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15KPA17  
 thru  
 15KPA280A

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HIGH CURRENT THRU-HOLE DISCRETE TVS DIODE

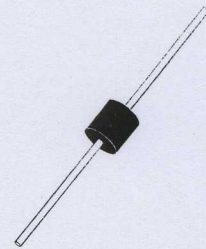
APPLICATIONS

- Relay Drives
- Motor (Start/Stop) Back EMF Protection
- Module Lightning Protection

FEATURES

- 15,000 Watts Peak Pulse Power Dissipation (10/1000  $\mu$ s)
- Available in Numerous Voltage Types Ranging from 17.0V to 280V
- Easy Mounting to Printed Circuit Boards
- UL 94V-0 Flammability Classification

15,000 WATTS



MAXIMUM RATINGS

- 15,000 Watts Peak Pulse Dissipation @25°C (See Figure 1)
- Operating & Storage Temperature: -55°C to +150°C
- Forward Surge Rating: 100A, 1/20 second @25°C
- Steady State Power Dissipation: 7.0W  $T_A = 25^\circ\text{C}$
- Repetition Rate (Duty Cycle): 0.05%
- $t_{\text{Clamping}}$  (0 Volts to  $V_{\text{BR}}$  min):  
 Unidirectional  $< 1 \times 10^{-12}$  seconds  
 Bidirectional  $< 10 \times 10^{-9}$  seconds

MECHANICAL CHARACTERISTICS

- Package: Molded Case
- Approximate Weight: 13 grams
- Positive Terminal Marked with Band (Unidirectional)
- Body Marked with Logo & Part No.

DESCRIPTION

The 15KPA family is a series of discrete 15,000 Watt, silicon transient voltage suppressor diodes designed for use in applications where large voltage transients can permanently damage voltage sensitive components and equipment.

The 15KPA series has a peak pulse power ( $P_{\text{PP}}$ ) rating of 15,000 Watts for an 10/1000  $\mu$ s waveshape. This series is available in voltages ranging from 17.0 Volts to 280 Volts with 5 percent and 10 percent tolerances. Both tolerances are referenced to the power supply output or operating voltage level.

FIGURE 1  
 PEAK PULSE POWER VS PULSE TIME



FIGURE 2  
 PULSE WAVE FORM

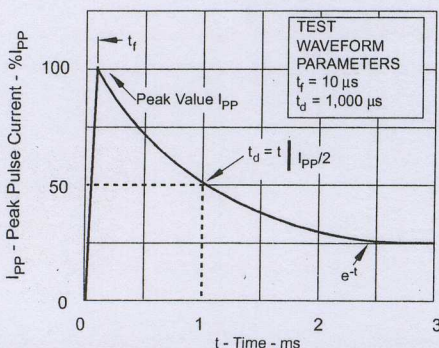
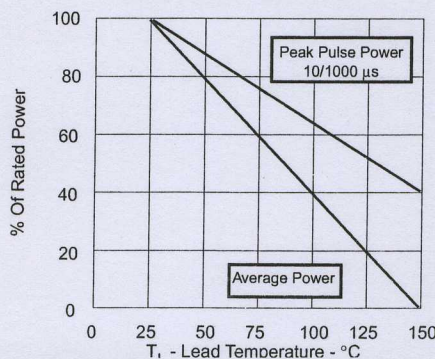


