



KP3400-POWER THYRISTOR

3200-3600 V_{DRM}

HIGH POWER THYRISTOR FOR PHASE CONTROL APPLICATIONS

Features:

- . All Diffused Structure
- . Amplifying Gate Configuration
- . Blocking capability up to 3600 volts
- . High dv/dt Capability
- . Pressure Assembled Device

ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking - Off State

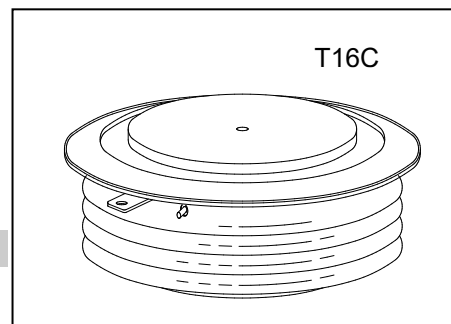
Device Type	V _{RRM} (1)	V _{DRM} (1)	V _{RSM} (1)
KP3400/32	3200	3200	3400
KP3400/34	3400	3400	3600
KP3400/36	3600	3600	3700

V_{RRM} = Repetitive peak reverse voltage

V_{DRM} = Repetitive peak off state voltage

V_{RSM} = Non repetitive peak reverse voltage (2)

Repetitive peak reverse leakage and off state leakage	I _{RRM} /I _{DRM}	10 mA 200 mA (3)
Critical rate of voltage rise	dv/dt (4)	1000 V/μs



Notes:

- (1) All voltage ratings are specified for an applied 50Hz sinusoidal waveform over the temperature range -40 °C to +125 °C.
- (2) 10 msec. max. pulse width
- (3) Maximum value for T_j = 125 °C.
- (4) Minimum value for linear and exponential waveshape to 67% rated V_{DRM}. Gate open. T_j = 125 °C.
- (5) The value of di/dt is established in accordance with EIA/NIMA Standard JB/T 8950.2-2013

Conducting - On State

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	I _{T(AV)}		3400		A	Sinewave, 180° conduction, T _c =70°C
RMS value of on-state current	I _{TRMS}		5338		A	Nominal value
Peak one cycle surge (non repetitive) current	I _{TSM}		60000		A	10.0 msec (50Hz), sinusoidal wave-shape, 180° conduction, T _j = 125 °C
I square t	I ² t		1.8x10 ⁷		A ² s	10 msec
Latching current	I _L		1000		mA	V _D = 12 V; R _L = 12 ohms
Holding current	I _H		200		mA	V _D = 12 V; I = 2.5 A
Peak on-state voltage	V _{TM}		1.75		V	I _{TM} =5000A; T _j =25°C
Threshold voltage, low-level	V _{TO}		0.95		V	T _j =125°C
Slope resistance, low-level	r _T		0.16		mΩ	1000A to 5000A
Critical rate of rise of on-state current(5)	di/dt		200		A/μs	T _j =125°C; V _D = 0.67 V _{DRM} ; f=50Hz; I _{TM} =5000A

Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P_{GM}		20		W	
Average gate power dissipation	$P_{G(AV)}$		4		W	
Gate-trigger current	I_{GT}		250		mA	$V_D = 12\text{ V}; R_L = 3\text{ ohms}; T_j = +25\text{ }^{\circ}\text{C}$
Gate- trigger voltage	V_{GT}	0.7	3.0		V	$V_D = 12\text{ V}; R_L = 3\text{ ohms}; T_j = +25\text{ }^{\circ}\text{C}$
Peak negative voltage	V_{GRM}		5		V	

