



High-end Power Semiconductor Manufacturer

ZP630A 2400-4000V 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}		630 A			
Repetitive peak reverse voltage				V_{RRM}		2400 – 4000 V			
V_{RRM} , V	2400	2600	2800	3000	3200	3400	3600	3800	4000
Voltage code	24	26	28	30	32	34	36	38	40
T_j , °C	-60 – 150								

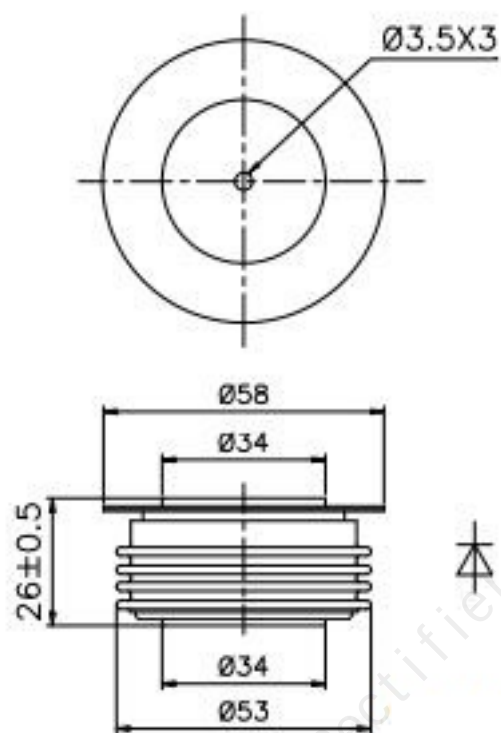
MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions	
ON-STATE					
I_{FAV}	Average forward current	A	630	$T_c=100\text{ }^{\circ}\text{C}$; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FRMS}	RMS forward current	A	989	$T_c=112\text{ }^{\circ}\text{C}$; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FSM}	Surge forward current	kA	10.5 11.0	$T_j=T_{j\max}$ $T_j=25\text{ }^{\circ}\text{C}$	180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V}$;
			12.0 13.8	$T_j=T_{j\max}$ $T_j=25\text{ }^{\circ}\text{C}$	180° half-sine wave; 60 Hz ($t_p=8.3\text{ ms}$); single pulse; $V_R=0\text{ V}$;
I^2t	Safety factor	$A^2s\cdot 10^3$	550 730	$T_j=T_{j\max}$ $T_j=25\text{ }^{\circ}\text{C}$	180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V}$;
			595 790	$T_j=T_{j\max}$ $T_j=25\text{ }^{\circ}\text{C}$	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	2400 – 4000	$T_{j\min} < T_j < T_{j\max}$; 180° half-sine wave; 50 Hz;	
V_{RSM}	Non-repetitive peak reverse voltages	V	2500 – 4100	$T_{j\min} < T_j < T_{j\max}$; 180° half-sine wave; 50 Hz;single pulse;	
V_R	Reverse continuous voltages	V	$0.75\cdot V_{RRM}$	$T_j=T_{j\max}$;	
THERMAL					
T_{stg}	Storage temperature	°C	-60 – 50		
T_j	Operating junction temperature	°C	-60 – 150		
MECHANICAL					
F	Mounting force	kN	14.0 – 16.0		
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	2.11	T _j =25 °C; I _{FM} =1978 A	
V _{F(TO)}	Forward threshold voltage, max	V	1.11	T _j =T _{j max} ;	
r _T	Forward slope resistance, max	mΩ	0.740	0.5 π I _{FAV} < I _T < 1.5 π I _{FAV}	
BLOCKING					
I _{RRM}	Repetitive peak reverse current, max	mA	70	T _j =T _{j max} ; V _R =V _{RRM}	
THERMAL					
R _{thjc}	Thermal resistance, junction to case, max	°C/W	0.027	Direct current	Double side cooled
R _{thjc-A}			0.060		Anode side cooled
R _{thjc-K}			0.049		Cathode side cooled
R _{thck}	Thermal resistance, case to heatsink, max	°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