

# 15KP-Q Series

Surface Mount — 15000W

 **AUTOMOTIVE GRADE** **HF** 



## Additional Information



## Maximum Ratings and Characteristics ( $T_A=25^{\circ}\text{C}$ )

Rating	Symbol	Value
Peak pulse power dissipation at 10/1000 $\mu\text{s}$ waveform(Note1, Note2, Fig.1)	$P_{PPM}$	15000W
Peak pulse current of at 10/1000 $\mu\text{s}$ waveform (Note 1, Fig.3)	$I_{PPM}$	See Table(A)
Steady state power dissipation at $T_L=75^{\circ}\text{C}$ (Fig.5)	$P_{M(AV)}$	8.0W
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note3, Fig.6)	$I_{FSM}$	400A
Operating junction and Storage Temperature Ranges	$T_J, T_{STG}$	$-55^{\circ}\text{C}$ to $+150^{\circ}\text{C}$
Typical thermal resistance junction to lead	$R_{\theta JL}$	$8^{\circ}\text{C/W}$
Typical thermal resistance junction to ambient	$R_{\theta JA}$	$40^{\circ}\text{C/W}$

Notes:

1. Non-repetitive current pulse, per Fig.3 and derating above  $T_A=25^{\circ}\text{C}$  per Fig.2.
2. 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minutes maximum.

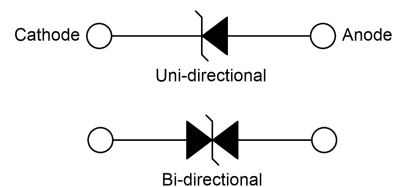
## Description

The 15KP-Q series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

## Features

- Halogen free and RoHS compliant
- Glass passivated junction
- Low incremental surge resistance
- Excellent clamping capability
- 15000W peak pulse power capability at 10/1000 $\mu\text{s}$  waveform,
- repetition rate (duty cycle): 0.05%
- Fast response time
- Typical IR less than 2 $\mu\text{A}$  above 30V devices
- High Temperature soldering guaranteed: 265 $^{\circ}\text{C}$ /10 seconds/.375", (9.5mm) lead length, 5lbs (2.3kg) tension
- Plastic package has underwriters laboratory flammability 94V-0
- Meet MSL level1, per J-STD-020
- IEC-61000-4-2 ESD 30kV(Air), 30kV (Contact)
- Unit Weight: 2.3g
- AEC-Q101 Qualified

## Functional Diagram



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## Electrical Characteristics ( $T_A=25^\circ\text{C}$ )

Part Number		Type	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)	$V_{B Min.}$ (V)	$V_{B Max.}$ (V)	$I_T$ (mA)	$V_C$ (V)	$I_{PP}$ (A)	$I_R$ ( $\mu\text{A}$ )
15KP17A	15KP17CA	Q	17.0	18.99	21.22	50	29.3	515.4	2500
15KP18A	15KP18CA	Q	18.0	20.11	22.65	50	30.9	488.7	1500
15KP20A	15KP20CA	Q	20.0	22.34	24.96	20	34.3	440.2	1000
15KP22A	15KP22CA	Q	22.0	24.57	27.46	10	37.1	407.0	500
15KP24A	15KP24CA	Q	24.0	26.81	29.95	5	40.7	371.0	150
15KP26A	15KP26CA	Q	26.0	29.04	32.45	5	44.0	343.2	50
15KP28A	15KP28CA	Q	28.0	31.28	34.95	5	47.5	317.9	25
15KP30A	15KP30CA	Q	30.0	33.51	37.44	5	50.7	297.8	10
15KP33A	15KP33CA	Q	33.0	36.90	41.19	5	54.7	276.1	2
15KP36A	15KP36CA	Q	36.0	40.20	44.93	5	59.8	252.5	2
15KP40A	15KP40CA	Q	40.0	44.70	49.92	5	65.8	229.5	2
15KP43A	15KP43CA	Q	43.0	48.00	53.67	5	69.8	216.3	2
15KP45A	15KP45CA	Q	45.0	50.30	56.16	5	72.8	207.4	2
15KP48A	15KP48CA	Q	48.0	53.60	59.91	5	77.7	194.3	2
15KP51A	15KP51CA	Q	51.0	57.00	63.65	5	82.9	182.1	2
15KP54A	15KP54CA	Q	54.0	60.30	67.39	5	87.7	172.2	2
15KP58A	15KP58CA	Q	58.0	64.80	72.39	5	93.8	161.0	2
15KP60A	15KP60CA	Q	60.0	67.00	74.88	5	97.4	155.0	2

