



ZP12000 –Welding diodes

200 - 400 V_{RRM} ; 12000 A avg

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_{RRM} (1)	V_{RSM} (2)
ZP12000/02	200V	300V
ZP12000/04	400V	450V

V_{RRM} = Repetitive peak reverse voltage

V_{RSM} = Non repetitive peak reverse voltage (2)

Repetitive peak reverse leakage	I_{RRM}	15 mA 50 mA (3)
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Notes:

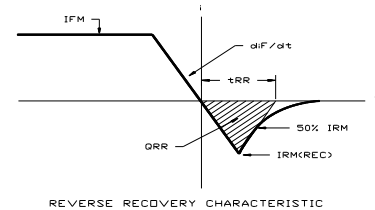
All ratings are specified for $T_j = 25^\circ\text{C}$ unless otherwise stated.

(1) Half sine, $f=50\text{Hz}$, $T_j = -40$ to $+170^\circ\text{C}$.

(2) Half sine, 10 msec, $T_j = -40$ to $+170^\circ\text{C}$.

(3) Maximum junction temperature: $T_j = 170^\circ\text{C}$.

(4) Parameters are defined below :

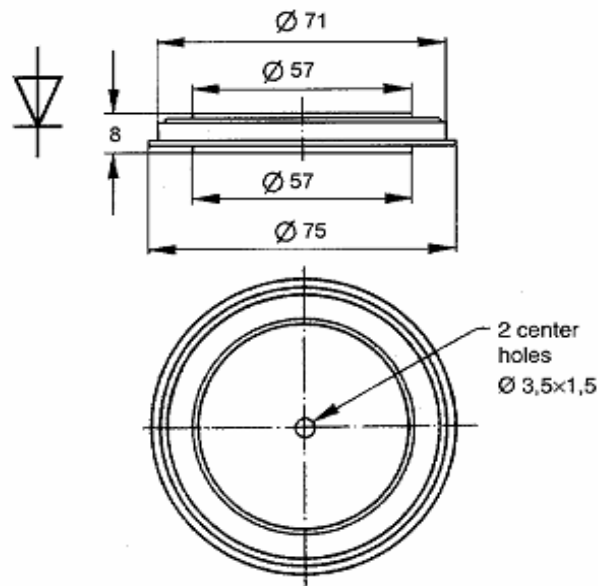


Conducting - on state

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	$I_{F(AV)}$		12000		A	SINE, 180° Conduction angle, $T_c = 85^\circ\text{C}$
RMS value of on-state current	$I_{F(RMS)}$		18800		A	
Peak one cycle surge (non repetitive) current	I_{FSM}		85000		A	10.0 msec, sine, 180° Conduction angle, $T_j = 170^\circ\text{C}$
I^2t	I^2t		36100000		A^2s	10.0 msec, sine, $T_j = 170^\circ\text{C}$
Peak on-state voltage	V_{FM}		1.02 1.00		V	$I_{FM} = 8000\text{ A}; 25^\circ\text{C}$ $I_{FM} = 5000\text{ A}; 25^\circ\text{C}$
Threshold votage	V_{TO}		0.74		V	$T_j = 170^\circ\text{C}$
Slope resistance	r_T		0.019		$\text{m}\Omega$	$T_j = 170^\circ\text{C}$
Reverse Recovery Current (4)	$I_{RM(REC)}$				A	$I_{FM} = 1000\text{ A}; dI_F/dt = 10\text{ A}/\mu\text{s}; T_{jmax}$
Reverse Recovery Charge (4)	Q_{rr}				μC	$I_{FM} = 1000\text{ A}; dI_F/dt = 10\text{ A}/\mu\text{s}; T_{jmax}$
Reverse Recovery Time (4)	t_{RR}				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	$R_{\Theta(j-c)}$		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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