High Power Products

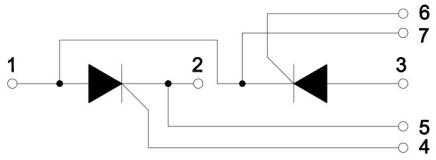
Thyristor Modules

Features

- Blocking voltage： 1600V
- Heat transfer through aluminum oxide DBC Ceramic isolated metal baseplate
- Industrial standard package
- Thick copper baseplate
- 2500 V_{RMS} isolating voltage

Typical Applications

- Power Converters
- DC motor Control and Drives
- Temperature control
- Lighting control



Module Type		
Type	**V_{DRM}**	**V_{RSM}**
JKT140-16	1600V	1700V

Maximum Ratings				
Parameters	**Symbol**	**Test Conditions**	**Values**	**Unit**
Average On-State Current	I_{TAV}	Sine 180℃;T_C=85℃	140	A
Surge forward current	I_{TSM}	t=10ms T_J=45℃	2500	A
		t=10ms T_J=125℃	2100	
Maximum I^2t for fusing	I^2t	t=10ms T_J=45℃	31250	A^2s
		t=10ms T_J=125℃	22050	
Isolation Breakdown Voltage(R.M.S)	Visol	A_C 50H_Z; R.M.S.; 1min	2500	V
		Ac.50H_Z； R.M.S； 1sec	3500	V
Operating Juntion Temperature	T_J		-40~+125	℃
Storage Temperature	Tstg		-40~+125	℃
Mounting Torque	Mt	To terminals(M5)	3±15%	Nm
	Ms	To heatsink(M6)	5±15%	
Maximum non-repetitive rate of rise of turned on current	di/dt	T_J=25℃ from 0.67V_{DRM} , I_{TM}= π × $I_{T(AV)}$,Ig=500mA tr<0.5us tp>6us	200	A/us

Maximum critical rate of rise of off-state voltage	dv/dt	T_J =125˚C,V_D=2/3V_{DRM}	1000	V/us
Maximum allowable acceleration	a		50	m/s2
Module(Approximately)	Weight		100	g

Electrical Characteristics

Parameters	Symbol	Test Conditions	Values			Unit
			Min.	Typ.	Max.	
Maximum Peak On-State Voltage	V_{TM}	I_{TM} = π × $I_{T(AV)}$, T_J=25˚C			1.55	V
Maximum Repetitive Peak Reverse Current/ Maximum Repetitive Off-state Current	I_{RRM}/ I_{DRM}	T_J=125˚C V_{RD}=V_{RRM}			15	mA
On state threshold voltage	V_{TO}	For power-loss calculations only T_J=125˚C			0.9	V
Maximum Value of on-state slope resistance	r_T	T_J=125˚C			2.0	mΩ
Maximum gate voltage required to trigger	V_{GT}	T_J=25˚C，V_D=6V			3.0	V
Maximum gate current required to trigger	I_{GT}	T_J=25˚C，V_D=6V			150	mA
Maximum gate voltage that will not trigger	V_{GD}	T_J=125˚C，V_D=2/3V_{DRM}			0.25	V
Maximum gate current that will not trigger	I_{GD}	T_J=125˚C，V_D=2/3V_{DRM}			6	mA
Maximum Latching current	I_L	T_J=25˚C，I_G=1.2I_{GT}			500	mA
Maximum Holding current	I_H	T_J=25˚C，I_T=1A			250	mA
Maximum peak gate power	P_{GM}				10	W
Maximum average gate power	$P_{G(AV)}$				1	W
Maximum peak gate current	I_{GM}				3	A
Maximum peak negative gate voltage	V_{GM}				10	V
total power dissipation	P_{tot}				500	W
Gate controlled delay time	tgd	T_J=25˚C,I_G=1A ,diG/dt=1A/us	2			us
Gircuit commutated turn-off time	tq	T_J=125˚C	180			us

Thermal Characteristics				
Parameters	**Symbol**	**Test Conditions**	**Values**	**Unit**
Maximum internal thermal resistance, junction to case	$Rth_{(J-C)}$	Per thyristor/ Per module	0.26/0.13	℃/W
Typical thermal resistance, case to heatsink	$Rth_{(C-S)}$	Per thyristor/ Per module	0.22/0.11	℃/W