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

Figure 1. Peak Pulse Power Rating Curve

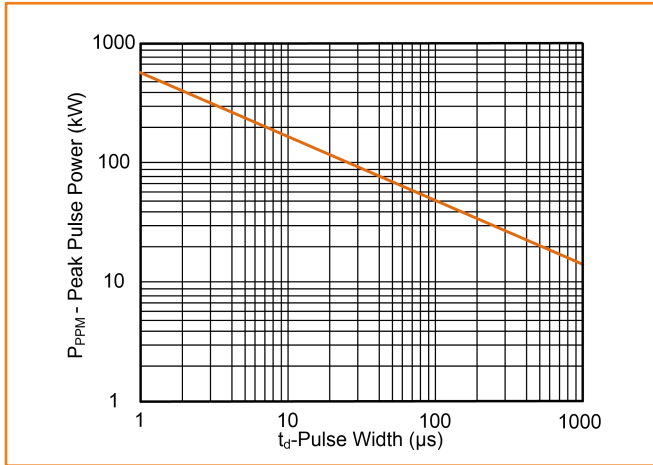


Figure 2. Pulse Derating Curve

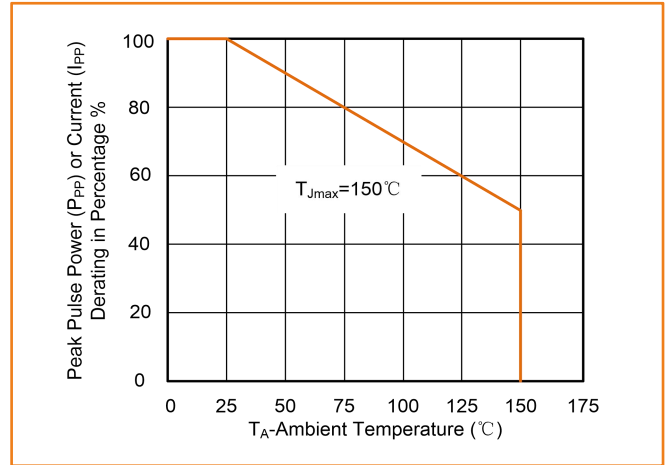


Figure 3. Pulse Waveform

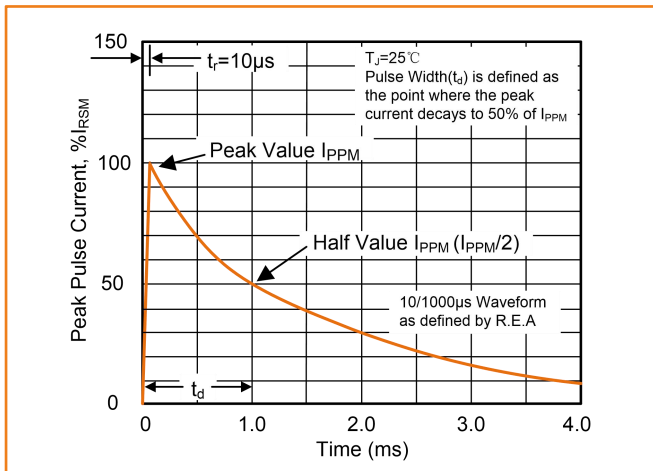


Figure 4. Typical Junction Capacitance

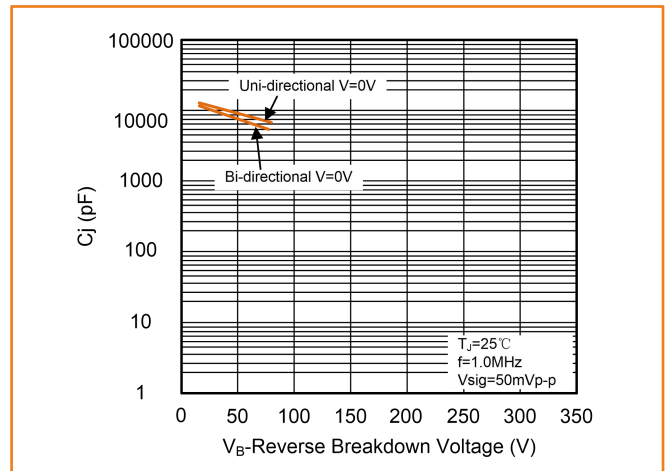


Figure 5. Steady State Power Dissipation Derating Curve

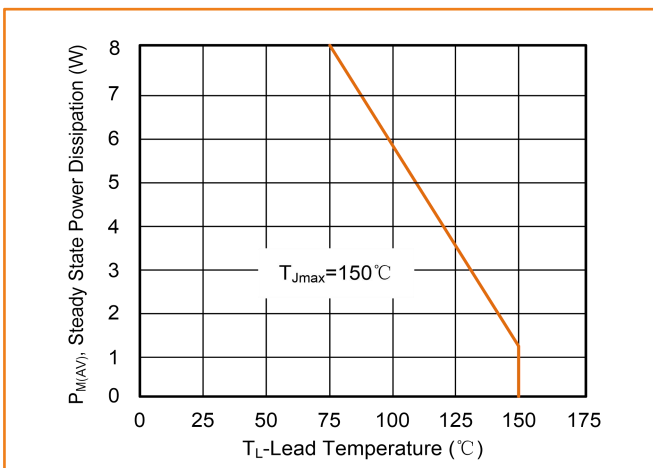
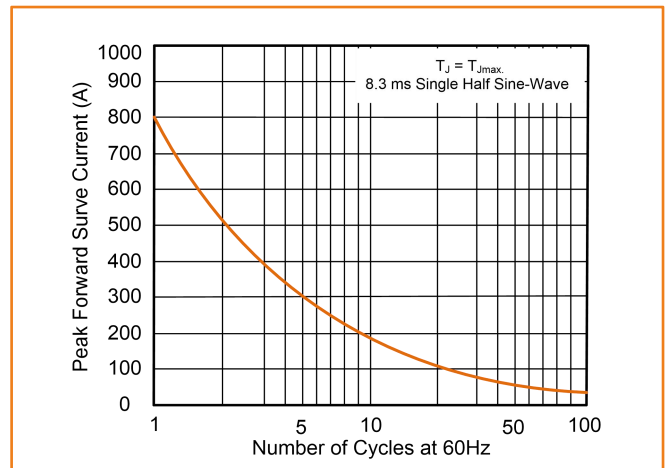


