



High-end Power Semiconductor Manufacturer

ZP800A 1800-2800V 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}		800 A		
Repetitive peak reverse voltage		V_{RRM}		1800 – 2800 V		
V_{RRM}, V	1800	2000	2200	2400	2600	2800
Voltage code	18	20	22	24	26	28
$T_j, ^\circ C$	-60 – 175					

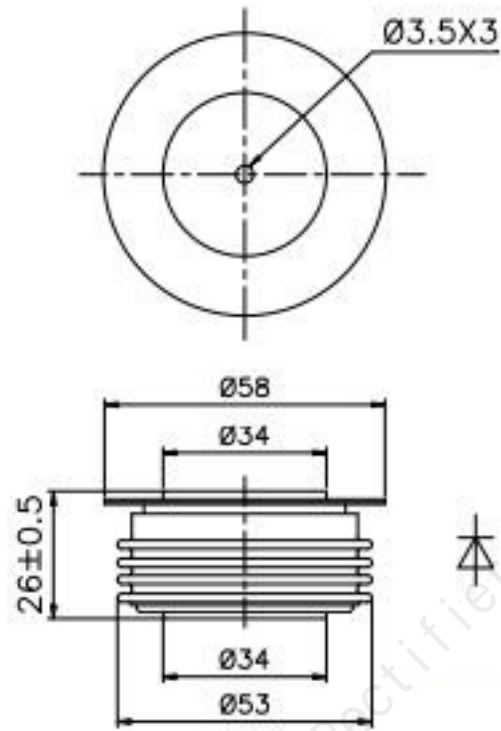
MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions	
ON-STATE					
I_{FAV}	Average forward current	A	800	$T_c=100\text{ }^\circ C$; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FRMS}	RMS forward current	A	1256	$T_c=136\text{ }^\circ C$; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FSM}	Surge forward current	kA	18.0 20.0	$T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$	180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V}$;
			19.0 21.9	$T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$	180° half-sine wave; 60 Hz ($t_p=8.3\text{ ms}$); single pulse; $V_R=0\text{ V}$;
I^2t	Safety factor	$A^2s \cdot 10^3$	1620 2140	$T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$	180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V}$;
			1495 1990	$T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$	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	1800–2800	$T_{j\min} < T_j < T_{j\max}$; 180° half-sine wave; 50 Hz;	
V_{RSM}	Non-repetitive peak reverse voltages	V	1900–2900	$T_{j\min} < T_j < T_{j\max}$; 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	$^\circ C$	-60–50		
T_j	Operating junction temperature	$^\circ C$	-60–175		
MECHANICAL					
F	Mounting force	kN	14.0–16.0		
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	$T_j=25\text{ }^\circ\text{C}; I_{FM}=2512\text{ A}$	
$V_{F(TO)}$	Forward threshold voltage, max	V	1.02	$T_j=T_{j\text{ max}}$;	
r_T	Forward slope resistance, max	$m\Omega$	0.430	$0.5\pi I_{FAV} < I_T < 1.5\pi I_{FAV}$	
BLOCKING					
I_{RRM}	Repetitive peak reverse current, max	mA	70	$T_j=T_{j\text{ max}}$; $V_R=V_{RRM}$	
THERMAL					
R_{thjc}	Thermal resistance, junction to case, max	$^\circ\text{C/W}$	0.027	Direct current	Double side cooled
R_{thjc-A}			0.059		Anode side cooled
R_{thjc-K}			0.049		Cathode side cooled
R_{thck}	Thermal resistance, case to heatsink, max	$^\circ\text{C/W}$	0.006	Direct current	
MECHANICAL					
w	Weight, typ	g	260		
D_s	Surface creepage distance	mm (inch)	23.69 (0.933)		
D_a	Air strike distance	mm (inch)	19.10 (0.752)		

OVERALL DIMENSIONS



ZT40

All dimensions in millimeters