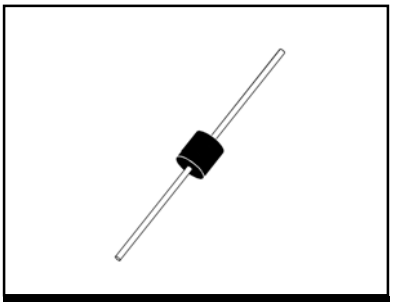
PROTEK DEVICES

15KPA17A thru 15KPA280A

POWER TVS COMPONENT

APPLICATIONS



AXIAL LEAD

✔ Relay Drives
✔ Motor (Start/Stop) Back EMF Protection
✔ Module Lightning Protection
✔ Secondary Lightning Protection for AC/DC

IEC COMPATIBILITY (EN61000-4)

✔ 61000-4-5 (Surge): 48A, 8/20µs - L3 (Line-Gnd), L4 (Line-Line) & L1 (Power)

FEATURES

✔ 15,000 Watts Peak Pulse Power per Line (tp=10/1000µs)
✔ Unidirectional & Bidirectional Configurations
✔ Easy Mounting to Printed Circuit Board
✔ Available in Multiple Voltage Types Ranging From: 17V to 220V
✔ tClamping (0V to V_{BR} Min.) < 100ps, Theoretical for Unidirectional and < 5ns for Bidirectional
✔ RoHS Compliant (Exemption #7)

MECHANICAL CHARACTERISTICS

✔ Molded Case
✔ Weight 5 grams (Approximate)
✔ Flammability Rating UL 94V-0
✔ Available in Lead-Free Pure-Tin Plating(Annealed)
✔ Solder Reflow Temperature:
Pure-Tin - Sn, 100: 260-270°C
✔ Consult Factory for Leaded Device Availability
✔ Marking: Logo, Part Number & Date Code
✔ Positive Terminal Marked with Band - *Unidirectional Only*

PIN CONFIGURATIONS

Unidirectional

Bidirectional

DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	**SYMBOL**	**VALUE**	**UNITS**
Peak Pulse Power (tp = 10/1000µs) - See Fig. 1	P_{PP}	15,000	Watts
Forward Surge Rating (1/120 seconds) - See Note 2	I_F	200	Amps
Steady State Power Disspiation	P_P	1.0	Watts
Storage Temperature	T_{STG}	-55 to 150	℃
Operating Temperature	T_L	-55 to 150	℃

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified						
PART NUMBER (Notes 1 & 2)	RATED STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT	MAXIMUM CLAMPING VOLTAGE (See Fig. 2)	TEMPERATURE COEFFICIENT OF $V_{(BR)}$
	V_{WM} VOLTS	MIN $V_{(BR)}$ VOLTS	@I_T mA	@V_{WM} I_D µA	@ 10/1000µs V_C @ I_{PP}	q$V_{(BR)}$ mV/°C
15KPA17	17.0	18.9	50	5000	32.3V @ 464.0A	19
15KPA17A	17.0	18.9	50	5000	29.3V @ 512.0A	17
15KPA18	18.0	20.0	50	5000	34.2V @ 439.0A	20
15KPA18A	18.0	20.0	50	5000	30.9V @ 485.0A	18
15KPA20	20.0	22.2	20	1500	37.9V @ 396.0A	24
15KPA20A	20.0	22.2	20	1500	34.3V @ 437.0A	21
15KPA22	22.0	24.4	10	500	41.1V @ 365.0A	27
15KPA22A	22.0	24.4	10	500	37.1V @ 404.0A	24
15KPA24	24.0	26.7	5	150	45.0V @ 333.0A	30
15KPA24A	24.0	26.7	5	150	40.7V @ 369.0A	27
15KPA26	26.0	28.9	5	50	48.7V @ 308.0A	32
15KPA26A	26.0	28.9	5	50	44.0V @ 341.0A	29
15KPA28	28.0	31.1	5	25	52.4V @ 286.0A	35
15KPA28A	28.0	31.1	5	25	47.5V @ 316.0A	31
15KPA30	30.0	33.3	5	15	56.2 V @ 267.0A	27
15KPA30A	30.0	33.3	5	15	50.7V @ 296.0A	34
15KPA33	33.0	36.7	5	10	60.6V @ 248.0A	42
15KPA33A	33.0	36.7	5	10	54.8V @ 274.0A	38
15KPA36	36.0	40.0	5	10	66.0V @ 227.0A	46
15KPA36A	36.0	40.0	5	10	59.7V @ 251.0A	41
15KPA40	40.0	44.4	5	10	72.8V @ 206.0A	51
15KPA40A	40.0	44.4	5	10	65.8V @ 228.0A	46
15KPA43	43.0	47.8	5	10	77.1V @ 195.0A	55
15KPA43A	43.0	47.8	5	10	69.7V @ 215.0A	50
15KPA45	45.0	50.0	5	10	80.7V @ 186.0A	57
15KPA45A	45.0	50.0	5	10	73.0V @ 205.0A	52
15KPA48	48.0	53.3	5	10	85.9V @ 175.0A	62
15KPA48A	48.0	53.3	5	10	77.7V @ 193.0A	56
15KPA51	51.0	56.7	5	10	91.5V @ 164.0A	66
15KPA51A	51.0	56.7	5	10	82.8V @ 181.0A	60
15KPA54	54.0	60.0	5	10	96.8V @ 155.0A	70
15KPA54A	54.0	60.0	5	10	87.5V @ 171.0A	63
15KPA58	58.0	64.4	5	10	104.0V @ 144.0A	76
15KPA58A	58.0	64.4	5	10	94.0V @ 160.0A	68
15KPA60	60.0	66.7	5	10	107.0V @ 140.0A	78
15KPA60A	60.0	66.7	5	10	97.3V @ 154.0A	71
15KPA64	64.0	71.1	5	10	115.0V @ 130.0A	84
15KPA64A	64.0	71.1	5	10	104.0V @ 144.0A	76
15KPA70	70.0	77.8	5	10	126.0V @ 119.0A	92
15KPA70A	70.0	77.8	5	10	114.0V @ 132.0A	83

