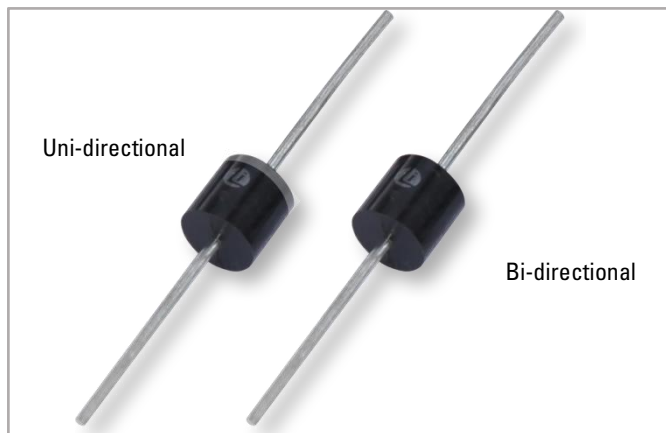


30KP Series

Axial Leaded – 30000W



Additional Information



Resources



Accessories



Samples

Maximum Ratings and Thermal Characteristics

(T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation by 10/1000μs Waveform(Fig.1) (Note 1)-Single Die Parts	P _{PPM}	30000	W
Power Dissipation on Infinite Heat Sink at T _L =75°C	P _D	8	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 2)	I _{FSM}	400	A
Operating Temperature Range	T _J	-55 to 150	°C
Storage Temperature Range	T _{STG}	-55 to 150	°C
Typical Thermal Resistance Junction to Lead	R _{θJL}	8	°C/W
Typical Thermal Resistance Junction to Ambient	R _{θJA}	40	°C/W

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above T_J (initial) =25°C per Fig.2.
2. Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4 per minute maximum.

Description

The 30KP series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

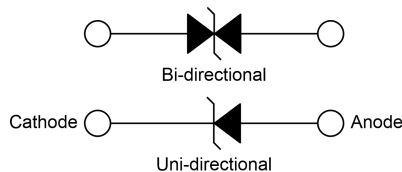
Features

- 30000W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycles):0.01%
- Glass passivated chip junction in P600 package
- Fast response time:typically less than 1.0ps from 0 Volts to V_B min
- Excellent clamping capability
- Typical failure mode is a short circuit
- Whisker test is conducted based on JEDEC JESD201A per its table 4a and 4c
- ESD protection of data lines in accordance with IEC 61000-4-2, 30kV(Air), 30kV (Contact)
- EFT protection of data lines in accordance with IEC 61000-4-4
- Low incremental surge resistance
- Typical I_R less than 2μA when V_R >64V
- High temperature to reflow soldering guaranteed: 260°C/ 20~40sec./ 0.375"(9.5mm) lead length, 5 lbs., (2.3kg) tension
- V_B @ T_J= V_B@25°Cx (1+ α T x (T_J - 25)) (α T:Temperature Coefficient, typical value is 0.1%)
- Matte tin lead-free plated
- Halogen free and RoHS compliant
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/JEDEC J-STD 609A.01)

Applications

TVS components are ideal for the protection of I/O interfaces, V_{CC} bus and other vulnerable circuits used in telecom, computer, industrial ICT equipment and consumer electronic applications.

