA15	18.5-26.9-9.9	15	1	16.7	20.4	1	26.9	19.5	16.00
SA15A	17.6-24.4-5.1	15	1	16.7	18.5	1	24.4	21.0	16.00
SA16	19.8-28.8-10.1	16	1	17.8	21.8	1	28.8	18.0	19.00
SA16A	18.7-26-5	16	1	17.8	19.7	1	26.0	20.0	17.00
SA17	21-30.5-10	17	1	18.9	23.1	1	30.5	17.0	20.00
SA17A	19.9-27.6-5	17	1	18.9	20.9	1	27.6	19.0	19.00
SA18	22.2-32.2-9.9	18	1	20.0	24.4	1	32.2	16.3	21.00
SA18A	21.0-29.2-4.9	18	1	20.0	22.1	1	29.2	17.9	20.00
SA20	24.6-35.8-9.9	20	1	22.2	27.1	1	35.8	14.0	25.00
SA20A	23.3-32.4-4.9	20	1	22.2	24.5	1	32.4	16.0	23.00
SA22	27.1-39.4-9.9	22	1	24.4	29.8	1	39.4	13.0	28.00
SA22A	25.6-35.5-4.8	22	1	24.4	26.9	1	35.5	14.7	25.00
SA24	29.6-43-9.9	24	1	26.7	32.6	1	43.0	12.0	31.00
SA24A	28.1-38.9-4.9	24	1	26.7	29.5	1	38.9	13.4	28.00
SA26	32.1-46.6-9.9	26	1	28.9	35.3	1	46.6	11.0	31.00
SA26A	30.4-42.1-4.9	26	1	28.9	31.9	1	42.1	12.4	30.00
SA28	34.5-50.1-9.9	28	1	31.1	38.0	1	50.1	10.0	35.00
SA28A	32.7-45.4-5	28	1	31.1	34.4	1	45.4	11.5	31.00
SA30	37-53.5-10	30	1	33.3	40.7	1	53.5	9.8	39.00
SA30A	35.0-48.4-4.9	30	1	33.3	36.8	1	48.4	10.8	36.00

THIS TABLE CONTINUES

### NOTES

- NOTE 1:** ♦ ELECTRICAL CHARACTERISTICS ARE AT A JUNCTION TEMPERATURE (T<sub>J</sub>) OF 25°C
- NOTE 2:** ♦ INDUSTRY STANDARD PART NUMBERS REFER TO PACKAGED DEVICES. THE DIES INDICATED BY THESE NUMBERS, IF PROPERLY PACKAGED, WILL OPERATE WITH THE SAME PERFORMANCE
- NOTE 3:** ♦ FOR BIPOLAR DEVICES WITH A V<sub>BR</sub> OF 10 VOLTS OR LESS, THE I<sub>R</sub> LIMIT IS DOUBLED
- NOTE 4:** ♦ DUAL DIE V<sub>BR</sub> IS MEASURED FROM TOP TO TOP OF DIE V<sub>BR</sub> MEASURED FROM TOP TO BOTTOM WILL RESULT IN A LOWER V<sub>BR</sub>
- NOTE 5:** ♦ SURGE CURRENT WAVEFORM SHOWN IN FIGURE 2A ON PAGE 7-10  
♦ PEAK PULSE POWER DERATING SHOWN IN FIGURE 3A ON PAGE 7-10



# SUSSEX

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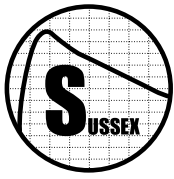
**500 WATT TRANSIENT  
SUPPRESSOR  
DIE SPECIFICATIONS**

**TABLE 7A - 500 WATT TRANSIENT SUPPRESSOR DIE ELECTRICAL SPECIFICATIONS** (NOTE 1)

INDUSTRY STANDARD PART NUMBERS	SUSSEX ORDER CODE	STANDOFF VOLTAGE (V <sub>SO</sub> ) Volts	MAX. REVERSE LEAKAGE (I <sub>R</sub> ) @ V <sub>SO</sub> (NOTE 3) μA	REVERSE BREAKDOWN VOLTAGE (V <sub>BR</sub> ) @ I <sub>T</sub> (NOTE 4)		TEST CURRENT (I <sub>T</sub> ) mA	MAX. CLAMPING VOLTAGE (V <sub>CL</sub> ) @ PEAK PULSE CURRENT (I <sub>PP</sub> ) (NOTE 5)		MAX. TEMP. COEFFICIENT OF V <sub>BR</sub> (mV/°C)
				MIN. Volts	MAX. Volts		V <sub>CL</sub> Volts	I <sub>PP</sub> Amps	
SA33	40.8-59-10	33	1	36.7	44.9	1	59.0	8.8	42.00
SA33A	38.6-53.3-5	33	1	36.7	40.6	1	53.3	9.8	39.00
SA36	44.4-64.3-10	36	1	40.0	48.9	1	64.3	8.1	46.00
SA36A	42.1-58.1-4.9	36	1	40.0	44.2	1	58.1	9.0	41.00
SA40	49.3-71.4-10	40	1	44.4	54.3	1	71.4	7.3	51.00
SA40A	46.7-64.5-5	40	1	44.4	49.1	1	64.5	8.1	46.00
SA43	53.1-76.7-9.9	43	1	47.8	58.4	1	76.7	6.8	55.00
SA43A	50.3-69.4-4.8	43	1	47.9	52.8	1	69.4	7.5	50.00
SA45	55.5-80.3-9.9	45	1	50.0	61.1	1	80.3	6.5	58.00
SA45A	52.6-72.7-5	45	1	50.0	55.3	1	72.7	7.2	52.00
SA48	59.2-85.5-10	48	1	53.3	65.2	1	85.5	6.1	63.00
SA48A	56.1-77.4-4.9	48	1	53.3	58.9	1	77.4	6.7	56.00
SA51	63-91.1-10	51	1	56.7	69.3	1	91.1	5.7	66.00
SA51A	59.7-82.4-5	51	1	56.7	62.7	1	82.4	6.3	61.00
SA54	66.6-96.3-9.9	54	1	60.0	73.3	1	96.3	5.4	71.00
SA54A	63.1-87.1-4.9	54	1	60.0	66.3	1	87.1	6.0	65.00
SA58	71.5-103-9.9	58	1	64.4	78.7	1	103.0	5.0	78.00
SA58A	67.8-93.6-5	58	1	64.4	71.2	1	93.6	5.6	70.00
SA60	74.1-107-9.9	60	1	66.7	81.5	1	107.0	4.9	80.00
SA60A	70.2-96.8-4.9	60	1	66.7	73.7	1	96.8	5.4	71.00
SA64	79-114-10	64	1	71.1	86.9	1	114	4.6	86.00
SA64A	74.8-103-5	64	1	71.1	78.6	1	103	5.0	76.00
SA70	86.4-125-10	70	1	77.8	95.1	1	125	4.2	94.00
SA70A	81.9-113-5	70	1	77.8	86	1	113	4.6	85.00
SA75	92.6-134-10	75	1	83.3	102	1	134	3.9	101.00
SA75A	87.7-121-5	75	1	83.3	92.1	1	121	4.3	91.00
SA78	96.3-139-10	78	1	86.7	106	1	139	3.7	105.00
SA78A	91.2-126-4.9	78	1	86.7	95.8	1	126	4.1	95.00
SA85	104.7-151-9.8	85	1	94.4	115	1	151	3.4	114.00
SA85A	99.2-137-4.8	85	1	94.4	104	1	137	3.8	103.00
SA90	66-160-9.9	90	1	100.0	122	1	160	3.2	121.00
SA90A	105.5-146-5.2	90	1	100.0	111	1	146	3.5	110.00
SA100	123.5-179-10.1	100	1	111.0	136	1	179	2.9	135.00
SA100A	117-162-5.1	100	1	111.0	123	1	162	3.2	123.00
SA110	135.5-196-9.9	110	1	122.0	149	1	196	2.6	148.00
SA110A	128.5-177-5	110	1	122.0	135	1	177	2.9	133.00
SA120	148-214-10.1	120	1	133.0	163	1	214	2.4	162.00
SA120A	140-193-5	120	1	133.0	147	1	193	2.7	146.00
SA130	160-230-10	130	1	144.0	176	1	230	2.2	175.00
SA130A	151.5-209-4.9	130	1	144.0	159	1	209	2.5	158.00
SA150	185.5-268-9.9	150	1	167.0	204	1	268	1.9	203.00
SA150A	176-243-5.1	150	1	167.0	185	1	243	2.1	184.00
SA160	198-257-10.1	160	1	178.0	218	1	257	2.0	217.00
SA160A	187.5-259-5	160	1	178.0	197	1	259	2.0	196.00
SA170	210-304-10	170	1	189.0	231	1	304	1.7	230.00
SA170A	199-275-5	170	1	189.0	209	1	275	1.9	208.00

