



High-end Power Semiconductor Manufacturer

ZP1600A 3000-3600V 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}	1600 A	
Repetitive peak reverse voltage		V_{RRM}	3000 – 3600 V	
V_{RRM}, V	3000	3200	3400	3600
Voltage code	30	32	34	36
$T_j, ^\circ C$	-60 – 175			

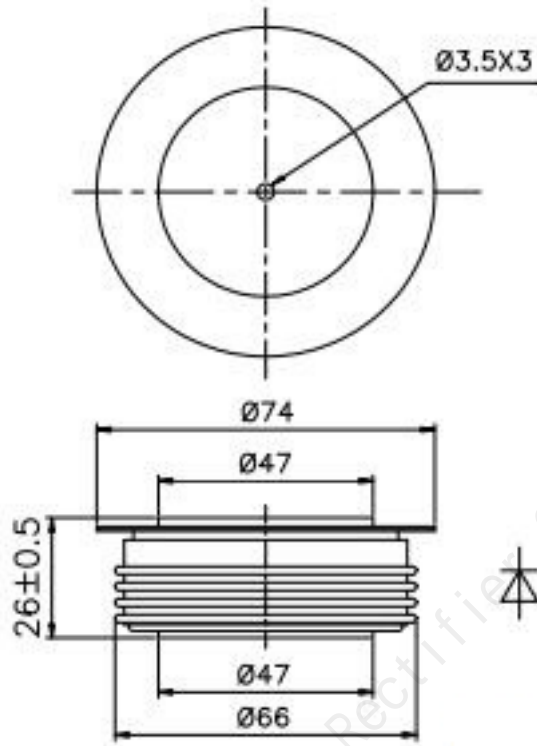
MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions
ON-STATE				
I_{FAV}	Average forward current	A	1600	$T_c=100\text{ }^\circ C$; Double side cooled; 180° half-sine wave; 50 Hz
I_{FRMS}	RMS forward current	A	2535	$T_c=133\text{ }^\circ C$; Double side cooled; 180° half-sine wave; 50 Hz
I_{FSM}	Surge forward current	kA	26.0 30.0	$T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$ 180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V}$;
			28.0 32.0	$T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$ 180° half-sine wave; 60 Hz ($t_p=8.3\text{ ms}$); single pulse; $V_R=0\text{ V}$;
I^2t	Safety factor	$A^2s\cdot 10^3$	3380 4500	$T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$ 180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V}$;
			3250 4245	$T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$ 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	3000–3600	$T_{j\min} < T_j < T_{j\max}$; 180° half-sine wave; 50 Hz;
V_{RSM}	Non-repetitive peak reverse voltages	V	3100–3700	$T_{j\min} < T_j < T_{j\max}$; 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	$^\circ C$	-60–175	
T_j	Operating junction temperature	$^\circ C$	-60–175	
MECHANICAL				
F	Mounting force	kN	24.0–28.0	
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	2.02	$T_j=25\text{ }^\circ\text{C}; I_{FM}=5024\text{ A}$	
$V_{F(TO)}$	Forward threshold voltage, max	V	0.86	$T_j=T_{j\text{ max}};$	
r_T	Forward slope resistance, max	m Ω	0.160	$0.5\pi I_{FAV} < I_T < 1.5\pi I_{FAV}$	
BLOCKING					
I_{RRM}	Repetitive peak reverse current, max	mA	100	$T_j=T_{j\text{ max}};$ $V_R=V_{RRM}$	
THERMAL					
R_{thjc}	Thermal resistance, junction to case, max	$^\circ\text{C/W}$	0.0180	Direct current	Double side cooled
R_{thjc-A}			0.0396		Anode side cooled
R_{thjc-K}			0.0324		Cathode side cooled
R_{thck}	Thermal resistance, case to heatsink, max	$^\circ\text{C/W}$	0.0040	Direct current	
MECHANICAL					
w	Weight, typ	g	510		
D_s	Surface creepage distance	mm (inch)	38.84 (1.529)		
D_a	Air strike distance	mm (inch)	22.50 (0.886)		

OVERALL DIMENSIONS



ZT55

All dimensions in millimeters