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional



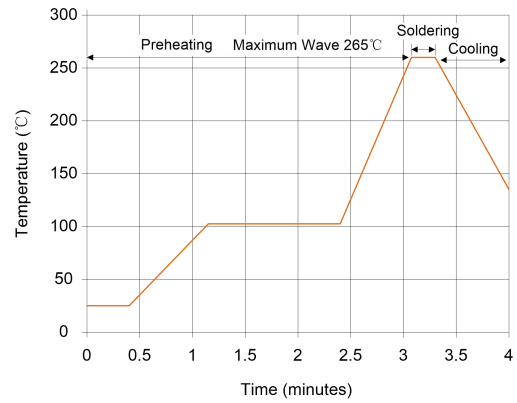
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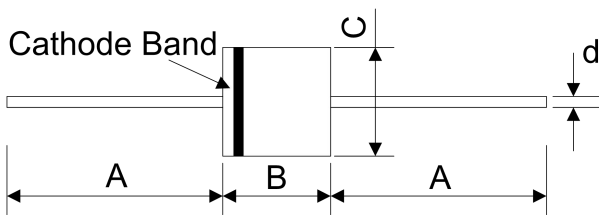
## Soldering Parameters

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

### Wave Soldering

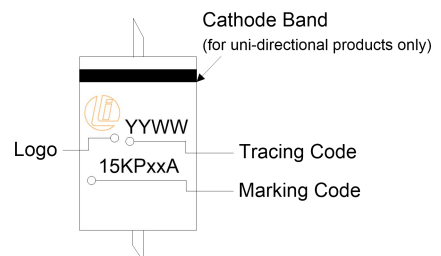
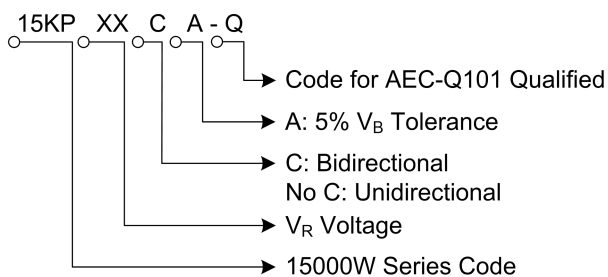


## Dimensions (P600)



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 Number Code and Marking Code



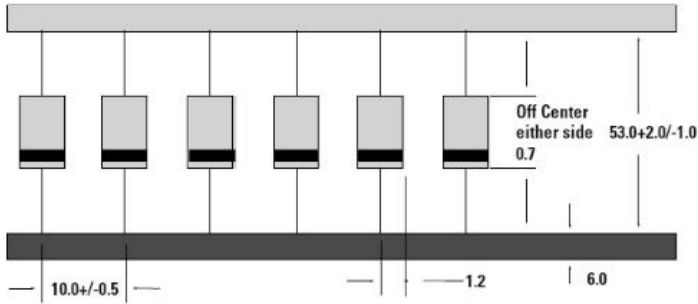
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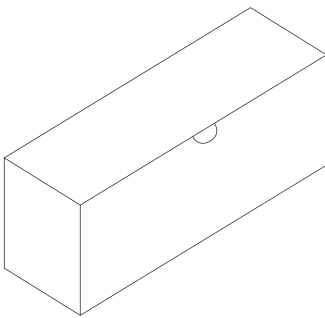


## Packaging Specification

Tape (Unit: mm)

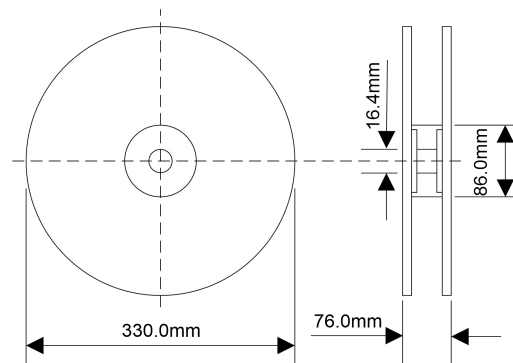


### Box



Quantity: 300pcs/box

### Reel



Quantity: 800pcs/reel

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