



Micro Commercial Components  
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CA 91311  
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# P5KE5.0 THRU P5KE170CA

## Features

- Glass passivated chip
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- the plastic material has U/L recognition 94V-O
- Fast response time

## MECHANICAL DATA

Case: Molded Plastic

Marking: Unidirectional-type number and cathode band  
Bidirectional-type number only

Weight: 0.4 grams

## Maximum Ratings

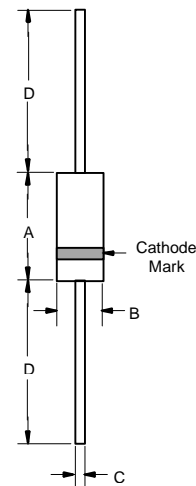
- Operating Temperature:  $-65^{\circ}\text{C}$  to  $+175^{\circ}\text{C}$
- Storage Temperature:  $-65^{\circ}\text{C}$  to  $+175^{\circ}\text{C}$
- For capacitive load, derate current by 20%

Electrical Characteristics @  $25^{\circ}\text{C}$  Unless Otherwise Specified

Peak Power Dissipation	$P_{PK}$	500W	$T_A=25^{\circ}\text{C}$
Current	$I_{FSM}$	70A	8.3ms, half sine
Steady State Power Dissipation	$P_{M(AV)}$	1.0W	$T_J=75^{\circ}\text{C}$

**500WATTS TRANSIENT  
VOLTAGE SUPPRESSOR  
5.0 TO 170 VOLTS**

DO-15



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.230	0.300	5.80	7.60	
B	0.104	0.140	2.60	3.60	
C	0.026	0.034	0.71	0.86	
D	1.000	-----	25.40	-----	

[www.mccsemi.com](http://www.mccsemi.com)

