KS250-Bidirectional thyristor

Jiangsu Yangjie Runau Semiconductor Co.,Ltd **7400 - 8500 V_{DRM}**

HIGH POWER BIDIRECTIONAL THYRISTOR

TS8D

Features:

- **. Amplifying Gate Configuration**
- **. Two thyristors integrated into one wafer**
- **. Blocking capability up to 8500 volts**
- **. High power capability**
- **. Full cold pressing encapsulation**

ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking-Off State

Device No.	V_{DRM} (1)	V_{DSM} (1)
KS250/74	6500	7400
KS250/78	6900	7800
KS250/82	7300	8200
KS250/85	7600	8500

V_{DRM} = Repetitive peak off state voltage
V_{DSM} = Non Repetitive peak reverse voltage(2)

Repetitive peak reverse leakage and off state leakage	I_{DRM}	5 mA 120 mA (3)
Off - state voltage rise rating	dv/dt(4)	1000 V/μs

Notes:
All ratings are specified for Tj=25 °C unless otherwise stated.
(1) All voltage ratings are specified for an applied 50Hz/60zHz sinusoidal waveform over the temperature range-40 °C to +110 °C
(2) 10 msec. Max. Pulse width
(3) Maximum value for Tj=110 °C; 50Hz.
(4) Minimum value for linear and exponential waveshape to 67% rated $V_{DRM.}$ Gate open, Tj=110 °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	$I_{T(AV)}$		250		A	Sinewave,180° conduction,T_c=70°C
RMS value of on-state current	I_{TRMS}		392.5		A	Nominal value
Peak one cycle surge (non repetitive) current	I_{TSM}		3000		A	10.0 msec (50Hz), sinusoidal wave-shape, 180° conduction, T_j = 110 °C
I square t	I^2t		$45x10^3$		A^2s	10 msec
Latching current	I_L		700		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}		3.8		V	I_{TM}=785A;Tj =25°C
Threshold Voltage	V_{TO}		1.6		V	Tj=110°C
Slope resistance	r_T		2.8		mΩ	500A to 1500A
Critical rate of rise of on-state current(5)	di/dt		100		A/μs	repetition
Critical rate of rise of commutating voltage	dv/dt_{com}			500	A/μs	Tj=110°C; VR≤0.67V_{DRM}

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}	50	150		mA	V_D=12V;R_L=3ohms;T_j=+25°C
Gate trigger voltage	V_{GT}	0.8	2.5		V	V_D=12V;R_L=3ohms;T_j=+25°C
Peak negative voltage	V_{GRM}		5		V	

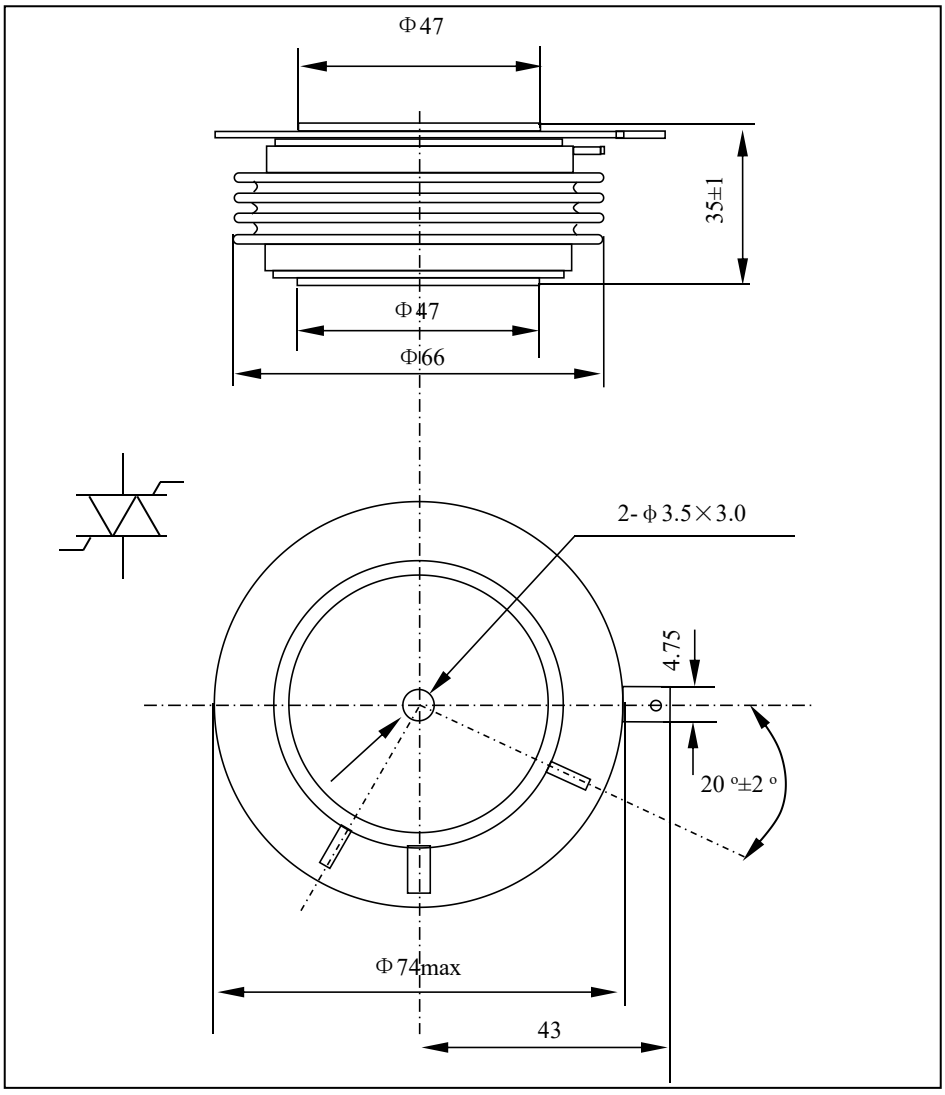
Dynamic

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_d		3.0		μs	I_{FG}=2.0A; V_D=0.4V_{DRM}; t_r=0.5μs
Turn-off time (V_R=-5V)	t_q			800	μs	I_{TM}=2000A； di/dt=-1.5 A/s; V_R=100 V; dV/dt=30V/μs ; V_D= 67%V_{DRM};T_j=110℃
Reverse recovery charge	Q_{rr}		2000		μC	I_{TM}=2000A； di/dt=-1.5 A/s; V_R=100 V; T_j=110℃

THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+110		°C	
Storage temperature	T_{stg}	-40	+140		°C	
Thermal resistance- junction to case	$R_{\Theta(j-c)}$		0.045		°C/W	Double sided cooled
Thermal resistance - case to heatsink	$R_{\Theta(c-s)}$		0.008		°C/W	Double sided cooled
Mounting force	F	21	25	23	kN	
Weight	m			0.6	kg.	

*** Mounting surfaces smooth, flat and greased**


Φ47
35±1
Φ47
Φ66
2-φ3.5×3.0
4.75
20°±2°
Φ74max
43