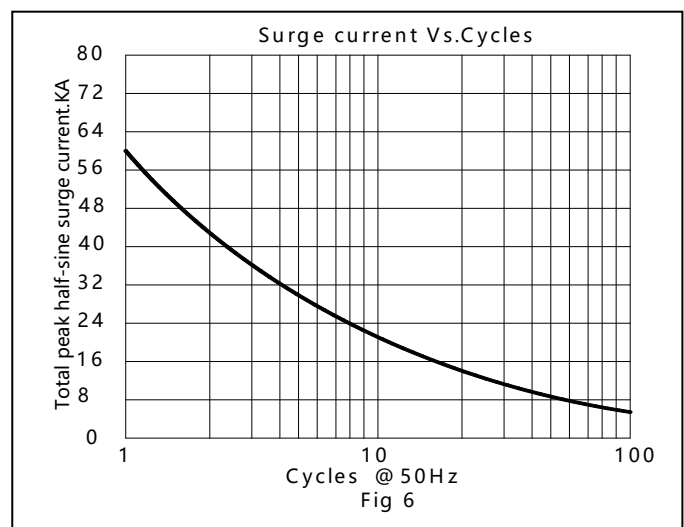
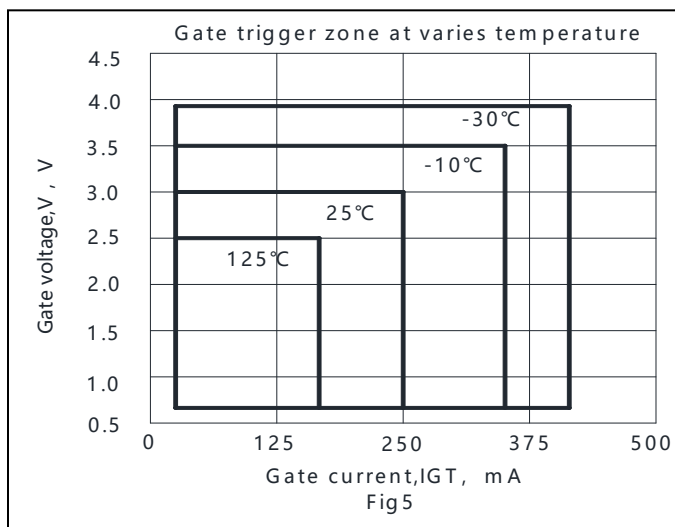
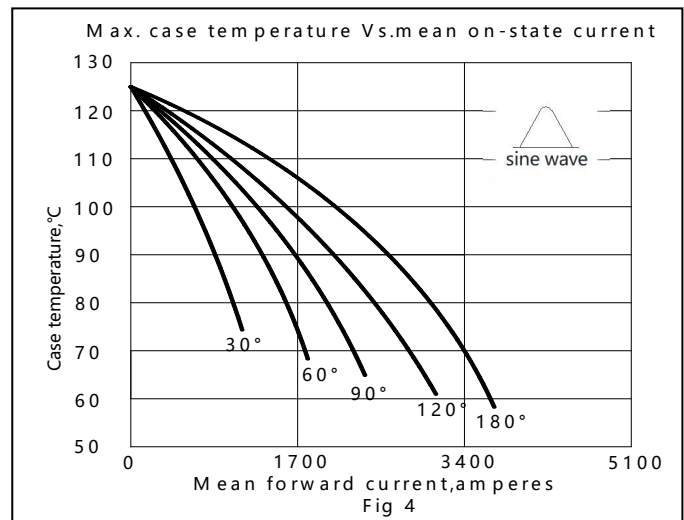