**P5KE5.0 THRU P5KE170CA  
RATING AND CHARACTERISTIC CURVES**

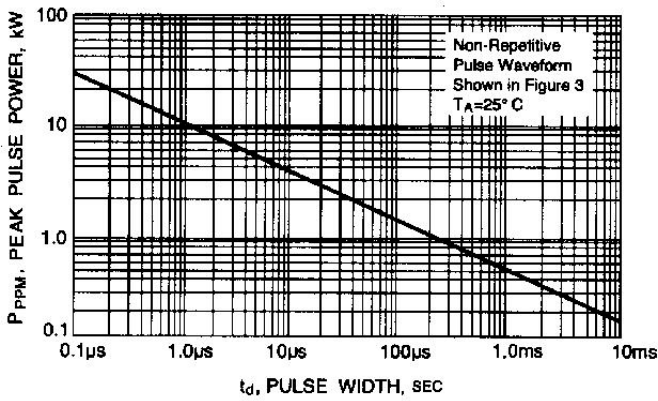


Fig. 1-PEAK PULSE POWER RATING CURVE

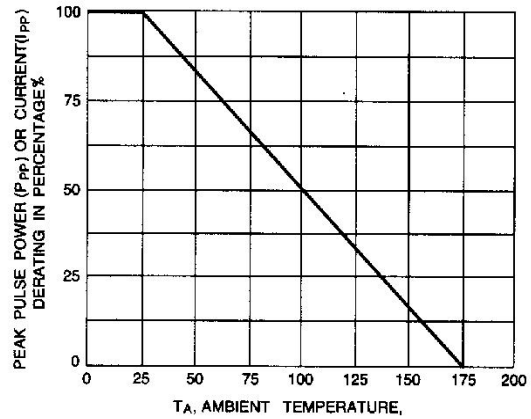


Fig. 2-PULSE DERATING CURVE

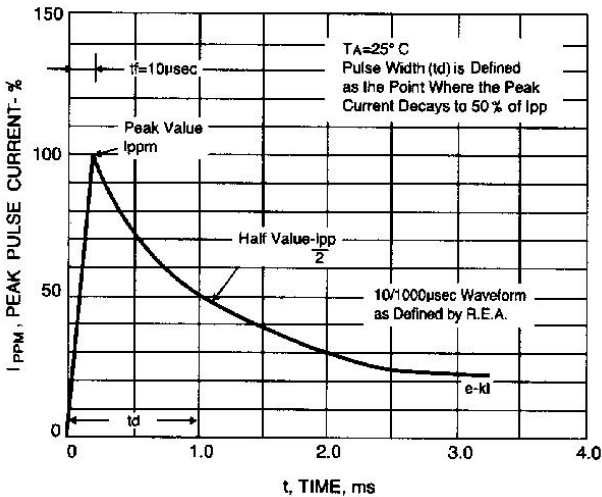


Fig. 3-PULSE WAVEFORM

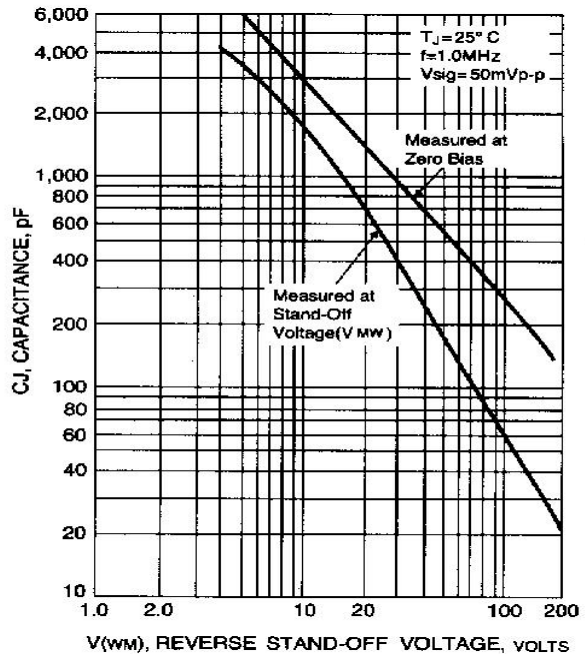


Fig. 4-TYPICAL JUNCTION CAPACITANCE

**UNIDIRECTIONAL**

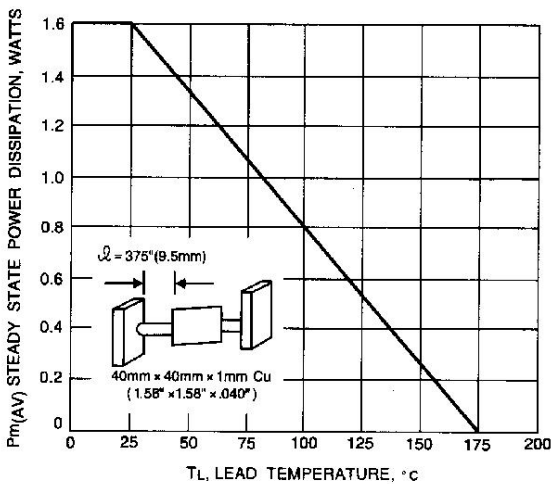


Fig. 5-STEADY STATE POWER DERATING CURVE

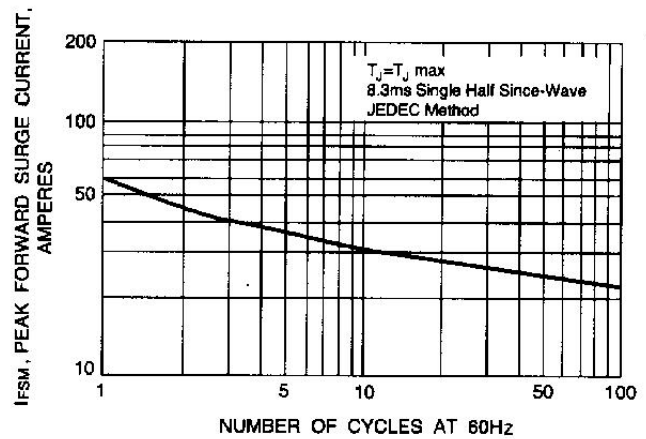


Fig. 6-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY

**P5KE5.0 THRU P5KE170CA  
ELECTRICAL CHARACTERISTICS AT 25°C**

PART NUMBER	BREAKDOWN VOLTAGE V(BR)		TEST CURRENT $I_T$	RATED STAND OFF VOLTAGE $V_{WM}$	MAX. REVERSE STANDBY CURRENT $I_D$ @ $V_{WM}$	MAX. PEAK REVERSE VOLTAGE $V_C$ MAX. @ $I_{PP}$	MAX. PEAK PULSE CURRENT $I_{PP}$ (Figure 2)	MAX. TEMP. COEFFICIENT OF V(BR) -55°C TO 175°C $\alpha_{V(BR)}$
	MIN. VOLTS	MAX VOLTS						
P5KE5.0	6.40	7.30	10	5.0	600	9.6	52	.057
P5KE5.0A	6.40	7.00	10	5.0	600	9.2	54.3	.057
P5KE6.0	6.67	8.15	10	6.0	600	11.4	43.9	.059
P5KE6.0A	6.67	7.37	10	6.0	600	10.3	48.5	.059
P5KE6.5	7.22	8.82	10	6.5	400	12.3	40.7	.061
P5KE6.5A	7.22	7.98	10	6.5	400	11.2	44.7	.061