### NOTES

- NOTE 1:** ♦ ELECTRICAL CHARACTERISTICS ARE AT A JUNCTION TEMPERATURE (T<sub>J</sub>) OF 25°C
- NOTE 2:** ♦ INDUSTRY STANDARD PART NUMBERS REFER TO PACKAGED DEVICES. THE DIES INDICATED BY THESE NUMBERS, IF PROPERLY PACKAGED, WILL OPERATE WITH THE SAME PERFORMANCE
- NOTE 3:** ♦ FOR BIPOLAR DEVICES WITH A V<sub>BR</sub> OF 10 VOLTS OR LESS, THE I<sub>R</sub> LIMIT IS DOUBLED
- NOTE 4:** ♦ DUAL DIE V<sub>BR</sub> IS MEASURED FROM TOP TO TOP OF DIE V<sub>BR</sub> MEASURED FROM TOP TO BOTTOM WILL RESULT IN A LOWER V<sub>BR</sub>
- NOTE 5:** ♦ SURGE CURRENT WAVEFORM SHOWN IN FIGURE 2A ON PAGE 7-10  
♦ PEAK PULSE POWER DERATING SHOWN IN FIGURE 3A ON PAGE 7-10



# ORDERING SPECIFIER

**6.8 - 9.6 - 6.5**

ORDER CODE FROM  
PREVIOUS PAGES

TABLE 8A - AVAILABLE DIE SIZES		
CODE	DIE TYPE	DIE SPECIFICATIONS REFER TO:
SZU2	500 WATT UNIPOLAR DIE	PAGE 7-1
SZZ2	500 WATT BIPOLAR DIE	PAGE 7-2
SZUFD2	500 WATT UNIPOLAR FLIP-DIE	PAGE 7-3
SZZD2	500 WATT BIPOLAR DUAL-DIE	PAGE 7-4