Functional Diagram



30KP Series

Axial Leaded – 30000W

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @ I_T		Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current	Reverse Leakage @ V_R
Uni.	Bi.	$V_R(V)$	$V_{B \text{ Min.}}(V)$	$V_{B \text{ Max.}}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
30KP28A	30KP28CA	28.0	31.28	34.57	50	50.0	606.0	5000
30KP30A	30KP30CA	30.0	33.51	37.04	50	55.2	548.9	5000
30KP33A	30KP33CA	33.0	36.90	40.78	50	58.5	517.9	5000
30KP36A	30KP36CA	36.0	40.20	44.43	50	61.8	490.3	5000
30KP39A	30KP39CA	39.0	43.60	48.19	20	67.2	450.9	2000
30KP42A	30KP42CA	42.0	46.90	51.84	10	72.0	420.8	1000
30KP43A	30KP43CA	43.0	48.00	53.05	10	73.0	415.1	1000
30KP45A	30KP45CA	45.0	50.30	55.59	5	77.4	391.5	250
30KP48A	30KP48CA	48.0	53.60	59.24	5	81.6	371.3	150
30KP51A	30KP51CA	51.0	57.00	63.00	5	86.4	350.7	50
30KP54A	30KP54CA	54.0	60.30	66.65	5	91.4	331.5	20
30KP58A	30KP58CA	58.0	64.80	71.62	5	92.4	327.9	20
30KP60A	30KP60CA	60.0	67.00	74.05	5	102.0	297.1	15
30KP64A	30KP64CA	64.0	71.50	79.03	5	104.0	291.3	10
30KP66A	30KP66CA	66.0	73.70	81.46	5	107.0	283.2	2
30KP70A	30KP70CA	70.0	78.20	86.43	5	109.0	278.0	2
30KP71A	30KP71CA	71.0	79.30	87.65	5	111.5	271.7	2
30KP72A	30KP72CA	72.0	80.40	88.86	5	114.0	265.8	2
30KP75A	30KP75CA	75.0	83.80	92.62	5	119.4	253.8	2
30KP78A	30KP78CA	78.0	87.10	96.27	5	129.0	234.9	2
30KP84A	30KP84CA	84.0	93.80	103.67	5	139.2	217.7	2
30KP90A	30KP90CA	90.0	100.50	111.08	5	146.4	207.0	2
30KP96A	30KP96CA	96.0	107.20	118.48	5	156.0	194.2	2
30KP102A	30KP102CA	102.0	113.90	125.89	5	165.6	183.0	2
30KP108A	30KP108CA	108.0	120.60	133.29	5	175.2	172.9	2
30KP120A	30KP120CA	120.0	134.00	148.11	5	194.4	155.9	2
30KP132A	30KP132CA	132.0	147.40	162.92	5	213.0	142.3	2
30KP144A	30KP144CA	144.0	160.80	177.73	5	223.2	135.8	2
30KP150A	30KP150CA	150.0	167.60	185.24	5	233.4	129.8	2
30KP156A	30KP156CA	156.0	174.30	192.65	5	245.0	123.7	2
30KP160A	30KP160CA	160.0	178.70	197.51	5	252.6	120.0	2
30KP168A	30KP168CA	168.0	187.70	207.46	5	272.4	111.2	2
30KP170A	30KP170CA	170.0	189.90	209.89	5	275.0	110.2	2
30KP180A	30KP180CA	180.0	201.10	222.27	5	290.4	104.3	2
30KP198A	30KP198CA	198.0	221.20	244.48	5	319.8	94.7	2
30KP216A	30KP216CA	216.0	241.30	266.70	5	348.6	86.9	2
30KP240A	30KP240CA	240.0	268.10	296.32	5	387.0	78.3	2
30KP258A	30KP258CA	258.0	288.20	318.54	5	416.4	72.8	2
30KP260A	30KP260CA	260.0	290.40	320.97	5	416.0	72.8	2
30KP270A	30KP270CA	270.0	301.60	333.35	5	436.2	69.5	2
30KP280A	30KP280CA	280.0	312.80	345.73	5	464.0	65.3	2
30KP288A	30KP288CA	288.0	321.70	355.56	5	469.9	64.5	2
30KP300A	30KP300CA	300.0	334.00	367.40	5	484.0	62.0	2
30KP320A	30KP320CA	320.0	357.40	391.40	5	530.0	57.2	2
30KP350A	30KP350CA	350.0	391.00	428.10	5	567.0	53.4	2
30KP360A	30KP360CA	360.0	402.10	440.30	5	640.0	47.3	2

Notes:For bidirectional type having V_R of 60 volts and less, the I_R limit is double.