P5KE7.0	7.78	9.51	10	7.0	150	13.3	37.8	.065
P5KE7.0A	7.78	8.60	10	7.0	150	12.0	41.7	.065
P5KE7.5	8.33	10.2	1	7.5	50	14.3	35.0	.067
P5KE7.5A	8.33	9.21	1	7.5	50	12.9	38.8	.067
P5KE8.0	8.89	10.9	1	8.0	25	15.0	33.3	.070
P5KE8.0A	8.89	9.83	1	8.0	25	13.6	36.7	.070
P5KE8.5	9.44	11.5	1	8.5	5	15.9	31.4	.073
P5KE8.5A	9.44	10.4	1	8.5	5	14.4	34.7	.073
P5KE9.0	10.0	12.2	1	9.0	1	16.9	29.5	.076
P5KE9.0A	10.0	11.1	1	9.0	1	15.4	32.5	.076
P5KE10	11.1	13.6	1	10	1	18.8	26.6	.078
P5KE10A	11.1	12.3	1	10	1	17.0	29.4	.078
P5KE11	12.2	14.9	1	11	1	20.1	24.9	.081
P5KE11A	12.2	13.5	1	11	1	18.2	27.4	.081
P5KE12	13.3	16.3	1	12	1	22.0	22.7	.082
P5KE12A	13.3	14.7	1	12	1	19.9	25.1	.082
P5KE13	14.4	17.6	1	13	1	23.8	21.0	.084
P5KE13A	14.4	15.9	1	13	1	21.5	23.2	.084
P5KE14	15.6	19.1	1	14	1	25.8	19.4	.086
P5KE14A	15.6	17.2	1	14	1	23.2	21.5	.086
P5KE15	16.7	20.4	1	15	1	26.9	18.8	.087
P5KE15A	16.7	18.5	1	15	1	24.4	20.6	.087
P5KE16	17.8	21.8	1	16	1	28.8	17.6	.088
P5KE16A	17.8	19.7	1	16	1	26.0	19.2	.088
P5KE17	18.9	23.1	1	17	1	30.5	16.4	.090
P5KE17A	18.9	20.9	1	17	1	27.6	18.1	.090
P5KE18	20.0	24.4	1	18	1	32.2	15.5	.092
P5KE18A	20.0	22.1	1	18	1	29.2	17.2	.092
P5KE20	22.2	27.1	1	20	1	35.8	13.9	.093
P5KE20A	22.2	24.5	1	20	1	32.4	15.4	.093