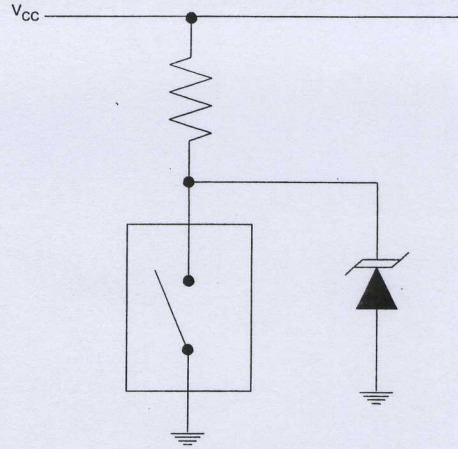
FIGURE 3  
 POWER DERATING CURVE



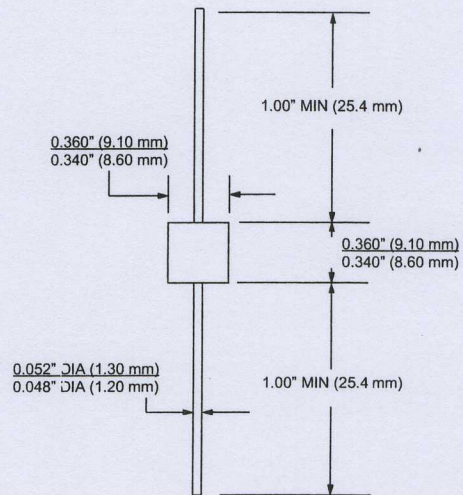
## ELECTRICAL CHARACTERISTICS @ 25° C Ambient Temperature