30KP Series

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Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1:
Peak Pulse Power Rating Curve

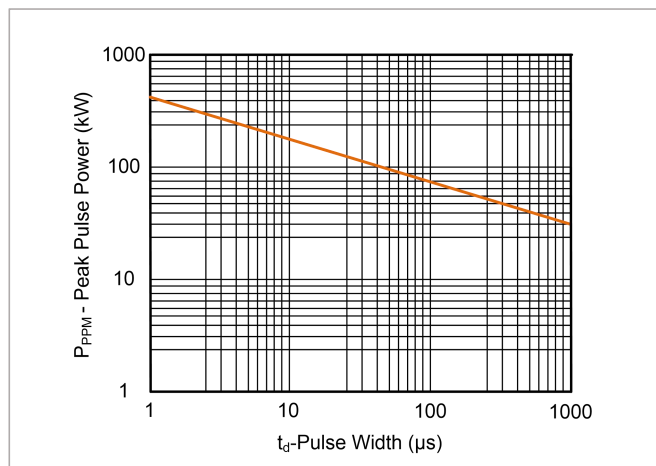


Figure 2:
Pulse Derating Curve

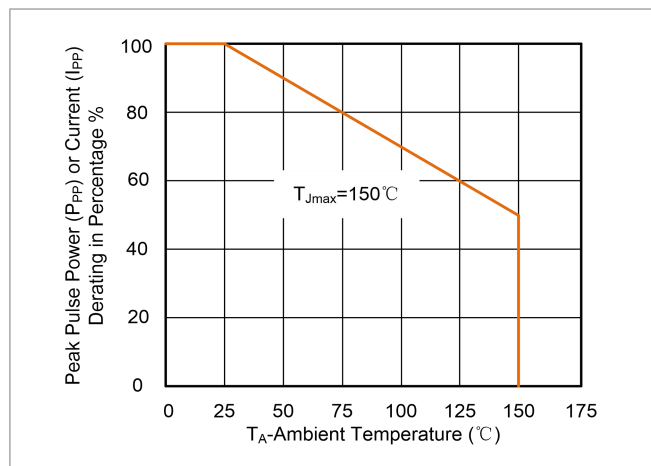


Figure 3:
Pulse Waveform

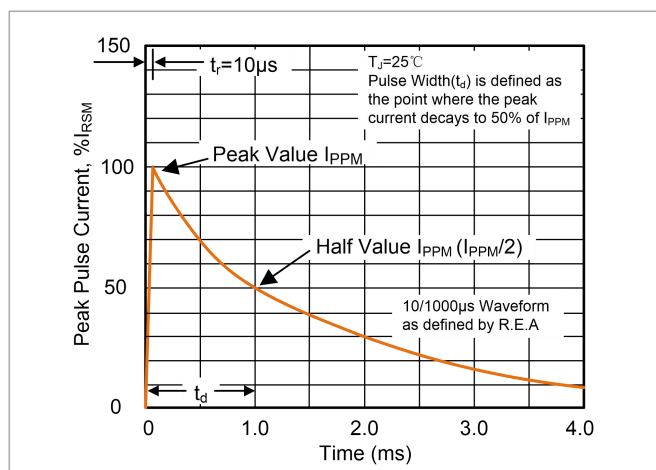


Figure 4:
Typical Junction Capacitance

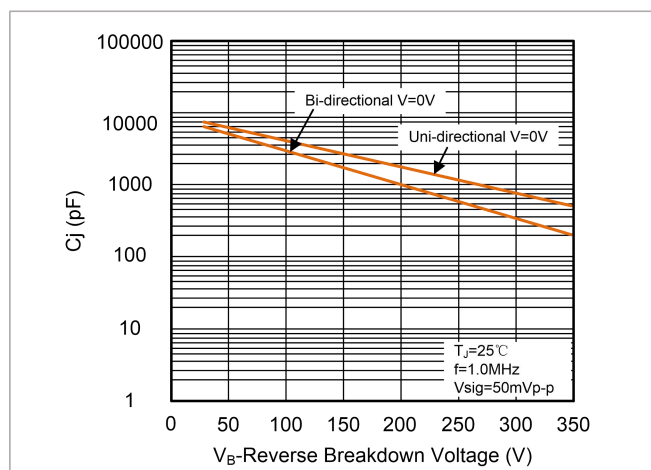


Figure 5:
Steady State Power Dissipation Derating Curve

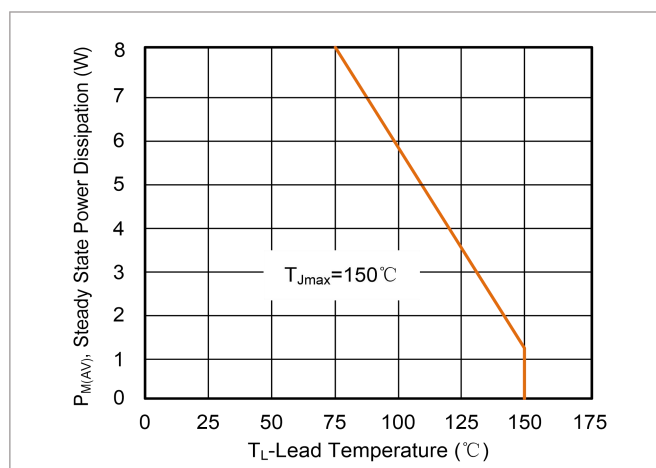
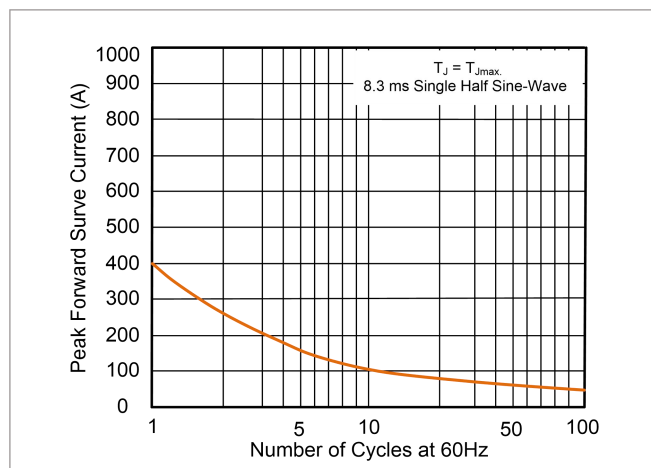


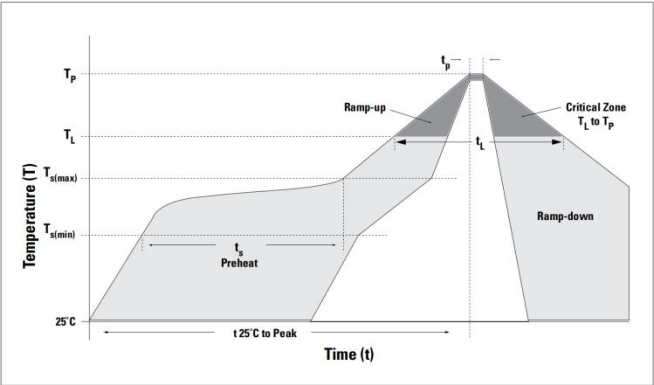
Figure 6:
Maximum Non-Repetitive Forward Surge Current Uni-Directional