**P5KE5.0 THRU P5KE170CA  
ELECTRICAL CHARACTERISTICS AT 25°C**

PART NUMBER	BREAKDOWN VOLTAGE V(BR)		TEST CURRENT $I_T$	RATED STAND OFF VOLTAGE $V_{WM}$	MAX. REVERSE STANDBY CURRENT $I_D @ V_{WM}$	MAX. PEAK REVERSE VOLTAGE $V_C$ MAX. @ $I_{PP}$	MAX. PEAK PULSE CURRENT $I_{PP}$ (Figure 2)	MAX. TEMP. COEFFICIENT OF V(BR) -55°C TO 175°C $\alpha_{V(BR)}$
	MIN. VOLTS	MAX VOLTS						
P5KE22	24.4	29.8	1	22	1	39.4	12.7	.094
P5KE22A	24.4	26.9	1	22	1	35.5	14.1	.094
P5KE24	26.7	32.6	1	24	1	43.0	11.6	.096
P5KE24A	26.7	29.5	1	24	1	38.9	12.8	.096
P5KE26	28.9	35.3	1	26	1	46.6	10.7	.097
P5KE26A	28.9	31.9	1	26	1	42.1	11.9	.097
P5KE28	31.1	38.0	1	28	1	50.0	9.9	.098
P5KE28A	31.1	34.4	1	28	1	45.4	11.0	.098
P5KE30	33.3	40.7	1	30	1	53.5	9.3	.099
P5KE30A	33.3	36.8	1	30	1	48.4	10.3	.099
P5KE33	36.7	44.9	1	33	1	59.0	8.5	.100
P5KE33A	36.7	40.6	1	33	1	53.3	9.4	.100
P5KE36	40.0	48.9	1	36	1	64.3	7.8	.101
P5KE36A	40.0	44.2	1	36	1	58.1	8.6	.101
P5KE40	44.4	54.3	1	40	1	71.4	7.0	.101
P5KE40A	44.4	49.1	1	40	1	64.5	7.8	.101
P5KE43	47.8	58.4	1	43	1	76.7	6.5	.102
P5KE43A	47.8	52.8	1	43	1	69.4	7.2	.102
P5KE45	50.0	61.1	1	45	1	80.3	6.2	.102
P5KE45A	50.0	55.3	1	45	1	72.7	6.9	.102
P5KE48	53.3	65.1	1	48	1	85.5	5.8	.103
P5KE48A	53.3	58.9	1	48	1	77.4	6.5	.103
P5KE51	56.7	69.3	1	51	1	91.1	5.5	.103
P5KE51A	56.7	62.7	1	51	1	82.4	6.1	.103
P5KE54	60.0	73.3	1	54	1	96.3	5.2	.104
P5KE54A	60.0	66.3	1	54	1	87.1	5.7	.104
P5KE58	64.4	78.7	1	58	1	103.0	4.9	.104
P5KE58A	64.4	71.2	1	58	1	93.6	5.3	.104
P5KE60	66.7	81.5	1	60	1	107.0	4.7	.104
P5KE60A	66.7	73.7	1	60	1	96.8	5.2	.104
P5KE64	71.1	86.9	1	64	1	114.0	4.4	.105
P5KE64A	71.1	78.6	1	64	1	103.0	4.9	.105
P5KE70	77.8	95.1	1	70	1	125.0	4.0	.105
P5KE70A	77.8	86.0	1	70	1	113.0	4.4	.105
P5KE75	83.3	102.0	1	75	1	134.0	3.7	.105
P5KE75A	83.3	92.1	1	75	1	121.0	4.1	.105

