ChunZheng

High-end Power Semiconductor Manufacturer

ZP400A 3800-4000V

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}	400 A
Repetitive peak reverse voltage		V_{RRM}	3800 – 4000 V
V_{RRM}, V	3800		4000
Voltage code	38		40
T_j, °C	-60 – 150		

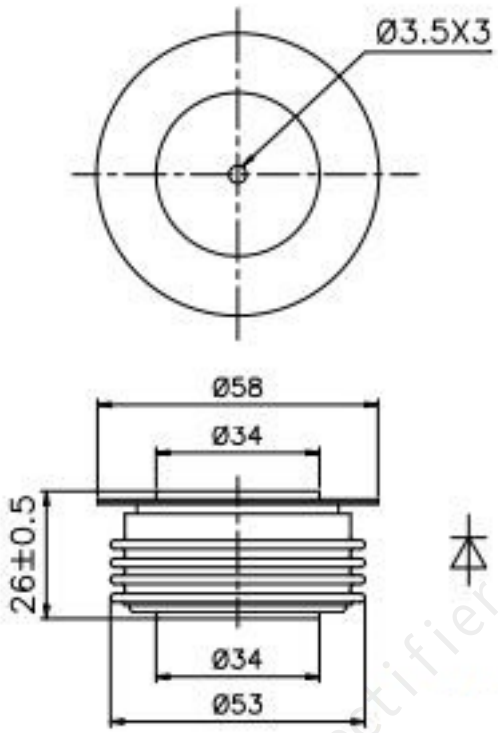
MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions	
ON-STATE					
I_{FAV}	Average forward current	A	400	T_c=100 °C; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FRMS}	RMS forward current	A	628	T_c=117 °C; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FSM}	Surge forward current	kA	7.0 7.5	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 50 Hz (t_p=10 ms); single pulse; V_R=0 V;
			8.0 9.2	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 60 Hz (t_p=8.3 ms); single pulse; V_R=0 V;
I^2t	Safety factor	$A^2s\cdot10^3$	245 325	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 50 Hz (t_p=10 ms); single pulse; V_R=0 V;
			265 350	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 60 Hz (t_p=8.3 ms); single pulse; V_R=0 V;
BLOCKING					
V_{RRM}	Repetitive peak reverse voltages	V	3800–4000	$T_{j\,min}$< T_j <$T_{j\,max}$; 180° half-sine wave; 50 Hz;	
V_{RSM}	Non-repetitive peak reverse voltages	V	3900–4100	$T_{j\,min}$< T_j <$T_{j\,max}$; 180° half-sine wave; 50 Hz;single pulse;	
V_R	Reverse continuous voltages	V	0.75·V_{RRM}	T_j=$T_{j\,max}$;	
THERMAL					
T_{stg}	Storage temperature	°C	-60–50		
T_j	Operating junction temperature	°C	-60–150		
MECHANICAL					
F	Mounting force	kN	9.0–11.0		
a	Acceleration	m/s^2	50 100	Device unclamped Device clamped	

CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions	
ON-STATE					
V_{FM}	Peak forward voltage, max	V	1.86	T_j=25 °C; I_{FM}=1256 A	
$V_{F(TO)}$	Forward threshold voltage, max	V	1.11	$T_j=T_{j\,max}$; $0.5\ \pi\ I_{FAV} < I_T < 1.5\ \pi\ I_{FAV}$	
r_T	Forward slope resistance, max	mΩ	1.220		
BLOCKING					
I_{RRM}	Repetitive peak reverse current, max	mA	50	$T_j=T_{j\,max}$; $V_R=V_{RRM}$	
THERMAL					
R_{thjc}	Thermal resistance, junction to case, max	°C/W	0.036	Direct current	Double side cooled
R_{thjc-A}			0.079		Anode side cooled
R_{thjc-K}			0.065		Cathode side cooled
R_{thck}	Thermal resistance, case to heatsink, max	°C/W	0.008	Direct current	
MECHANICAL					
w	Weight, typ	g	180		
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