FIGURE 1A - TYPICAL JUNCTION CAPACITANCE

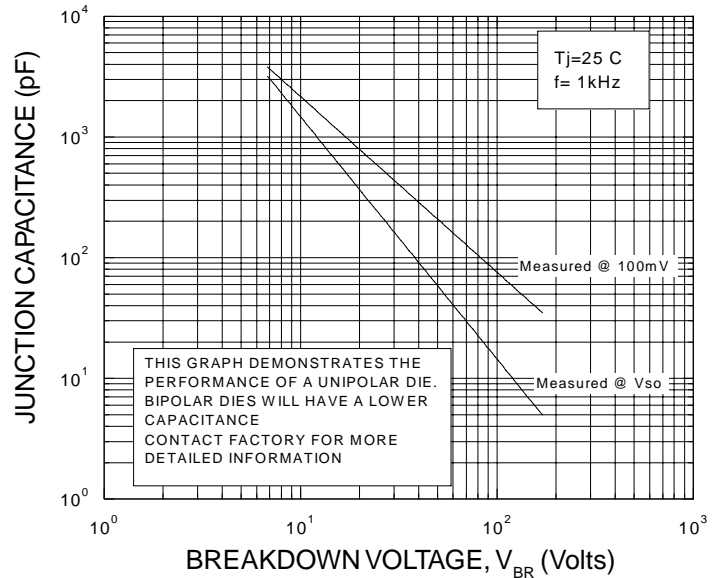


FIGURE 2A - PULSE WAVEFORM

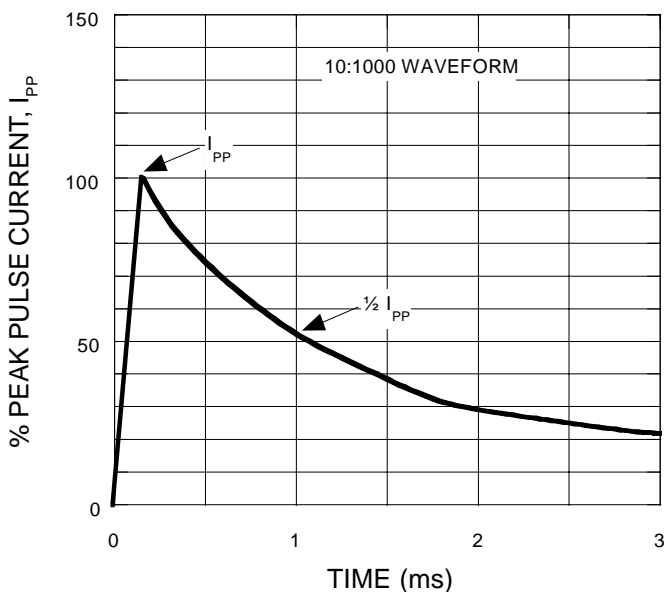
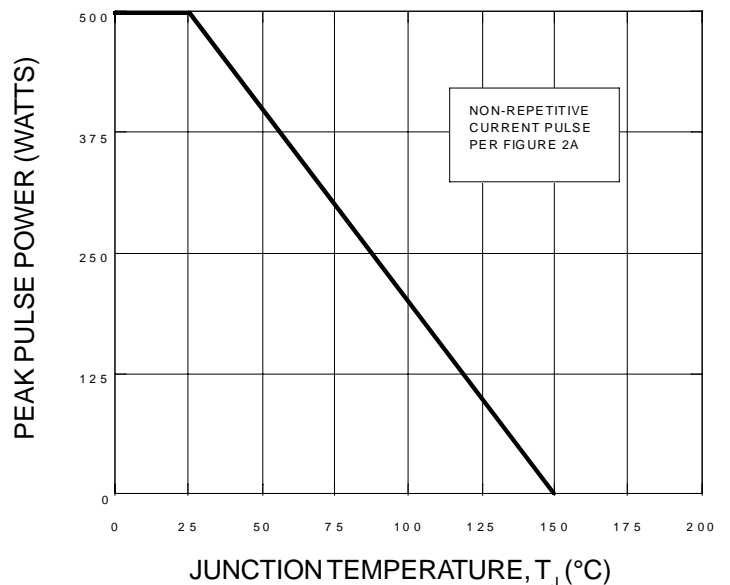
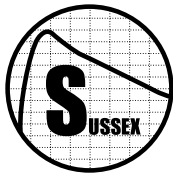


FIGURE 3A - PULSE DERATING CURVE







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### 600 WATT TRANSIENT SUPPRESSOR DIE SPECIFICATIONS

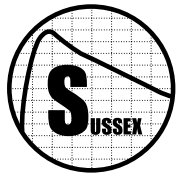
**TABLE 9A - 600 WATT TRANSIENT SUPPRESSOR DIE ELECTRICAL SPECIFICATIONS (NOTE 1)**

INDUSTRY STANDARD PART NUMBERS  600 WATT P6KE SERIES	SUSSEX ORDER CODE  REFER TO PAGE 7-13 FOR ORDER SPECIFIER	STANDOFF VOLTAGE (V <sub>SO</sub> ) Volts	MAX. REVERSE LEAKAGE (I <sub>R</sub> )@ V <sub>SO</sub> (NOTE 2) μA	REVERSE BREAKDOWN VOLTAGE (V <sub>BR</sub> ) @ I <sub>T</sub> (NOTE 3)		TEST CURRENT (I <sub>T</sub> ) mA	MAX. CLAMPING VOLTAGE (V <sub>CL</sub> ) @ PEAK PULSE CURRENT (I <sub>PP</sub> ) (NOTE 4)		MAX. TEMP. COEFFICIENT OF V <sub>BR</sub> (%/°C)
				MIN. Volts	MAX. Volts		V <sub>CL</sub> Volts	I <sub>PP</sub> Amps	
				P6KE6.8	6.8-10.8-10		5.50	1000	
P6KE6.8A	6.8-10.5-5	5.80	1000	6.45	7.14	10	10.5	60.0	0.057
P6KE7.5	7.5-11.7-10	6.05	500	6.75	8.25	10	11.7	53.0	0.061
P6KE7.5A	7.5-11.3-5	6.40	500	7.13	7.88	10	11.3	55.0	0.061
P6KE8.2	8.2-12.5-10	6.63	200	7.38	9.02	10	12.5	50.0	0.065
P6KE8.2A	8.2-12.1-5	7.02	200	7.79	8.61	10	12.1	52.0	0.065
P6KE9.1	9.1-13.8-10	7.37	50	8.19	10.00	1	13.8	45.0	0.068
P6KE9.1A	9.1-13.4-5	7.78	50	8.65	9.55	1	13.4	47.0	0.068
P6KE10	10-15.0-10	8.10	10	9.00	11.00	1	15.0	42.0	0.073
P6KE10A	10-14.5-5	8.55	10	9.50	10.50	1	14.5	43.0	0.073
P6KE11	11-16.2-10	8.92	5.0	9.90	12.10	1	16.2	38.0	0.075
P6KE11A	11-15.6-5	9.40	5.0	10.50	11.60	1	15.6	40.0	0.075
P6KE12	12-17.3-10	9.72	5.0	10.80	13.20	1	17.3	36.0	0.078
P6KE12A	12-16.7-5	10.20	5.0	11.40	12.60	1	16.7	37.0	0.078
P6KE13	13-19.0-10	10.50	5.0	11.70	14.30	1	19.0	33.0	0.061
P6KE13A	13-18.2-5	11.10	5.0	12.40	13.70	1	18.2	34.0	0.081
P6KE15	15-22.0-10	12.10	5.0	13.50	16.50	1	22.0	28.0	0.084
P6KE15A	15-21.2-5	12.80	5.0	14.30	15.80	1	21.2	29.0	0.084
P6KE16	16-23.5-10	12.90	5.0	14.40	17.60	1	23.5	26.0	0.086
P6KE16A	16-22.5-5	13.60	5.0	15.20	16.80	1	22.5	28.0	0.086
P6KE18	18-26.5-10	14.50	5.0	16.20	19.80	1	26.5	23.0	0.088
P6KE18A	18-25.2-5	15.30	5.0	17.10	18.90	1	25.2	25.0	0.088
P6KE20	20-29.1-10	16.20	5.0	18.00	22.00	1	29.1	21.0	0.090
P6KE20A	20-27.7-5	17.10	5.0	19.00	21.00	1	27.7	22.0	0.090
P6KE22	22-31.9-10	17.80	5.0	19.80	24.20	1	31.9	19.0	0.092
P6KE22A	22-30.6-5	18.80	5.0	20.90	23.10	1	30.6	20.0	0.092
P6KE24	24-34.7-10	19.40	5.0	21.60	26.40	1	34.7	18.0	0.091
P6KE24A	24-33.2-5	20.50	5.0	22.80	25.20	1	33.2	19.0	0.094
P6KE27	27-39.1-10	21.80	5.0	24.30	29.70	1	39.0	16.0	0.096
P6KE27A	27-37.5-5	23.10	5.0	25.70	28.40	1	37.5	16.8	0.096
P6KE30	30-43.5-10	24.30	5.0	27.00	33.00	1	43.5	14.0	0.097
P6KE30A	30-41.4-5	25.60	5.0	28.50	31.50	1	41.4	15.0	0.097
P6KE33	33-47.7-10	26.80	5.0	29.70	36.30	1	47.7	13.0	0.098
P6KE33A	33-45.7-5	28.20	5.0	31.40	34.70	1	45.7	13.8	0.098
P6KE36	36-52.0-10	29.10	5.0	32.40	39.60	1	52.0	12.0	0.099
P6KE36A	36-49.9-5	30.80	5.0	34.20	37.80	1	49.9	12.6	0.099
P6KE39	39-56.4-10	31.60	5.0	35.10	42.90	1	56.4	11.1	0.100
P6KE39A	39-53.9-5	33.30	5.0	37.10	41.00	1	53.9	11.6	0.100
P6KE43	43-61.9-10	34.80	5.0	38.70	47.30	1	61.9	10.0	0.101
P6KE43A	43-59.3-5	36.80	5.0	40.90	45.20	1	59.3	10.6	0.101
P6KE47	47-67.8-10	38.10	5.0	42.30	51.70	1	67.8	9.2	0.101
P6KE47A	47-64.8-5	40.20	5.0	44.70	49.40	1	64.8	9.7	0.101
P6KE51	51-70.1-10	41.30	5.0	45.90	56.10	1	73.5	8.5	0.102