Performance Curves

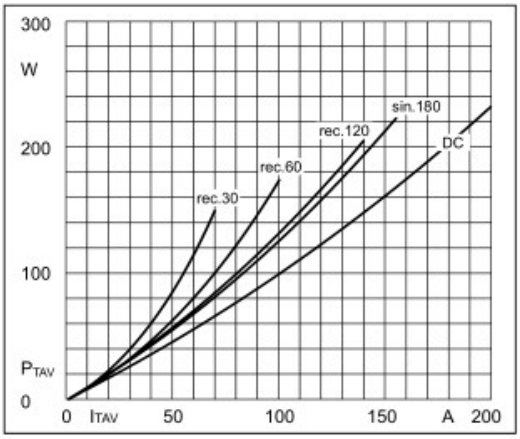


Fig1. Power dissipation

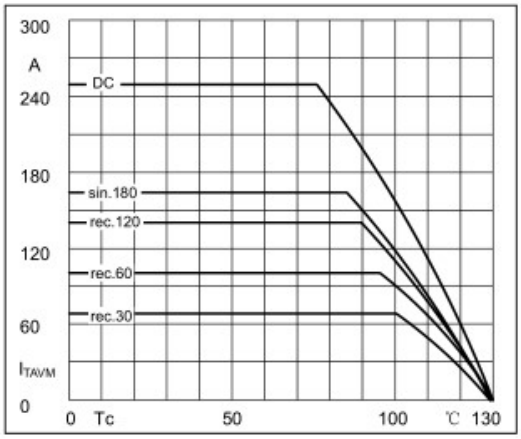


Fig2.Forward Current Derating Curve

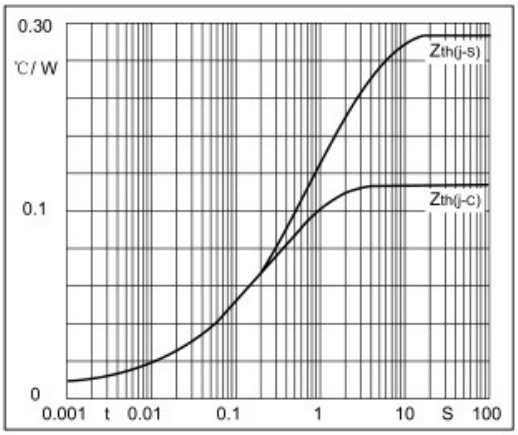


Fig3. Transient thermal impedance

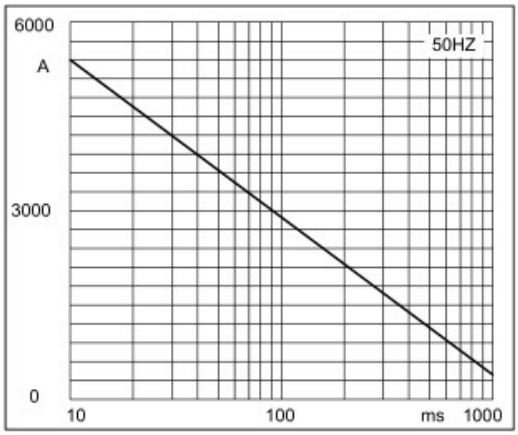


Fig4. Max Non-Repetitive Forward Surge Current

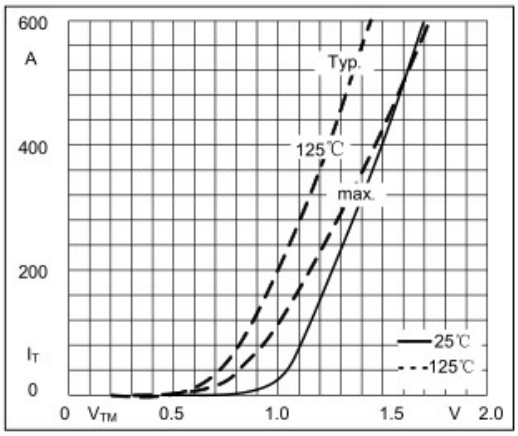


Fig5. Forward Characteristics

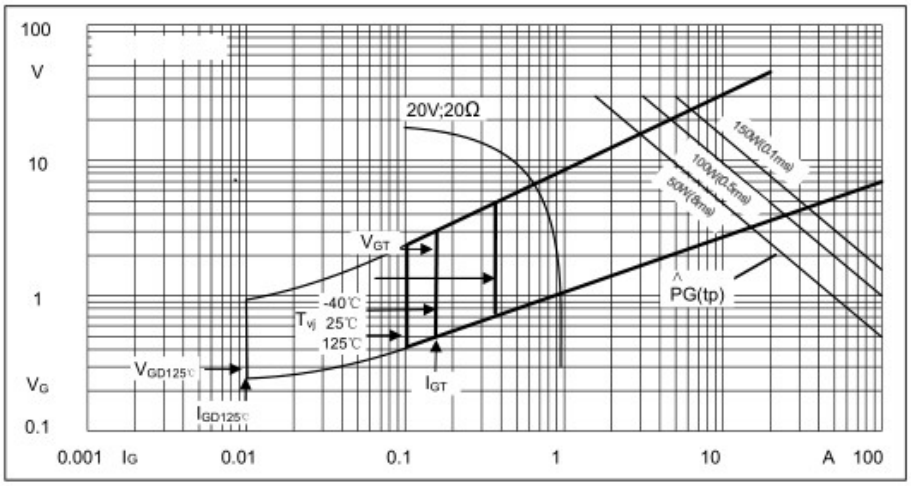


Fig6. Gate trigger Characteristics

Ordering Information Tabel

Device code

J	KT	140	-	16
①	②	③		④

① JBY's power module

② Circuit configuration

③ Maximum average forward current, A

④ Voltage code 1600V

Package Outline Information

T1 dimensions in mm