**P5KE5.0 THRU P5KE170CA  
ELECTRICAL CHARACTERISTICS AT 25°C**

PART NUMBER	BREAKDOWN VOLTAGE V(BR)		TEST CURRENT $I_T$	RATED STAND OFF VOLTAGE $V_{WM}$	MAX. REVERSE STANDBY CURRENT $I_D @ V_{WM}$	MAX. PEAK REVERSE VOLTAGE $V_C$ MAX. @ $I_{PP}$	MAX. PEAK PULSE CURRENT $I_{PP}$ (Figure 2)	MAX. TEMP. COEFFICIENT OF V(BR) -55°C TO 175°C $\alpha_{V(BR)}$
	MIN. VOLTS	MAX VOLTS						
P5KE78	86.7	106.0	1	78	1	139.0	3.6	.106
P5KE78A	86.7	95.8	1	78	1	126.0	4.0	.106
P5KE85	94.4	115.0	1	85	1	151.0	3.3	.106
P5KE85A	94.4	104.0	1	85	1	137.0	3.6	.106
P5KE90	100.0	122.0	1	90	1	160.0	3.1	.107
P5KE90A	100.0	111.0	1	90	1	146.0	3.4	.107
P5KE100	111.0	136.0	1	100	1	179.0	2.8	.107
P5KE100A	111.0	123.0	1	100	1	162.0	3.1	.107
P5KE110	122.0	149.0	1	110	1	196.0	2.6	.107
P5KE110A	122.0	135.0	1	110	1	177.0	2.8	.107
P5KE120	133.0	163.0	1	120	1	214.0	2.3	.107
P5KE120A	133.0	147.0	1	120	1	193.0	2.0	.107
P5KE130	144.0	176.0	1	130	1	231.0	2.2	.108
P5KE130A	144.0	159.0	1	130	1	209.0	2.4	.108
P5KE150	167.0	204.0	1	150	1	268.0	1.9	.108
P5KE150A	167.0	185.0	1	150	1	243.0	2.1	.108
P5KE160	178.0	218.0	1	160	1	287.0	1.7	.108
P5KE160A	178.0	197.0	1	160	1	259.0	1.9	.108
P5KE170	189.0	231.0	1	170	1	304.0	1.6	.108
P5KE170A	189.0	209.0	1	170	1	275.0	1.8	.108

**P5KE5.0 THRU P5KE170CA  
ELECTRICAL CHARACTERISTICS AT 25°C**

PART NUMBER	BREAKDOWN VOLTAGE V(BR)		TEST CURRENT $I_T$	RATED STAND OFF VOLTAGE $V_{WM}$	MAX. REVERSE STANDBY CURRENT $I_D @ V_{WM}$	MAX. PEAK REVERSE VOLTAGE $V_C$ MAX. @ $I_{PP}$	MAX. PEAK PULSE CURRENT $I_{PP}$ (Figure 2)	MAX. TEMP. COEFFICIENT OF V(BR) -55°C TO 175°C $\alpha_{V(BR)}$
	MIN. VOLTS	MAX VOLTS						
P5KE5.0C	6.40	7.30	10	5.0	1200	9.6	52	.057
P5KE5.0CA	6.40	7.00	10	5.0	1200	9.2	54.3	.057
P5KE6.0C	6.67	8.15	10	6.0	1200	11.4	43.9	.059
P5KE6.0CA	6.67	7.37	10	6.0	1200	10.3	48.5	.059
P5KE6.5C	7.22	8.82	10	6.5	800	12.3	40.7	.061
P5KE6.5CA	7.22	7.98	10	6.5	800	11.2	44.7	.061
P5KE7.0C	7.78	9.51	10	7.0	300	13.3	37.8	.065
P5KE7.0CA	7.78	8.60	10	7.0	300	12.0	41.7	.065
P5KE7.5C	8.33	10.2	1	7.5	100	14.3	35.0	.067
P5KE7.5CA	8.33	9.21	1	7.5	100	12.9	38.8	.067
P5KE8.0C	8.89	10.9	1	8.0	50	15.0	33.3	.070
P5KE8.0CA	8.89	9.83	1	8.0	50	13.6	36.7	.070
P5KE8.5C	9.44	11.5	1	8.5	5	15.9	31.4	.073
P5KE8.5CA	9.44	10.4	1	8.5	5	14.4	34.7	.073
P5KE9.0C	10.0	12.2	1	9.0	1	16.9	29.5	.076
P5KE9.0CA	10.0	11.1	1	9.0	1	15.4	32.5	.076
P5KE10C	11.1	13.6	1	10	1	18.8	26.6	.078
P5KE10CA	11.1	12.3	1	10	1	17.0	29.4	.078
P5KE11C	12.2	14.9	1	11	1	20.1	24.9	.081
P5KE11CA	12.2	13.5	1	11	1	18.2	27.4	.081
P5KE12C	13.3	16.3	1	12	1	22.0	22.7	.082
P5KE12CA	13.3	14.7	1	12	1	19.9	25.1	.082
P5KE13C	14.4	17.6	1	13	1	23.8	21.0	.084
P5KE13CA	14.4	15.9	1	13	1	21.5	23.2	.084
P5KE14C	15.6	19.1	1	14	1	25.8	19.4	.086
P5KE14CA	15.6	17.2	1	14	1	23.2	21.5	.086
P5KE15C	16.7	20.4	1	15	1	26.9	18.8	.087
P5KE15CA	16.7	18.5	1	15	1	24.4	20.6	.087
P5KE16C	17.8	21.8	1	16	1	28.8	17.6	.088
P5KE16CA	17.8	19.7	1	16	1	26.0	19.2	.088
P5KE17C	18.9	23.1	1	17	1	30.5	16.4	.090
P5KE17CA	18.9	20.9	1	17	1	27.6	18.1	.090
P5KE18C	20.0	24.4	1	18	1	32.2	15.5	.092
P5KE18CA	20.0	22.1	1	18	1	29.2	17.2	.092
P5KE20C	22.2	27.1	1	20	1	35.8	13.9	.093
P5KE20CA	22.2	24.5	1	20	1	32.4	15.4	.093