THIS TABLE CONTINUES

### NOTES

- NOTE 1:** ♦ ELECTRICAL CHARACTERISTICS ARE AT A JUNCTION TEMPERATURE (T<sub>J</sub>) OF 25°C
- NOTE 2:** ♦ INDUSTRY STANDARD PART NUMBERS REFER TO PACKAGED DEVICES. THE DIES INDICATED BY THESE NUMBERS, IF PROPERLY PACKAGED, WILL OPERATE WITH THE SAME PERFORMANCE
- NOTE 3:** ♦ FOR BIPOLAR DEVICES WITH A V<sub>BR</sub> OF 10 VOLTS OR LESS, THE I<sub>R</sub> LIMIT IS DOUBLED
- NOTE 4:** ♦ DUAL DIE V<sub>BR</sub> IS MEASURED FROM TOP TO TOP OF DIE V<sub>BR</sub> MEASURED FROM TOP TO BOTTOM WILL RESULT IN A LOWER V<sub>BR</sub>
- NOTE 5:** ♦ SURGE CURRENT WAVEFORM SHOWN IN FIGURE 2A ON PAGE 7-13  
♦ PEAK PULSE POWER DERATING SHOWN IN FIGURE 3A ON PAGE 7-13



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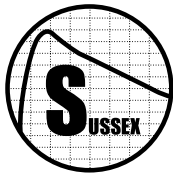
## 600 WATT TRANSIENT SUPPRESSOR DIE SPECIFICATIONS

TABLE 9A - 600 WATT TRANSIENT SUPPRESSOR DIE ELECTRICAL SPECIFICATIONS (NOTE 1)

INDUSTRY STANDARD PART NUMBERS  600 WATT P6KE SERIES	SUSSEX ORDER CODE  REFER TO PAGE 7-13 FOR ORDER SPECIFIER	STANDOFF VOLTAGE ( $V_{SO}$ ) Volts	MAX. REVERSE LEAKAGE ( $I_R$ ) @ $V_{SO}$ (NOTE 2) $\mu A$	REVERSE BREAKDOWN VOLTAGE ( $V_{BR}$ ) @ $I_T$ (NOTE 3)		TEST CURRENT ( $I_T$ ) mA	MAX. CLAMPING VOLTAGE ( $V_{CL}$ ) @ PEAK PULSE CURRENT ( $I_{PP}$ ) (NOTE 4)		MAX. TEMP. COEFFICIENT OF $V_{BR}$ (%/°C)
				MIN. Volts	MAX. Volts		$V_{CL}$ Volts	$I_{PP}$ Amps	
				P6KE51A	51-70.1-5		43.60	5.0	
P6KE56	56-80.5-10	45.40	5.0	50.40	61.60	1	80.5	7.8	0.103
P6KE56A	56-77.0-5	47.80	5.0	53.20	58.80	1	77.0	8.1	0.103
P6KE62	62-89.0-10	50.20	5.0	55.80	68.20	1	89.0	7.0	0.104
P6KE62A	62-85.0-5	53.00	5.0	58.90	65.10	1	85.0	7.4	0.104
P6KE68	68-96.0-10	55.10	5.0	61.20	74.80	1	96.0	6.4	0.104
P6KE68A	68-92.0-5	58.10	5.0	64.60	71.40	1	92.0	6.8	0.104
P6KE75	75-108.0-10	60.70	5.0	67.50	82.50	1	108.0	5.8	0.105
P6KE75A	75-103.0-5	64.10	5.0	71.30	78.80	1	103.0	6.1	0.105
P6KE82	82-118.0-10	66.40	5.0	73.80	90.20	1	118.0	5.3	0.105
P6KE82A	82-113.0-5	70.10	5.0	77.90	86.10	1	113.0	5.5	0.105
P6KE91	91-131.0-10	73.70	5.0	81.90	100.00	1	131.0	4.8	0.106
P6KE91A	91-125.0-5	77.80	5.0	86.50	95.50	1	125.0	5.0	0.106
P6KE100	100-144.0-10	81.00	5.0	90.00	110.00	1	144.0	4.3	0.106
P6KE100A	100-137.0-5	85.50	5.0	95.00	105.00	1	137.0	4.5	0.106
P6KE110	110-158.0-10	89.20	5.0	99.00	121.00	1	158.0	3.9	0.107
P6KE110A	110-152.0-5	94.00	5.0	105.00	116.00	1	152.0	4.1	0.107
P6KE120	120-173.0-10	97.20	5.0	108.00	132.00	1	173.0	3.6	0.107
P6KE120A	120-165.0-5	102.00	5.0	114.00	126.00	1	165.0	3.8	0.107
P6KE130	130-187.0-10	105.00	5.0	117.00	143.00	1	187.0	3.3	0.107
P6KE130A	130-179.0-5	111.00	5.0	124.00	137.00	1	179.0	3.5	0.107
P6KE150	150-215.0-10	121.00	5.0	135.00	165.00	1	215.0	2.9	0.108
P6KE150A	150-207.0-5	128.00	5.0	143.00	158.00	1	207.0	3.0	0.108
P6KE160	160-230.0-10	130.00	5.0	144.00	176.00	1	230.0	2.7	0.108
P6KE160A	160-219.0-5	136.00	5.0	152.00	168.00	1	219.0	2.8	0.108
P6KE170	170-244.0-10	138.00	5.0	153.00	187.00	1	244.0	2.5	0.108
P6KE170A	170-234.0-5	145.00	5.0	162.00	179.00	1	234.0	2.6	0.108
P6KE180	180-256.0-10	146.00	5.0	162.00	198.00	1	256.0	2.4	0.108
P6KE180A	180-246.0-5	154.00	5.0	171.00	189.00	1	246.0	2.5	0.108
P6KE200	200-287.0-10	162.00	5.0	180.00	220.00	1	287.0	2.1	0.108
P6KE200A	200-274.0-5	171.00	5.0	190.00	210.00	1	274.0	2.2	0.108
P6KE220	220-344.0-10	175.00	5.0	198.00	242.00	1	344.0	1.8	0.108
P6KE220A	220-328.0-5	185.00	5.0	209.00	231.00	1	328.0	1.9	0.108
P6KE250	250-360.0-10	202.00	5.0	225.00	275.00	1	360.0	1.7	0.110
P6KE250A	250-344.0-5	214.00	5.0	237.00	263.00	1	344.0	1.8	0.110
P6KE300	300-430.0-10	243.00	5.0	270.00	330.00	1	430.0	1.4	0.110
P6KE300A	300-414.0-5	256.00	5.0	285.00	315.00	1	414.0	1.5	0.110
P6KE350	350-504.0-10	284.00	5.0	315.00	385.00	1	504.0	1.2	0.110
P6KE350A	350-482.0-5	300.00	5.0	332.00	368.00	1	482.0	1.3	0.110
P6KE400	400-574.0-10	324.00	5.0	360.00	440.00	1	571.0	1.9	0.110
P6KE400A	400-548.0-5	342.00	5.0	380.00	420.00	1	548.0	1.1	0.110
P6KE440	440-598.0-10	356.00	5.0	396.00	484.00	1	598.0	0.99	0.110
P6KE440A	440-590.0-5	376.00	5.0	418.00	462.00	1	590.0	1.04	0.110

