

THREE PHASE THYRISTOR MODULE

Features

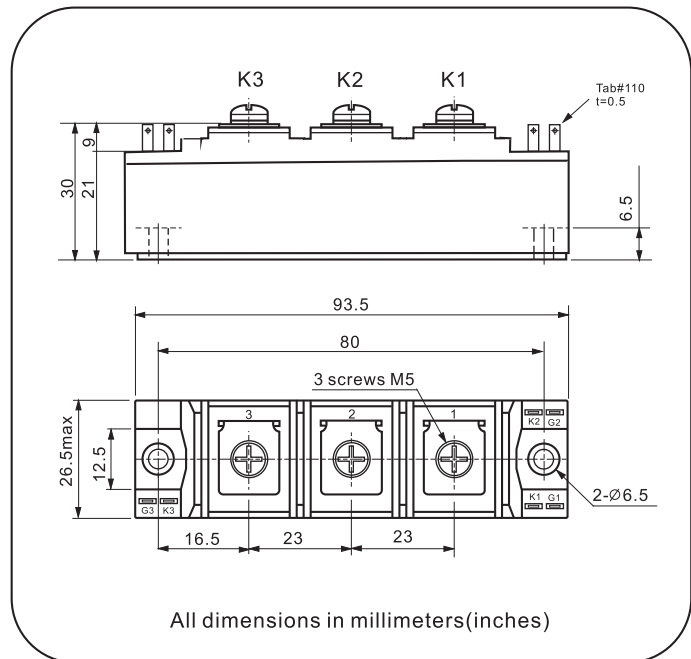
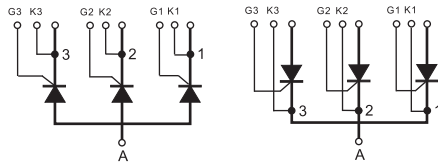
1. NK3T130..(R) series thyristor modules are desinged for 3 phase rectification
2. Voltage rating up to 600V
3. High surge capability

Ordering code

NK3T	130	/	xx	R
(1)	(2)		(3)	(4)

- (1) For Three Phase Thyristor modules
 (2) Maximum average on-state current , A
 (3) Voltage code , V (code x 10 = / V_{RRM})
 (4) Blank - for common cathode to base plate
 R- for common anode to base plate

Circuit Configurations



Electrical Characteristics

Symbol	Parameter	Condition	Max. Value	Unit
$I_{T(AV)}$	Max. Average on-state current	180° half sine wave , 50 Hz $T_c=85^\circ\text{C}$	130	A
$I_{T(RMS)}$	Max. R.M.S. on-state current	$T_c=85^\circ\text{C}$	210	A
V_{RRM} V_{DRM}	Max. repetitive peak reverse voltage	$t_p=10\text{ ms}$, $T_j = T_j \text{ max.}$ $V_{DSM} \& V_{RSM} = V_{DRM} \& V_{RRM} \times 1.1$	200 to 600	V
I_{RRM} I_{DRM}	Repetitive peak reverse current	$V_R = V_{RRM}$	30	mA
I_{TSM}	Max. peak, one-cycle, on-state non-repetitive surge current	10 ms duration $V_R = 0.6 V_{RRM}$	3600	A
I_t^2	Max. Permissible surge energy		58.9	KA^2S
V_{TM}	Max. Forward voltage drop	$I_{TM} = 240\text{A}$	1.2	V
$V_{T(TO)}$	Value of threshold voltage		1.4	V
r_t	On-state slope resistance		1.75	mΩ
I_{GT}	Max. Required DC gate current to trigger	$V_A=12\text{V}$, $I_A=1\text{A}$	150	mA
V_{GT}	Max. Required DC gate voltage to trigger		2.0	V
I_H	Max. Holding current		100	mA
V_{GD}	Max. Gate voltage which will not trigger any devices	At 67% V_{DRM}	0.20	V
d_v/dt	Critical rate of rise of off-state voltage	$V_{DM} = 0.67 V_{DRM}$	800	$\text{V}/\mu\text{s}$
d_i/dt	Max. Rate of rise of turned-on current	Gate drive 20V , 20Ω , $t_r \leq 0.5\mu\text{s}$	100	$\text{A}/\mu\text{s}$
T_{stg}	Storage temperature range		-40 to 150	$^\circ\text{C}$
$R_{th(JC)}$	Max. Thermal resistance		0.25	$^\circ\text{C}/\text{W}$
W_t	Approximate weight		340	g
T	Busbar to module (M 5)	A mounting compound is recommended. Torque should be rechecked after a period of 3 hours.	20	Kgf-cm
	Module to heatsink (M 6)		30	Kgf-cm