GRAPHS

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1 & 2)	RATED STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT	MAXIMUM CLAMPING VOLTAGE (See Fig. 2)	TEMPERATURE COEFFICIENT OF $V_{(BR)}$
	V_{WM} VOLTS	MIN $V_{(BR)}$ VOLTS	@I_T mA	@V_{WM} I_D µA	@ 10/1000µs V_C @ I_{PP}	$qV_{(BR)}$ mV/°C
15KPA75	75.0	83.3	5	10	135.0V @ 111.0A	100
15KPA75A	75.0	83.3	5	10	122.0V @ 123.0A	89
15KPA78	78.0	86.7	5	10	140.0V @ 107.0A	104
15KPA78A	78.0	86.7	5	10	126.0V @ 119.0A	93
15KPA85	85.0	94.4	5	10	152.0V @ 99.0A	113
15KPA85A	85.0	94.4	5	10	137.0V @ 109.0A	102
15KPA90	90.0	100.0	5	10	160.0V @ 94.0A	120
15KPA90A	90.0	100.0	5	10	146.0V @ 103.0A	109
15KPA100	100.0	111.0	5	10	179.0V @ 84.0A	134
15KPA100A	100.0	111.0	5	10	162.0V @ 93.0A	121
15KPA110	110.0	122.0	5	10	196.0V @ 77.0A	147
15KPA110A	110.0	122.0	5	10	178.0V @ 84.0A	133
15KPA120	120.0	133.0	5	10	214.0V @ 70.0A	161
15KPA120A	120.0	133.0	5	10	193.0V @ 78.0A	145
15KPA130	130.0	144.0	5	10	231.0V @ 65.0A	174
15KPA130A	130.0	144.0	5	10	209.0V @ 72.0A	157
15KPA150	150.0	167.0	5	10	268.0V @ 56.0A	202
15KPA150A	150.0	167.0	5	10	243.0V @ 62.0A	183
15KPA160	160.0	178.0	5	10	287.0V @ 52.0A	216
15KPA160A	160.0	178.0	5	10	259.0V @ 58.0A	195
15KPA170	170.0	189.0	5	10	304.0V @ 49.0A	229
15KPA170A	170.0	189.0	5	10	275.0V @ 55.0A	207
15KPA180	180.0	200.0	5	10	321.0V @ 47.0A	242
15KPA180A	180.0	200.0	5	10	291.0V @ 52.0A	219
15KPA200	200.0	222.0	5	10	356.0V @ 42.0A	269
15KPA200A	200.0	222.0	5	10	322.0V @ 47.0A	243
15KPA220	220.0	245.0	5	10	393.0V @ 38.0A	297
15KPA220A	220.0	245.0	5	10	356.0V @ 42.0A	269
15KPA240	240.0	267.0	5	10	428.0V @ 35.0A	324
15KPA240A	240.0	267.0	5	10	388.0V @ 39.0A	293
15KPA260	260.0	289.0	5	10	464.0V @ 32.0A	352
15KPA260A	260.0	289.0	5	10	419.0V @ 36.0A	317
15KPA280	280.0	311.0	5	10	500.0V @ 30.0A	378
15KPA280A	280.0	311.0	5	10	452.0V @ 33.0A	342

Note 1: Part numbers shown are unidirectional devices. Add a “CA” suffix to specify bidirectional devices, such as 15KPA20CA.
Note 2: V_F = 7.5 Volts @ 200A, 8.3ms (1/2 Sine Wave) - *unidirectional devices only*.