### NOTES

- NOTE 1:** ♦ ELECTRICAL CHARACTERISTICS ARE AT A JUNCTION TEMPERATURE ( $T_J$ ) OF 25°C
- NOTE 2:** ♦ INDUSTRY STANDARD PART NUMBERS REFER TO PACKAGED DEVICES. THE DIES INDICATED BY THESE NUMBERS, IF PROPERLY PACKAGED, WILL OPERATE WITH THE SAME PERFORMANCE
- NOTE 3:** ♦ FOR BIPOLAR DEVICES WITH A  $V_{BR}$  OF 10 VOLTS OR LESS, THE  $I_R$  LIMIT IS DOUBLED
- NOTE 4:** ♦ DUAL DIE  $V_{BR}$  IS MEASURED FROM TOP TO TOP OF DIE  $V_{BR}$  MEASURED FROM TOP TO BOTTOM WILL RESULT IN A LOWER  $V_{BR}$
- NOTE 5:** ♦ SURGE CURRENT WAVEFORM SHOWN IN FIGURE 2A ON PAGE 7-13  
♦ PEAK PULSE POWER DERATING SHOWN IN FIGURE 3A ON PAGE 7-13



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**600 WATT DIE  
SPECIFICATIONS CONTINUED**

## ORDERING SPECIFIER

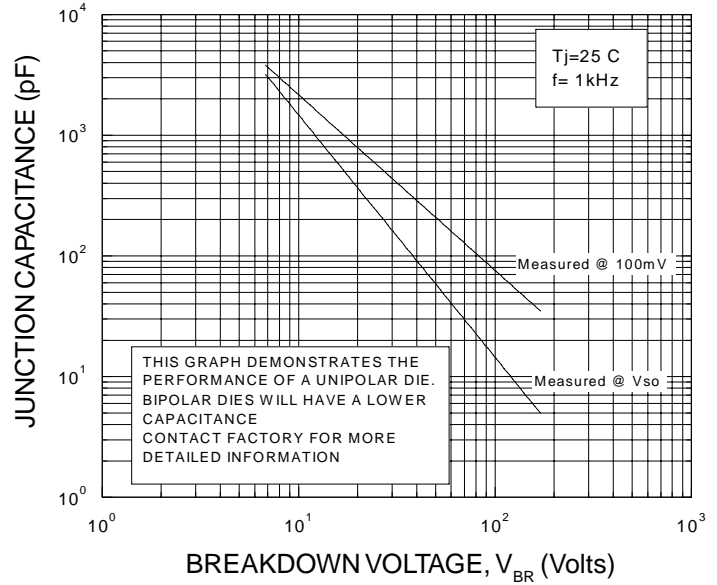
**6.8 - 10.8 - 10**

ORDER CODE FROM  
PREVIOUS PAGES

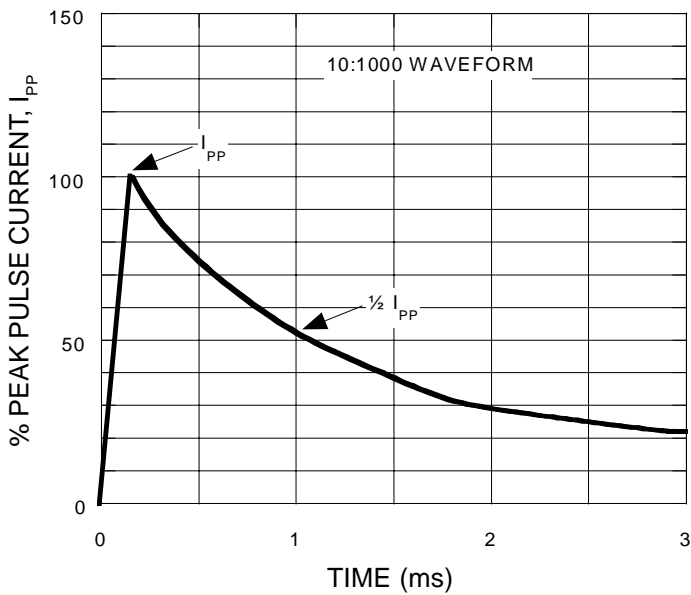
**TABLE 10A - AVAILABLE DIE SIZES**

CODE	DIE TYPE	DIE SPECIFICATIONS REFER TO:
SZU3	600 WATT UNIPOLAR DIE	PAGE 7-1
SZZ3	600 WATT BIPOLAR DIE	PAGE 7-2
SZUFD3	600 WATT UNIPOLAR FLIP-DIE	PAGE 7-3
SZZD3	600 WATT BIPOLAR DUAL-DIE	PAGE 7-4

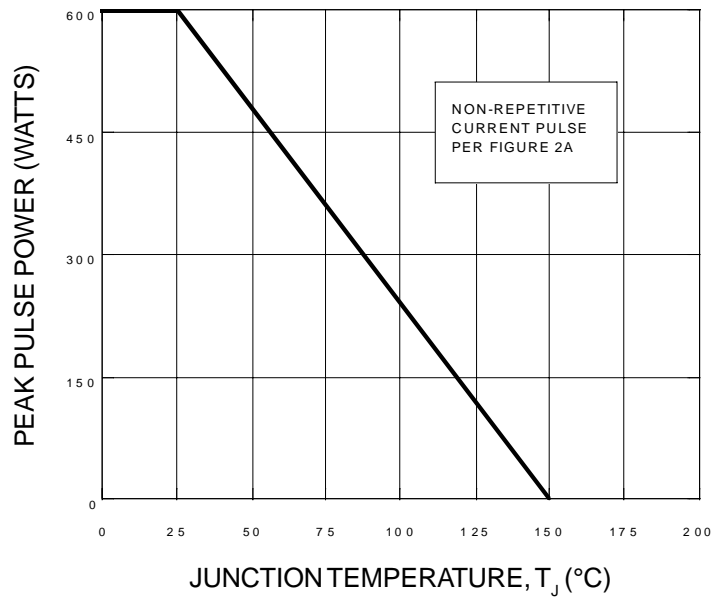
**FIGURE 1A - TYPICAL JUNCTION CAPACITANCE**