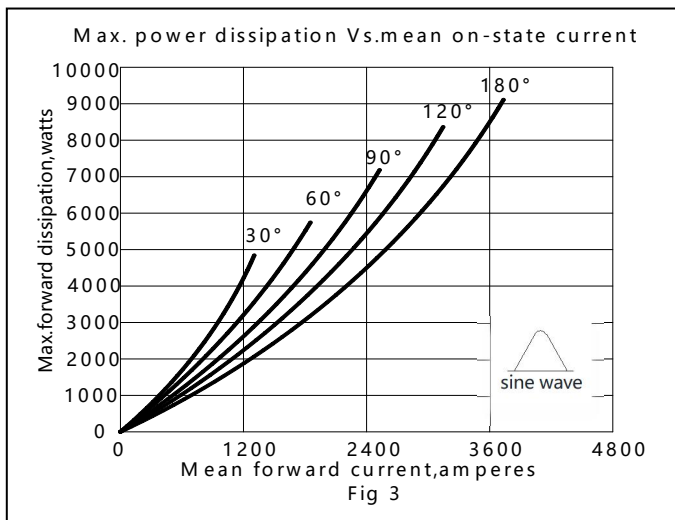
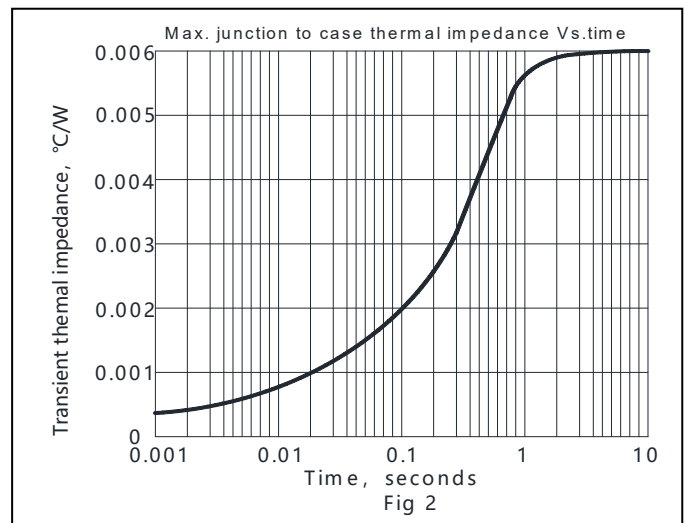
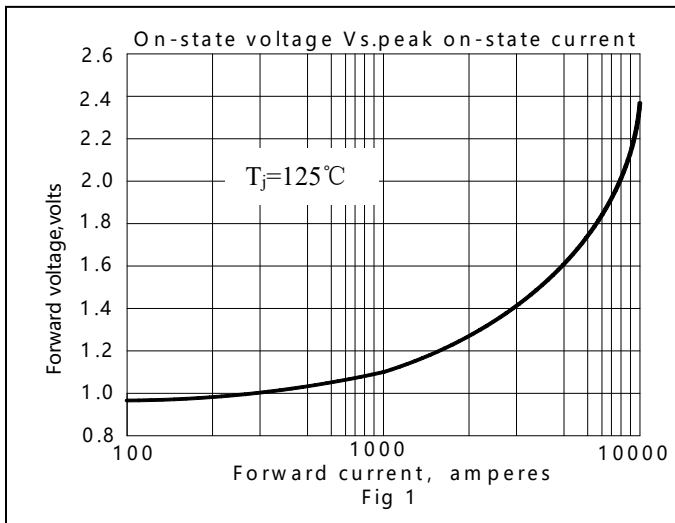
Dynamic