30KP Series
Axial Leaded – 30000W

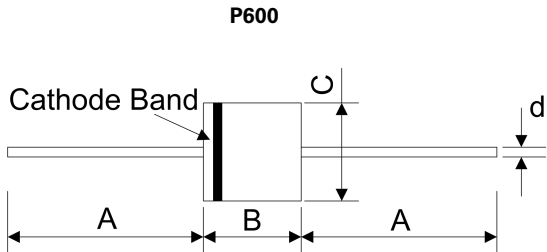
Soldering Parameters

Reflow Condition		Lead-free assembly
Pre Heat	-Temperature Min ($T_{S\ min}$)	150°C
	-Temperature Max ($T_{S\ max}$)	200°C
	-Time (min to max) (t_S)	60 – 180 secs
Average ramp-up rate(Liquidus Temp (T_L) to peak		3°C/second max.
$T_{S\ (max)}$ to T_L -Ramp-up Rate		3°C/second max.
Reflow	-Temperature (T_L) (Liquidus)	217°C
	-Time (min to max) (t_L)	60-150 seconds
Peak Temperature (T_P)		260°C
Time within 5°C of actual Peak Temperature (t_P)		20-40 seconds
Ramp-down Rate		6°C/second max.
Time 25°C to Peak Temperature		8 minutes max.
Do not exceed		260°C