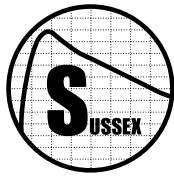


**FIGURE 2A - PULSE WAVEFORM**



**FIGURE 3A - PULSE DERATING CURVE**





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### 1500 WATT TRANSIENT SUPPRESSOR DIE SPECIFICATIONS

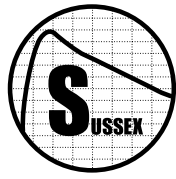
TABLE 11A - 1500 WATT TRANSIENT SUPPRESSOR DIE ELECTRICAL SPECIFICATIONS (NOTE 1)

JEDEC PART NUMBERS (NOTE 2)	INDUSTRY STANDARD PART NUMBERS  1500 WATT 1.5KE SERIES	SUSSEX ORDER CODE  REFER TO PAGE 7-16 FOR ORDER SPECIFIER	STANDOFF VOLTAGE (V <sub>SO</sub> ) Volts	MAX. REVERSE LEAKAGE (I <sub>R</sub> ) @ V <sub>SO</sub> (NOTE 3) µA	REVERSE BREAKDOWN VOLTAGE (V <sub>BR</sub> ) @ I <sub>T</sub> (NOTE 4)		TEST CURRENT (I <sub>T</sub> ) mA	MAX. CLAMPING VOLTAGE (V <sub>CL</sub> ) @ PEAK PULSE CURRENT (I <sub>PP</sub> ) (NOTE 5)		MAX. TEMP. COEFFICIENT OF V <sub>BR</sub> (%/°C)
					MIN. Volts	MAX. Volts		V <sub>CL</sub> Volts	I <sub>PP</sub> Amps	
					1N6267	1.5KE6.8		6.8-10.8-10	5.50	
1N6267A	1.5KE6.8A	6.8-10.5-5	5.80	1000	6.45	7.14	10	10.5	150.0	0.057
1N6268	1.5KE7.5	7.5-11.7-10	6.05	500	6.75	8.25	10	11.7	134.0	0.061
1N6268A	1.5KE7.5A	7.5-11.3-5	6.40	500	7.13	7.88	10	11.3	139.0	0.061
1N6269	1.5KE8.2	8.2-12.5-10	6.63	200	7.38	9.02	10	12.5	126.0	0.065
1N6269A	1.5KE8.2A	8.2-12.1-5	7.02	200	7.79	8.61	10	12.1	130.0	0.065
1N6270	1.5KE9.1	9.1-13.8-10	7.37	50	8.19	10.00	1	13.8	114.0	0.068
1N6270A	1.5KE9.1A	9.1-13.4-5	7.78	50	8.65	9.55	1	13.4	117.0	0.068
1N6271	1.5KE10	10-15.0-10	8.10	10	9.00	11.00	1	15.0	105.0	0.073
1N6271A	1.5KE10A	10-14.5-5	8.55	10	9.50	10.50	1	14.5	108.0	0.073
1N6272	1.5KE11	11-16.2-10	8.92	5.0	9.90	12.10	1	16.2	97.0	0.075
1N6272A	1.5KE11A	11-15.6-5	9.40	5.0	10.50	11.60	1	15.6	100.0	0.075
1N6273	1.5KE12	12-17.3-10	9.72	5.0	10.80	13.20	1	17.3	91.0	0.078
1N6273A	1.5KE12A	12-16.7-5	10.20	5.0	11.40	12.60	1	16.7	94.0	0.078
1N6274	1.5KE13	13-19.0-10	10.50	5.0	11.70	14.30	1	19.0	82.0	0.061
1N6274A	1.5KE13A	13-18.2-5	11.10	5.0	12.40	13.70	1	18.2	86.0	0.081
1N6275	1.5KE15	15-22.0-10	12.10	5.0	13.50	16.50	1	22.0	71.0	0.084
1N6275A	1.5KE15A	15-21.2-5	12.80	5.0	14.30	15.80	1	21.2	74.0	0.084
1N6276	1.5KE16	16-23.5-10	12.90	5.0	14.40	17.60	1	23.5	67.0	0.086
1N6276A	1.5KE16A	16-22.5-5	13.60	5.0	15.20	16.80	1	22.5	70.0	0.086
1N6277	1.5KE18	18-26.5-10	14.50	5.0	16.20	19.80	1	26.5	59.0	0.088
1N6277A	1.5KE18A	18-25.2-5	15.30	5.0	17.10	18.90	1	25.2	60.0	0.088
1N6278	1.5KE20	20-29.1-10	16.20	5.0	18.00	22.00	1	29.1	54.0	0.090
1N6278A	1.5KE20A	20-27.7-5	17.10	5.0	19.00	21.00	1	27.7	56.0	0.090
1N6279	1.5KE22	22-31.9-10	17.80	5.0	19.80	24.20	1	31.9	49.0	0.092
1N6279A	1.5KE22A	22-30.6-5	18.80	5.0	20.90	23.10	1	30.6	51.0	0.092
1N6280	1.5KE24	24-34.7-10	19.40	5.0	21.60	26.40	1	34.7	45.0	0.091
1N6280A	1.5KE24A	24-33.2-5	20.50	5.0	22.80	25.20	1	33.2	47.0	0.094
1N6281	1.5KE27	27-39.1-10	21.80	5.0	24.30	29.70	1	39.1	40.0	0.096
1N6281A	1.5KE27A	27-37.5-5	23.10	5.0	25.70	28.40	1	37.5	42.0	0.096
1N6282	1.5KE30	30-43.5-10	24.30	5.0	27.00	33.00	1	43.5	36.0	0.097
1N6282A	1.5KE30A	30-41.4-5	25.60	5.0	28.50	31.50	1	41.4	38.0	0.097
1N6283	1.5KE33	33-47.7-10	26.80	5.0	29.70	36.30	1	47.7	33.0	0.098
1N6283A	1.5KE33A	33-45.7-5	28.20	5.0	31.40	34.70	1	45.7	34.0	0.098
1N6284	1.5KE36	36-52.0-10	29.10	5.0	32.40	39.60	1	52.0	30.0	0.099
1N6284A	1.5KE36A	36-49.9-5	30.80	5.0	34.20	37.80	1	49.9	31.0	0.099
1N6285	1.5KE39	39-56.4-10	31.60	5.0	35.10	42.90	1	56.4	27.0	0.100
1N6285A	1.5KE39A	39-53.9-5	33.30	5.0	37.10	41.00	1	53.9	29.0	0.100
1N6286	1.5KE43	43-61.9-10	34.80	5.0	38.70	47.30	1	61.9	25.0	0.101
1N6286A	1.5KE43A	43-59.3-5	36.80	5.0	40.90	45.20	1	59.3	26.0	0.101
1N6287	1.5KE47	47-67.8-10	36.10	5.0	42.30	51.70	1	67.8	23.0	0.101
1N6287A	1.5KE47A	47-64.8-5	40.20	5.0	44.70	49.40	1	64.8	24.0	0.101
1N6288	1.5KE51	51-70.1-10	41.30	5.0	45.90	56.10	1	73.5	21.0	0.102