GRAPHS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

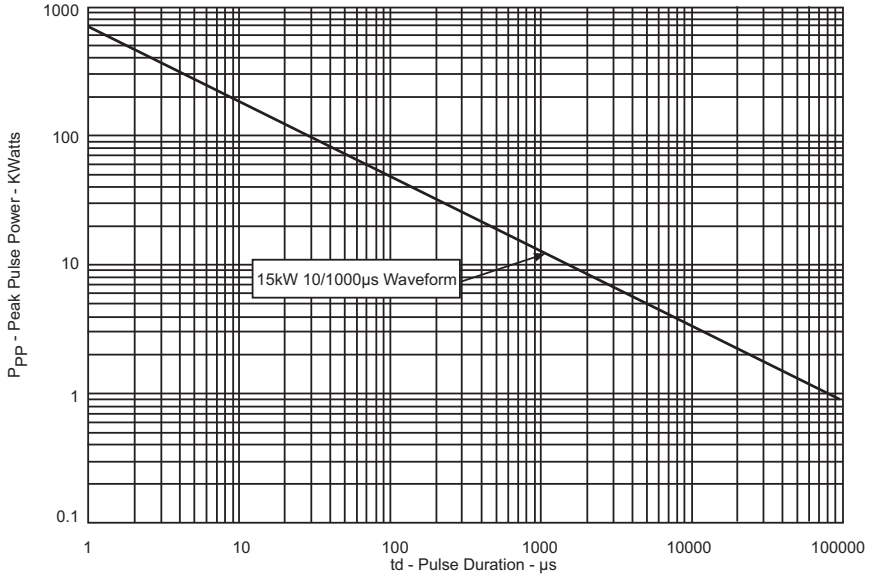


FIGURE 2
PULSE WAVE FORM

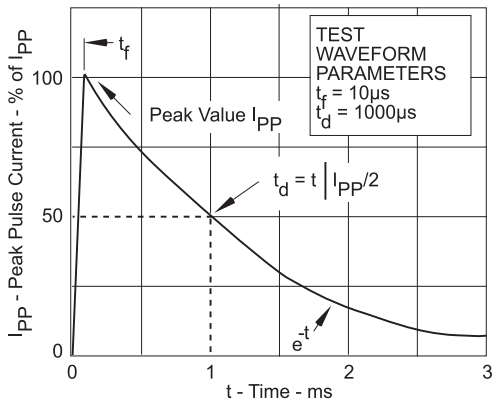
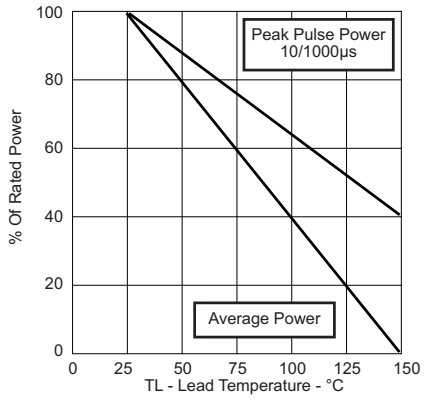
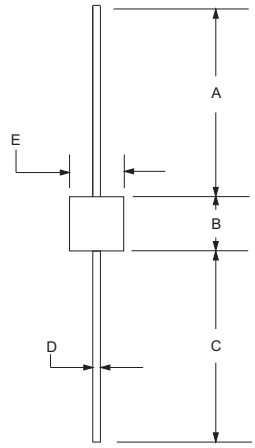


FIGURE 3
POWER DERATING CURVE

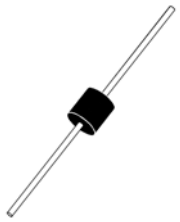


AXIAL LEAD PACKAGE OUTLINE & DIMENSIONS

PACKAGE OUTLINE



AXIAL LEAD



PACKAGE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	24.5	-	1.00	-
B	8.60	9.10	0.34	0.36
C	24.5	-	1.00	-
D	1.20 DIA	1.30 DIA	0.048 DIA	0.052 DIA
E	8.60	9.10	0.34	0.36

NOTES

1. Dimensions are exclusive of mold flash and metal burrs.
2. Suffix - LF = Lead-Free, Pure-Tin Plating, i.e., *15KPA90A-LF.*

Outline & Dimensions: Rev 1 - 7/02, 06028

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