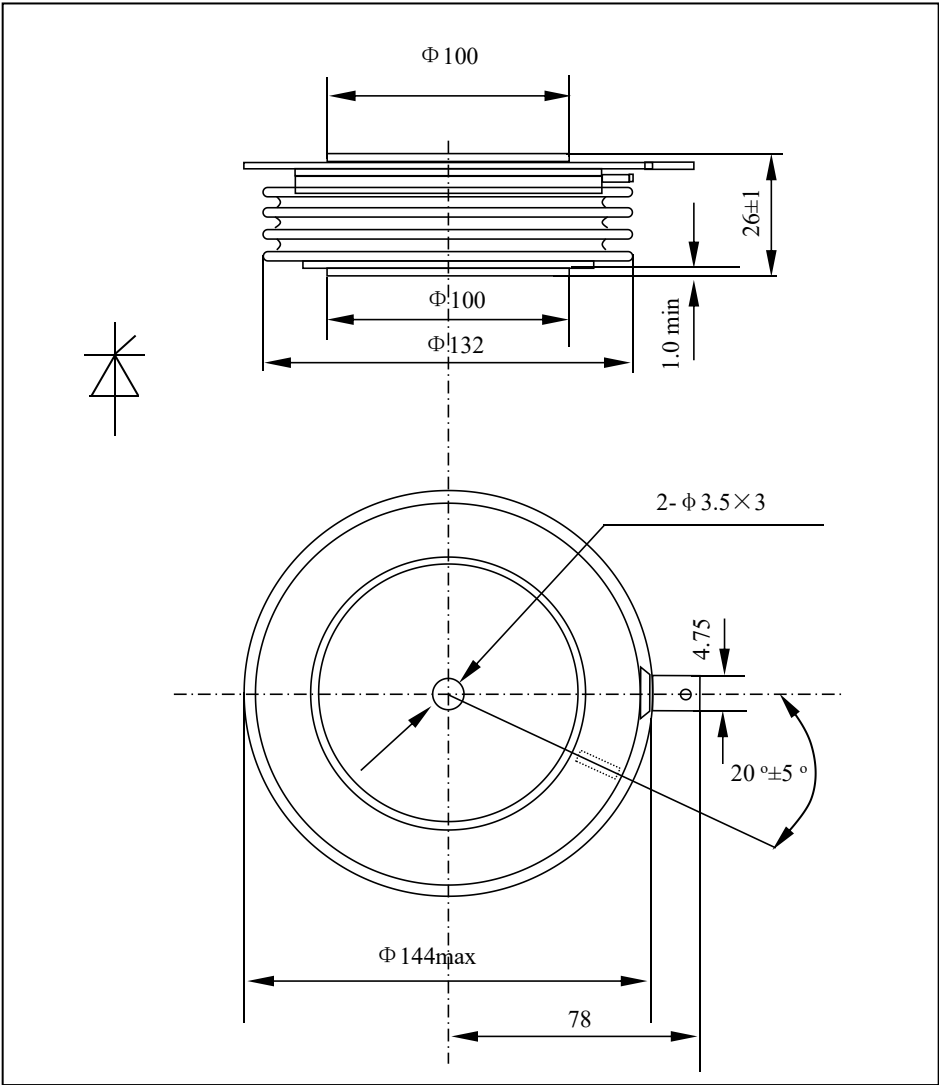
Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_d		3.0	2.5	μs	$I_{TM}=100\text{A}; V_D=67\%V_{DRM}$ Gate pulse: $V_G=30\text{V}; R_G=10\text{ohms};$ $t_r=0.1\mu\text{s}; t_p=20\mu\text{s}$
Turn-off time (with $V_R = -5\text{ V}$)	t_q			600	μs	$I_{TM}=2000\text{A}; di/dt=-10\text{A}/\mu\text{s};$ $V_R=100\text{V}; dv/dt=30\text{V}/\mu\text{s};$ $V_D=67\%V_{DRM}; T_j=125^{\circ}\text{C}$
Reverse recovery charge	Q_{rr}			8000	μC	$I_{TM}=2000\text{A}; di/dt=-10\text{A}/\mu\text{s};$ $V_R=100\text{V}; T_j=125^{\circ}\text{C}$

THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+125		$^{\circ}\text{C}$	
Storage temperature	T_{stg}	-40	+140		$^{\circ}\text{C}$	
Thermal resistance - junction to case	$R_{\Theta(j-c)}$		0.006		$^{\circ}\text{C}/\text{W}$	Double sided cooled
Thermal resistance - case to heatsink	$R_{\Theta(c-s)}$		0.0015		$^{\circ}\text{C}/\text{W}$	Double sided cooled
Mounting force	F	76	84	80	kN	
Weight	m			1.9	kg	

* Mounting surfaces smooth, flat and greased





The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function, or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website <http://www.21yangjie.com> , or consult your nearest Yangjie's sales office for further assistance.