

# YANGZHOU POSITIONING TECH.CO.,LTD



## ZP12000 –Welding diodes

200 - 400 V<sub>RRM</sub>; 12000 A avg

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### Welding diodes

#### Features:

- . All Diffused Structure
- . High current density
- . Very low on-state voltage drop
- . metal case with ceramic insulator
- . Ultra-low thermal resistance

### ELECTRICAL CHARACTERISTICS AND RATINGS

#### Blocking - Off State

Device Type	V <sub>RRM</sub> (1)	V <sub>RSM</sub> (2)
ZP12000/02	200V	300V
ZP12000/04	400V	450V

V<sub>RRM</sub> = Repetitive peak reverse voltage

V<sub>RSM</sub> = Non repetitive peak reverse voltage (2)

Repetitive peak reverse leakage	I <sub>RRM</sub>	15 mA 50 mA (3)
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Notes:

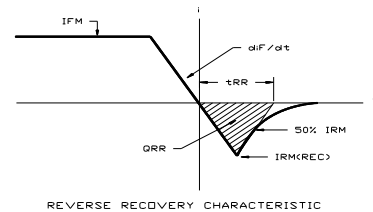
All ratings are specified for T<sub>j</sub>=25 °C unless otherwise stated.

(1) Half sine, f=50Hz, T<sub>j</sub> = -40 to +170°C.

(2) Half sine, 10 msec, T<sub>j</sub> = -40 to +170°C.

(3) Maximum junction temperature: T<sub>j</sub> = 170 °C.

(4) Parameters are defined below :

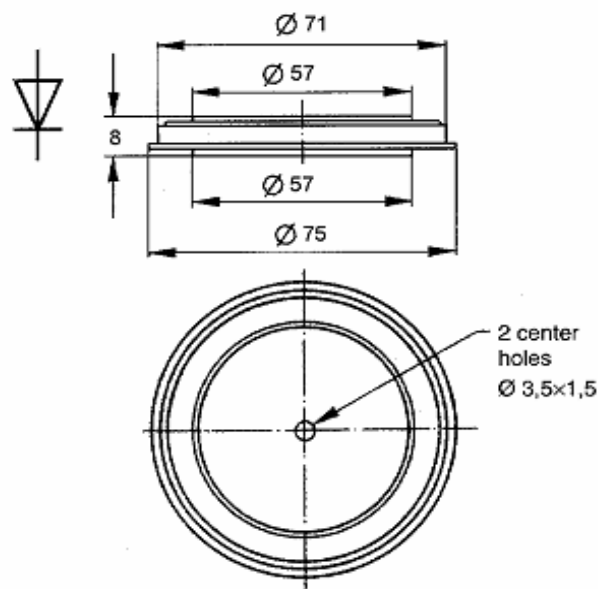


#### Conducting - on state

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	I <sub>F(AV)</sub>		12000		A	SINE, 180° Conduction angle, T <sub>c</sub> =85°C
RMS value of on-state current	I <sub>F(RMS)</sub>		18800		A	
Peak one cycle surge (non repetitive) current	I <sub>FSM</sub>		85000		A	10.0 msec ,sine, 180° Conduction angle, T <sub>j</sub> = 170 °C
I <sup>2</sup> t	I <sup>2</sup> t		36100000		A <sup>2</sup> s	10.0 msec, sine, T <sub>j</sub> = 170 °C
Peak on-state voltage	V <sub>FM</sub>		1.02 1.00		V	I <sub>FM</sub> =8000 A; 25 °C I <sub>FM</sub> =5000 A; 25 °C
Threshold votage	V <sub>TO</sub>		0.74		V	T <sub>j</sub> = 170 °C
Slope resistance	r <sub>T</sub>		0.019		mΩ	T <sub>j</sub> = 170 °C
Reverse Recovery Current (4)	I <sub>RM(REC)</sub>				A	I <sub>FM</sub> = 1000 A; dI <sub>F</sub> /dt = 10 A/μs; T <sub>j</sub> max
Reverse Recovery Charge (4)	Q <sub>rr</sub>				μC	I <sub>FM</sub> = 1000 A; dI <sub>F</sub> /dt = 10 A/μs; T <sub>j</sub> max
Reverse Recovery Time (4)	t <sub>RR</sub>				μs	

**THERMAL AND MECHANICAL CHARACTERISTICS****ZP12000 –Welding diodes**

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating junction temperature range	$T_j$	-40	+170		°C	
Storage temperature	$T_{stg}$	-40	+170		°C	
Thermal resistance - junction to case	$R_{\Theta(j-c)}$		0.006		°C/W	Double sided cooled
Thermal resistance - case to sink	$R_{\Theta(j-s)}$		0.012		°C/W	Single sided cooled
Creepage distance on the surface	$D_s$		4		mm	
Air breakdown distance	$D_a$		4		mm	
Mounting force	$F$	25	30		kN	
Weight	$W$			205	g	

**CASE OUTLINE AND DIMENSIONS**

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