



High-end Power Semiconductor Manufacturer

ZP1000A 1000-1800V Standard Rectifier Diode

- High power cycling capability
- Low on-state and switching losses
- Optimized for line frequency rectifiers
- Designed for traction and industrial applications



Average forward current		I_{FAV}		1000 A	
Repetitive peak reverse voltage		V_{RRM}		1000 – 1800 V	
V_{RRM}, V	1000	1200	1400	1600	1800
Voltage code	10	12	14	16	18
$T_j, ^\circ C$	-60 – 190				

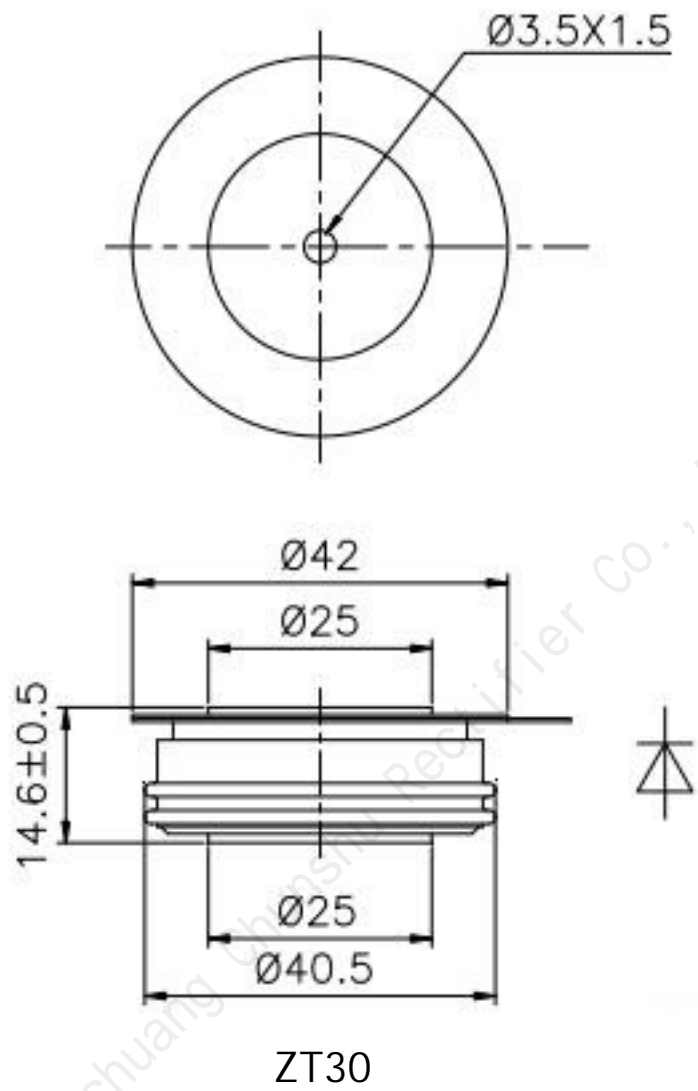
MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions	
ON-STATE					
I_{FAV}	Average forward current	A	1000	$T_c=100\text{ }^\circ C$; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FRMS}	RMS forward current	A	1570	$T_c=117\text{ }^\circ C$; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FSM}	Surge forward current	kA	15.0 17.0	$T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$	180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V}$;
			16.0 18.0	$T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$	180° half-sine wave; 60 Hz ($t_p=8.3\text{ ms}$); single pulse; $V_R=0\text{ V}$;
I^2t	Safety factor	$A^2s\cdot 10^3$	1125 1445	$T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$	180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V}$;
			1060 1340	$T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$	180° half-sine wave; 60 Hz ($t_p=8.3\text{ ms}$); single pulse; $V_R=0\text{ V}$;
BLOCKING					
V_{RRM}	Repetitive peak reverse voltages	V	1000 – 1800	$T_{j\min} < T_j < T_{j\max}$; 180° half-sine wave; 50 Hz;	
V_{RSM}	Non-repetitive peak reverse voltages	V	1100 – 1900	$T_{j\min} < T_j < T_{j\max}$; 180° half-sine wave; 50 Hz; single pulse;	
V_R	Reverse continuous voltages	V	$0.75\cdot V_{RRM}$	$T_j=T_{j\max}$;	
THERMAL					
T_{stg}	Storage temperature	$^\circ C$	-60 – 190		
T_j	Operating junction temperature	$^\circ C$	-60 – 190		
MECHANICAL					
F	Mounting force	kN	9.0 – 11.0		
a	Acceleration	m/s^2	50	Device unclamped	
			100	Device clamped	

CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions	
ON-STATE					
V_{FM}	Peak forward voltage, max	V	1.56	$T_j=25\text{ }^\circ\text{C}; I_{FM}=3140\text{ A}$	
$V_{F(TO)}$	Forward threshold voltage, max	V	0.97	$T_j=T_{j\text{ max}}$	
r_T	Forward slope resistance, max	m Ω	0.360	$0.5\pi I_{FAV} < I_T < 1.5\pi I_{FAV}$	
BLOCKING					
I_{RRM}	Repetitive peak reverse current, max	mA	50	$T_j=T_{j\text{ max}}$ $V_R=V_{RRM}$	
THERMAL					
R_{thjc}	Thermal resistance, junction to case, max	$^\circ\text{C/W}$	0.040	Direct current	Double side cooled
R_{thjc-A}			0.088		Anode side cooled
R_{thjc-K}			0.072		Cathode side cooled
R_{thck}	Thermal resistance, case to heatsink, max	$^\circ\text{C/W}$	0.009	Direct current	
MECHANICAL					
w	Weight, typ	g	110		
D_s	Surface creepage distance	mm (inch)	11.10 (0.437)		
D_a	Air strike distance	mm (inch)	11.60 (0.457)		

OVERALL DIMENSIONS



All dimensions in millimeters