THIS TABLE CONTINUES

### NOTES

- NOTE 1:** ♦ ELECTRICAL CHARACTERISTICS ARE AT A JUNCTION TEMPERATURE (T<sub>J</sub>) OF 25°C
- NOTE 2:** ♦ INDUSTRY STANDARD PART NUMBERS REFER TO PACKAGED DEVICES. THE DIES INDICATED BY THESE NUMBERS, IF PROPERLY PACKAGED, WILL OPERATE WITH THE SAME PERFORMANCE
- NOTE 3:** ♦ FOR BIPOLAR DEVICES WITH A V<sub>BR</sub> OF 10 VOLTS OR LESS, THE I<sub>R</sub> LIMIT IS DOUBLED
- NOTE 4:** ♦ DUAL DIE V<sub>BR</sub> IS MEASURED FROM TOP TO TOP OF DIE V<sub>BR</sub> MEASURED FROM TOP TO BOTTOM WILL RESULT IN A LOWER V<sub>BR</sub>
- NOTE 5:** ♦ SURGE CURRENT WAVEFORM SHOWN IN FIGURE 2A ON PAGE 7-16  
♦ PEAK PULSE POWER DERATING SHOWN IN FIGURE 3A ON PAGE 7-16



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## 1500 WATT TRANSIENT SUPPRESSOR DIE SPECIFICATIONS

TABLE 11A - 1500 WATT TRANSIENT SUPPRESSOR DIE ELECTRICAL SPECIFICATIONS (NOTE 1)

JEDEC PART NUMBERS (NOTE 2)	INDUSTRY STANDARD PART NUMBERS  1500 WATT 1.5KE SERIES	SUSSEX ORDER CODE  REFER TO PAGE 7-16 FOR ORDER SPECIFIER	STANDOFF VOLTAGE (V <sub>SO</sub> ) Volts	MAX. REVERSE LEAKAGE (I <sub>R</sub> )@ V <sub>SO</sub> (NOTE 3) µA	REVERSE BREAKDOWN VOLTAGE (V <sub>BR</sub> ) @ I <sub>T</sub> (NOTE 4)		TEST CURRENT (I <sub>T</sub> ) mA	MAX. CLAMPING VOLTAGE (V <sub>CL</sub> ) @ PEAK PULSE CURRENT (I <sub>PP</sub> ) (NOTE 5)		MAX. TEMP. COEFFICIENT OF V <sub>BR</sub> (%/°C)
					MIN. Volts	MAX. Volts		V <sub>CL</sub> Volts	I <sub>PP</sub> Amps	
					1N6288A	1.5KE51A		51-70.1-5	43.60	
1N6289	1.5KE56	56-80.5-10	45.60	5.0	50.40	61.80	1	80.5	19.0	0.103
1N6289A	1.5KE56A	56-77.0-5	47.80	5.0	53.20	58.80	1	77.0	20.0	0.103
1N6290	1.5KE62	62-89.0-10	50.20	5.0	55.80	68.20	1	89.0	17.0	0.104
1N6290A	1.5KE62A	62-85.0-5	53.00	5.0	58.90	65.10	1	85.0	18.0	0.104
1N6291	1.5KE68	68-96.0-10	55.10	5.0	61.20	74.80	1	96.0	16.0	0.104
1N6291A	1.5KE68A	68-92.0-5	58.10	5.0	64.60	71.40	1	92.0	17.0	0.104
1N6292	1.5KE75	75-108.0-10	60.70	5.0	67.50	82.50	1	108.0	14.0	0.105
1N6292A	1.5KE75A	75-103.0-5	64.10	5.0	71.30	78.80	1	103.0	15.0	0.105
1N6293	1.5KE82	82-118.0-10	66.40	5.0	73.80	90.20	1	118.0	13.0	0.105
1N6293A	1.5KE82A	82-113.0-5	70.10	5.0	77.90	86.10	1	113.0	13.9	0.105
1N6294	1.5KE91	91-131.0-10	73.70	5.0	81.90	100.00	1	131.0	12.0	0.106
1N6294A	1.5KE91A	91-125.0-5	77.80	5.0	86.50	95.50	1	125.0	12.6	0.106
1N6295	1.5KE100	100-144.0-10	81.00	5.0	90.00	110.00	1	144.0	10.9	0.106
1N6295A	1.5KE100A	100-137.0-5	85.50	5.0	95.00	105.00	1	137.0	11.4	0.106
1N6296	1.5KE110	110-158.0-10	89.20	5.0	99.00	121.00	1	158.0	9.9	0.107
1N6296A	1.5KE110A	110-152.0-5	94.00	5.0	106.00	116.00	1	152.0	10.3	0.107
1N6297	1.5KE120	120-173.0-10	97.20	5.0	108.00	132.00	1	173.0	9.1	0.107
1N6297A	1.5KE120A	120-165.0-5	102.00	5.0	114.00	126.00	1	165.0	9.5	0.107
1N6298	1.5KE130	130-187.0-10	106.00	5.0	117.00	143.00	1	187.0	8.4	0.107
1N6298A	1.5KE130A	130-179.0-5	111.00	5.0	124.00	137.00	1	179.0	8.7	0.107
1N6299	1.5KE150	150-215.0-10	121.00	5.0	136.00	165.00	1	215.0	7.3	0.108
1N6299A	1.5KE150A	150-207.0-5	128.00	5.0	143.00	158.00	1	207.0	7.6	0.108
1N6300	1.5KE160	160-230.0-10	130.00	5.0	144.00	176.00	1	230.0	6.8	0.108
1N6300A	1.5KE160A	160-219.0-5	136.00	5.0	152.00	168.00	1	219.0	7.1	0.108
1N6301	1.5KE170	170-244.0-10	138.00	5.0	153.00	187.00	1	244.0	6.4	0.108
1N6301A	1.5KE170A	170-234.0-5	145.00	5.0	162.00	179.00	1	234.0	6.7	0.108
1N6302	1.5KE180	180-256.0-10	146.00	5.0	162.00	198.00	1	256.0	6.1	0.108
1N6302A	1.5KE180A	180-246.0-5	154.00	5.0	171.00	189.00	1	246.0	6.4	0.108
1N6303	1.5KE200	200-287.0-10	162.00	5.0	180.00	220.00	1	287.0	5.4	0.108
1N6303A	1.5KE200A	200-274.0-5	171.00	5.0	190.00	210.00	1	274.0	5.7	0.108
N/A	1.5KE220	220-344.0-10	175.00	5.0	196.00	242.00	1	344.0	4.5	0.108
N/A	1.5KE220A	220-328.0-5	185.00	5.0	209.00	231.00	1	328.0	4.8	0.108
N/A	1.5KE250	250-360.0-10	202.00	5.0	225.00	275.00	1	360.0	4.3	0.110
N/A	1.5KE250A	250-344.0-5	214.00	5.0	237.00	263.00	1	344.0	4.5	0.110
N/A	1.5KE300	300-430.0-10	243.00	5.0	270.00	330.00	1	430.0	3.6	0.110
N/A	1.5KE300A	300-414.0-5	256.00	5.0	285.00	315.00	1	414.0	3.8	0.110
N/A	1.5KE350	350-504.0-10	284.00	5.0	315.00	385.00	1	504.0	3.1	0.110
N/A	1.5KE350A	350-482.0-5	300.00	5.0	333.00	368.00	1	482.0	3.2	0.110
N/A	1.5KE400	400-574.0-10	324.00	5.0	360.00	440.00	1	574.0	2.7	0.110
N/A	1.5KE400A	400-548.0-5	342.00	5.0	380.00	420.00	1	548.0	2.8	0.110
N/A	1.5KE440	440-598.0-10	356.00	5.0	396.00	484.00	1	598.0	2.4	0.110
N/A	1.5KE440A	440-590.0-5	376.00	5.0	418.00	462.00	1	590.0	2.6	0.110