PART NUMBER (See Note 1 & Note 2)	RATED STAND-OFF VOLTAGE  V <sub>WM</sub> VOLTS	BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT  @V <sub>WM</sub> I <sub>b</sub> μA	MAXIMUM CLAMPING VOLTAGE (See Fig. 2)  V <sub>C</sub> VOLTS	MAXIMUM PEAK PULSE CURRENT (See Fig. 2)  @ I <sub>pp</sub> I <sub>ppm</sub> AMPS	MAXIMUM TEMPERATURE COEFFICIENT OF V <sub>(BR)</sub>  θV <sub>(BR)</sub> mV/°C
		MIN' V <sub>(BR)</sub> VOLTS	@I <sub>F</sub> mA				
15KPA17	17.0	18.9	50	5000	32.3	464.0	19
15KPA17A	17.0	18.9	50	5000	29.3	512.0	17
15KPA18	18.0	20.0	50	5000	34.2	439.0	20
15KPA18A	18.0	20.0	50	5000	30.9	485.0	18
P 15KPA20	20.0	22.2	20	1500	37.9	396.0	24
P 15KPA20A	20.0	22.2	20	1500	34.3	437.0	21
15KPA22	22.0	24.4	10	500	41.1	365.0	27
15KPA22A	22.0	24.4	10	500	37.1	404.0	24
P 15KPA24	24.0	26.7	5	150	45.0	333.0	30
P 15KPA24A	24.0	26.7	5	150	40.7	369.0	27
P 15KPA26	26.0	28.9	5	50	48.7	308.0	32
P 15KPA26A	26.0	28.9	5	50	44.0	341.0	29
P 15KPA28	28.0	31.1	5	25	52.4	286.0	35
P 15KPA28A	28.0	31.1	5	25	47.5	316.0	31
15KPA30	30.0	33.3	5	15	56.2	267.0	27
15KPA30A	30.0	33.3	5	15	50.7	296.0	34
15KPA33	33.0	36.7	5	10	60.6	248.0	42
15KPA33A	33.0	36.7	5	10	54.8	274.0	38
P 15KPA36	36.0	40.0	5	10	66.0	227.0	46
P 15KPA36A	36.0	40.0	5	10	59.7	251.0	41
15KPA40	40.0	44.4	5	10	72.8	206.0	51
15KPA40A	40.0	44.4	5	10	65.8	228.0	46
15KPA43	43.0	47.8	5	10	77.1	195.0	55
15KPA43A	43.0	47.8	5	10	69.7	215.0	50
15KPA45	45.0	50.0	5	10	80.7	186.0	57
15KPA45A	45.0	50.0	5	10	73.0	205.0	52
15KPA48	48.0	53.3	5	10	85.9	175.0	62
15KPA48A	48.0	53.3	5	10	77.7	193.0	56
15KPA51	51.0	56.7	5	10	91.5	164.0	66
15KPA51A	51.0	56.7	5	10	82.8	181.0	60
15KPA54	54.0	60.0	5	10	96.8	155.0	70
15KPA54A	54.0	60.0	5	10	87.5	171.0	63
P 15KPA58	58.0	64.4	5	10	104.0	144.0	76
P 15KPA58A	58.0	64.4	5	10	94.0	160.0	68
15KPA60	60.0	66.7	5	10	107.0	140.0	78
15KPA60A	60.0	66.7	5	10	97.3	154.0	71
15KPA64	64.0	71.1	5	10	115.0	130.0	84
15KPA64A	64.0	71.1	5	10	104.0	144.0	76
15KPA70	70.0	77.8	5	10	126.0	119.0	92
15KPA70A	70.0	77.8	5	10	114.0	132.0	83
15KPA75	75.0	83.3	5	10	135.0	111.0	100
15KPA75A	75.0	83.3	5	10	122.0	123.0	89
15KPA78	78.0	86.7	5	10	140.0	107.0	104
15KPA78A	78.0	86.7	5	10	126.0	119.0	93
15KPA85	85.0	94.4	5	10	152.0	99.0	113
15KPA85A	85.0	94.4	5	10	137.0	109.0	102
P 15KPA90	90.0	100.0	5	10	160.0	94.0	120
P 15KPA90A	90.0	100.0	5	10	146.0	103.0	109
15KPA100	100.0	111.0	5	10	179.0	84.0	134
15KPA100A	100.0	111.0	5	10	162.0	93.0	121
15KPA110	110.0	122.0	5	10	196.0	77.0	147
15KPA110A	110.0	122.0	5	10	178.0	84.0	133
15KPA120	120.0	133.0	5	10	214.0	70.0	161
15KPA120A	120.0	133.0	5	10	193.0	78.0	145
P 15KPA130	130.0	144.0	5	10	231.0	65.0	174
P 15KPA130A	130.0	144.0	5	10	209.0	72.0	157
15KPA150	150.0	167.0	5	10	268.0	56.0	202
15KPA150A	150.0	167.0	5	10	243.0	62.0	183
P 15KPA160	160.0	178.0	5	10	287.0	52.0	216
P 15KPA160A	160.0	178.0	5	10	259.0	58.0	195
P 15KPA170	170.0	189.0	5	10	304.0	49.0	229
P 15KPA170A	170.0	189.0	5	10	275.0	55.0	207
15KPA180	180.0	200.0	5	10	321.0	47.0	242
15KPA180A	180.0	200.0	5	10	291.0	52.0	219
15KPA200	200.0	222.0	5	10	356.0	42.0	269
15KPA200A	200.0	222.0	5	10	322.0	47.0	243
15KPA220	220.0	245.0	5	10	393.0	38.0	297
15KPA220A	220.0	245.0	5	10	356.0	42.0	269
15KPA240	240.0	267.0	5	10	428.0	35.0	324
15KPA240A	240.0	267.0	5	10	388.0	39.0	293
15KPA260	260.0	289.0	5	10	464.0	32.0	352
15KPA260A	260.0	289.0	5	10	419.0	36.0	317
15KPA280	280.0	311.0	5	10	500.0	30.0	378
15KPA280A	280.0	311.0	5	10	452.0	33.0	342

## TYPICAL RELAY DRIVE PROTECTION APPLICATION



## 15KPA SERIES PACKAGE DIMENSIONS



## NOTES

**Note 1:** P = Preferred part. For preferred parts and bidirectional devices, consult factory for minimum order quantity and delivery. Part numbers shown are unidirectional devices. Add "C" or "CA" suffix to specify bidirectional devices, such as 15KPA17C or 15KPA17CA.

**Note 2:** V<sub>F</sub> = 7.5V @ 200A, 8.3 ms - 1/2 sine wave (Unidirectional).