Fig. 1
On-state current VS. Voltage

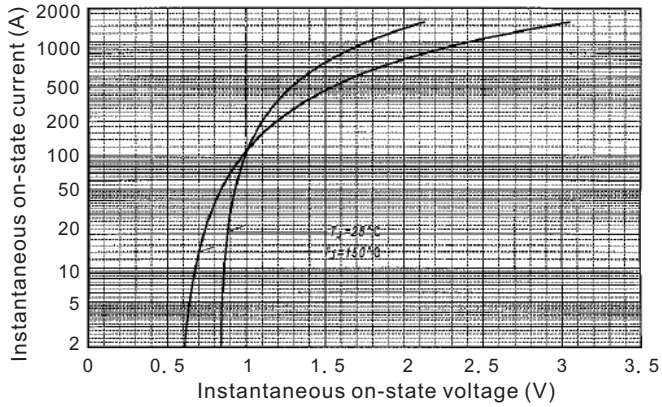


Fig. 2
Average on-state power dissipation

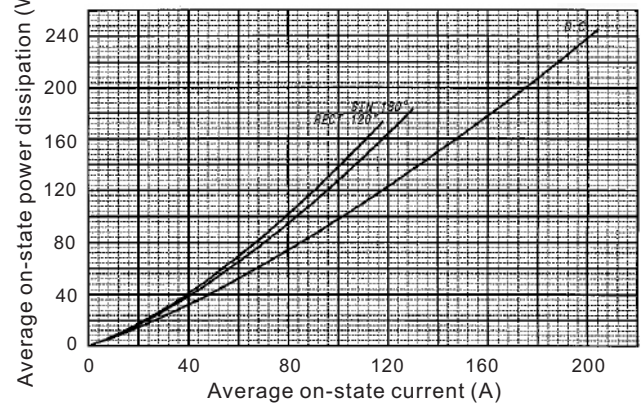


Fig. 3
Average on-state current VS. Case temperature

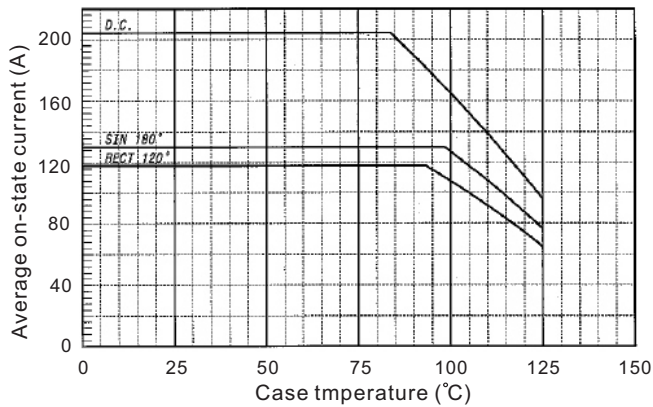


Fig. 4
Surge current ratings
f=50HZ, half sine wave, non-repetitive, Tj=150°C

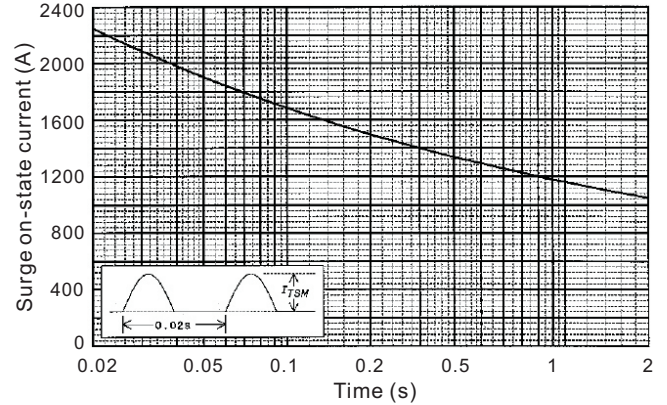


Fig. 5
Gate characteristics

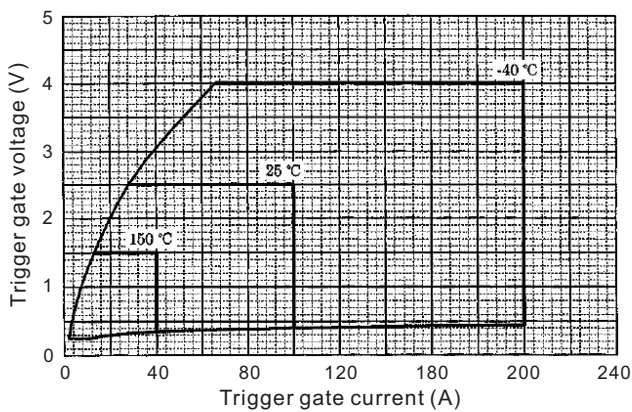


Fig. 6
Gate ratings

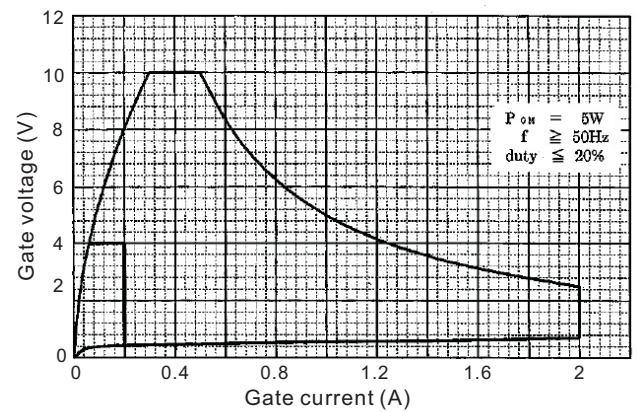


Fig. 7
Maximum transient thermal impedance
Junction to case