**P5KE5.0 THRU P5KE170CA  
ELECTRICAL CHARACTERISTICS AT 25°C**

PART NUMBER	BREAKDOWN VOLTAGE V(BR)		TEST CURRENT $I_T$	RATED STAND OFF VOLTAGE $V_{WM}$	MAX. REVERSE STANDBY CURRENT $I_D$ @ $V_{WM}$	MAX. PEAK REVERSE VOLTAGE $V_C$ MAX. @ $I_{PP}$	MAX. PEAK PULSE CURRENT $I_{PP}$ (Figure 2)	MAX. TEMP. COEFFICIENT OF V(BR) -55°C TO 175°C $\alpha_{V(BR)}$
	MIN. VOLTS	MAX VOLTS						
P5KE22C	24.4	29.8	1	22	1	39.4	12.7	.094
P5KE22CA	24.4	26.9	1	22	1	35.5	14.1	.094
P5KE24C	26.7	32.6	1	24	1	43.0	11.6	.096
P5KE24CA	26.7	29.5	1	24	1	38.9	12.8	.096
P5KE26C	28.9	35.3	1	26	1	46.6	10.7	.097
P5KE26CA	28.9	31.9	1	26	1	42.1	11.9	.097
P5KE28C	31.1	38.0	1	28	1	50.0	9.9	.098
P5KE28CA	31.1	34.4	1	28	1	45.4	11.0	.098
P5KE30C	33.3	40.7	1	30	1	53.5	9.3	.099
P5KE30CA	33.3	36.8	1	30	1	48.4	10.3	.099
P5KE33C	36.7	44.9	1	33	1	59.0	8.5	.100
P5KE33CA	36.7	40.6	1	33	1	53.3	9.4	.100
P5KE36C	40.0	48.9	1	36	1	64.3	7.8	.101
P5KE36CA	40.0	44.2	1	36	1	58.1	8.6	.101
P5KE40C	44.4	54.3	1	40	1	71.4	7.0	.101
P5KE40CA	44.4	49.1	1	40	1	64.5	7.8	.101
P5KE43C	47.8	58.4	1	43	1	76.7	6.5	.102
P5KE43CA	47.8	52.8	1	43	1	69.4	7.2	.102
P5KE45C	50.0	61.1	1	45	1	80.3	6.2	.102
P5KE45CA	50.0	55.3	1	45	1	72.7	6.9	.102
P5KE48C	53.3	65.1	1	48	1	85.5	5.8	.103
P5KE48CA	53.3	58.9	1	48	1	77.4	6.5	.103
P5KE51C	56.7	69.3	1	51	1	91.1	5.5	.103
P5KE51CA	56.7	62.7	1	51	1	82.4	6.1	.103
P5KE54C	60.0	73.3	1	54	1	96.3	5.2	.104
P5KE54CA	60.0	66.3	1	54	1	87.1	5.7	.104
P5KE58C	64.4	78.7	1	58	1	103.0	4.9	.104
P5KE58CA	64.4	71.2	1	58	1	93.6	5.3	.104
P5KE60C	66.7	81.5	1	60	1	107.0	4.7	.104
P5KE60CA	66.7	73.7	1	60	1	96.8	5.2	.104
P5KE64C	71.1	86.9	1	64	1	114.0	4.4	.105
P5KE64CA	71.1	78.6	1	64	1	103.0	4.9	.105
P5KE70C	77.8	95.1	1	70	1	125.0	4.0	.105
P5KE70CA	77.8	86.0	1	70	1	113.0	4.4	.105
P5KE75C	83.3	102.0	1	75	1	134.0	3.7	.105
P5KE75CA	83.3	92.1	1	75	1	121.0	4.1	.105