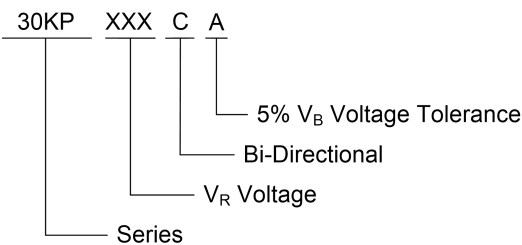
Flow/Wave Soldering (Solder Dipping)	
Peak Temperature :	265°C
Dipping Time :	10 seconds (max.)
Soldering :	1 time

Dimensions

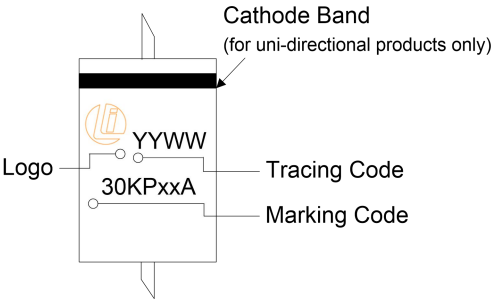


Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	25.40	-	1.000	-
B	8.60	9.10	0.340	0.360
C	8.60	9.10	0.340	0.360
d	1.19	1.35	0.047	0.053

Part Numbering System



Part Marking System



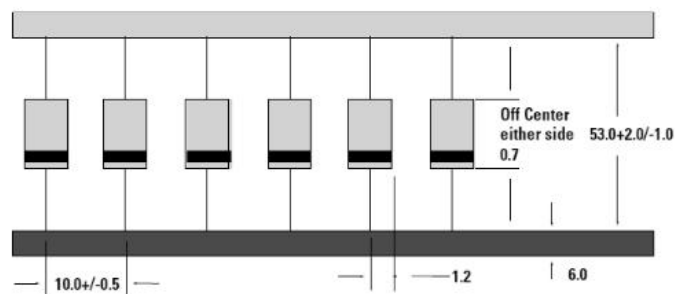
30KP Series
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Packaging

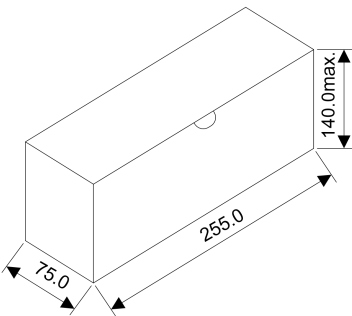
Part number	Component Package	Quantity	Packaging Option	Packaging Specification
30KPxxxXX/L/BOX	P600	300	Tape & Box	EIA STD RS-296
30KPxxxXX/L/TR13	P600	800	Tape & Reel	EIA STD RS-296

Tape/Box/Reel Specification

Tape (Unit: mm)

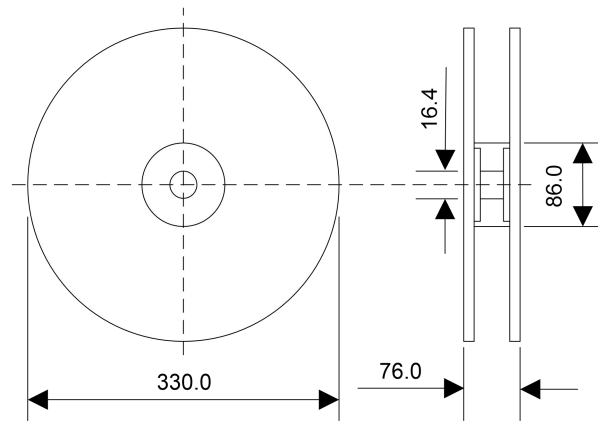


Box (Unit: mm)



Quantity: 300pcs/box

Reel (Unit: mm)



Quantity: 800pcs/reel