### NOTES

- NOTE 1:** ♦ ELECTRICAL CHARACTERISTICS ARE AT A JUNCTION TEMPERATURE (T<sub>J</sub>) OF 25°C
- NOTE 2:** ♦ INDUSTRY STANDARD PART NUMBERS REFER TO PACKAGED DEVICES. THE DIES INDICATED BY THESE NUMBERS, IF PROPERLY PACKAGED, WILL OPERATE WITH THE SAME PERFORMANCE
- NOTE 3:** ♦ FOR BIPOLAR DEVICES WITH A V<sub>BR</sub> OF 10 VOLTS OR LESS, THE I<sub>R</sub> LIMIT IS DOUBLED
- NOTE 4:** ♦ DUAL DIE V<sub>BR</sub> IS MEASURED FROM TOP TO TOP OF DIE V<sub>BR</sub> MEASURED FROM TOP TO BOTTOM WILL RESULT IN A LOWER V<sub>BR</sub>
- NOTE 5:** ♦ SURGE CURRENT WAVEFORM SHOWN IN FIGURE 2A ON PAGE 7-16  
♦ PEAK PULSE POWER DERATING SHOWN IN FIGURE 3A ON PAGE 7-16



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**1500 WATT DIE SPECIFICATIONS CONTINUED**

## ORDERING SPECIFIER

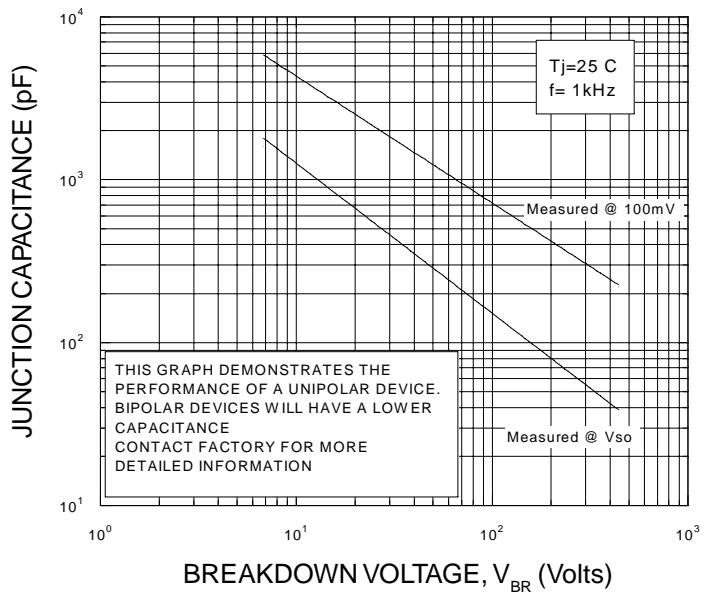
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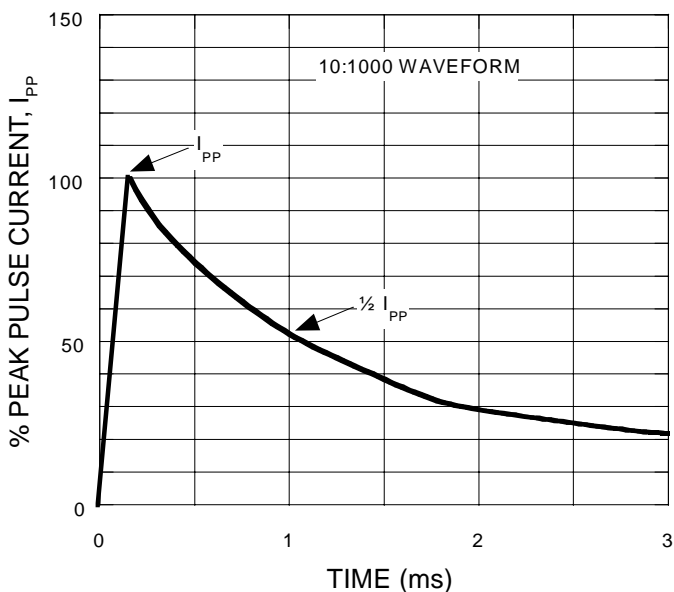
**TABLE 12A - AVAILABLE DIE SIZES**

CODE	DIE TYPE	DIE SPECIFICATIONS REFER TO:
SZU16	1500 WATT UNIPOLAR DIE	PAGE 7-1
SZZ16	1500 WATT BIPOLAR DIE	PAGE 7-2
SZUFD16	1500 WATT UNIPOLAR FLIP-DIE	PAGE 7-3
SZZD16	1500 WATT BIPOLAR DUAL-DIE	PAGE 7-4

**FIGURE 1A - TYPICAL JUNCTION CAPACITANCE**



**FIGURE 2A - PULSE WAVEFORM**



**FIGURE 3A - PULSE DERATING CURVE**