**P5KE5.0 THRU P5KE170CA  
ELECTRICAL CHARACTERISTICS AT 25°C**

PART NUMBER	BREAKDOWN VOLTAGE V(BR)		TEST CURRENT $I_T$	RATED STAND OFF VOLTAGE $V_{WM}$	MAX. REVERSE STANDBY CURRENT $I_D @ V_{WM}$	MAX. PEAK REVERSE VOLTAGE $V_C$ MAX. @ $I_{PP}$	MAX. PEAK PULSE CURRENT $I_{PP}$ (Figure 2)	MAX. TEMP. COEFFICIENT OF V(BR) -55°C TO 175°C $\alpha_{V(BR)}$
	MIN. VOLTS	MAX VOLTS						
P5KE78C	86.7	106.0	1	78	1	139.0	3.6	.106
P5KE78CA	86.7	95.8	1	78	1	126.0	4.0	.106
P5KE85C	94.4	115.0	1	85	1	151.0	3.3	.106
P5KE85CA	94.4	104.0	1	85	1	137.0	3.6	.106
P5KE90C	100.0	122.0	1	90	1	160.0	3.1	.107
P5KE90CA	100.0	111.0	1	90	1	146.0	3.4	.107
P5KE100C	111.0	136.0	1	100	1	179.0	2.8	.107
P5KE100CA	111.0	123.0	1	100	1	162.0	3.1	.107
P5KE110C	122.0	149.0	1	110	1	196.0	2.6	.107
P5KE110CA	122.0	135.0	1	110	1	177.0	2.8	.107
P5KE120C	133.0	163.0	1	120	1	214.0	2.3	.107
P5KE120CA	133.0	147.0	1	120	1	193.0	2.0	.107
P5KE130C	144.0	176.0	1	130	1	231.0	2.2	.108
P5KE130CA	144.0	159.0	1	130	1	209.0	2.4	.108
P5KE150C	167.0	204.0	1	150	1	268.0	1.9	.108
P5KE150CA	167.0	185.0	1	150	1	243.0	2.1	.108
P5KE160C	178.0	218.0	1	160	1	287.0	1.7	.108
P5KE160CA	178.0	197.0	1	160	1	259.0	1.9	.108
P5KE170C	189.0	231.0	1	170	1	304.0	1.6	.108
P5KE170CA	189.0	209.0	1	170	1	275.0	1.8	.108