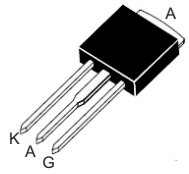
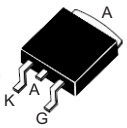
Stansard SCRs, 6A

Main Features

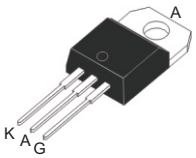
Symbol	Value	Unit
$I_{T(RMS)}$	6	A
V_{DRM}/V_{RRM}	600 to 1000	V
I_{GT}	15	mA



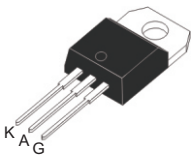
TO-251 **(I-PAK)**
(6PTxxF)



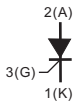
TO-252 **(D-PAK)**
(6PTxxG)



TO-220AB **(Non-Insulated)**
(6PTxxA)



TO-220AB **(Insulated)**
(6PTxxAI)



DESCRIPTION

The 6PT series of silicon controlled rectifiers are high performance glass passivated technology, and are designed for power supply up to 400Hz on resistive or inductive load.

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT
RMS on-state current full sine wave (180° conduction angle)	$I_{T(RMS)}$	TO-251/TO-252/TO-220AB	Tc=110°C	6	A
		TO-220AB insulated	Tc=105°C		
Average on-state current (180° conduction angle)	$I_{T(AV)}$	TO-251/TO-252/TO-220AB	Tc=110°C	3.8	A
		TO-220AB insulated	Tc=105°C		
Non repetitive surge peak on-state current (full cycle, T_j initial = 25°C)	I_{TSM}	F =50 Hz	t = 20 ms	70	A
		F =60 Hz	t = 16.7 ms	73	
I^2t Value for fusing	I^2t	t_p = 10 ms		24.5	A^2s
Critical rate of rise of on-state current $I_G = 2xI_{GT}$, $t_r \leq 100ns$	dI/dt	F = 60 Hz	T_j = 125ºC	50	A/µs
Peak gate current	I_{GM}	T_p = 20 µs	T_j = 125ºC	4	A
Maximum gate power	P_{GM}	T_p =20µs	T_j = 125ºC	10	W
Average gate power dissipation	$P_{G(AV)}$	T_j =125ºC		1	W
Repetitive peak off-state voltage	V_{DRM}	T_j =125ºC		600 to 1000	V
Repetitive peak reverse voltage	V_{RRM}				
Storage temperature range	T_{stg}			- 40 to + 150	ºC
Operating junction temperature range	T_j			- 40 to + 125	

ELECTRICAL SPECIFICATIONS (T_J = 25 ºC unless otherwise specified)

SYMBOL	TEST CONDITIONS			6PTxxxx	Unit
I_{GT}	V_D = 12V, R_L = 30Ω		Max.	15	mA
V_{GT}			Max.	1.3	V
V_{GD}	$V_D = V_{DRM}$, R_L = 3.3KΩ R_{GK} = 220Ω, T_j = 110°C		Min.	0.2	V
I_H	I_T = 100mA, Gate open		Max.	30	mA
I_L	$I_G = 1.2 \times I_{GT}$		Max.	50	mA
dV/dt	V_D = 67% V_{DRM}, Gate open, T_j = 110°C		Min.	200	V/μs
V_{TM}	I_T = 12A, t_P = 380 μs	T_j = 25°C	Max.	1.6	V
I_{DRM} I_{RRM}	$V_D = V_{DRM}$, $V_R = V_{RRM}$ R_{GK} = 220Ω	T_j = 25°C	Max.	5	μA
		T_j = 110°C	Max.	2	mA
t_q	V_D = 67% V_{DRM}, I_{TM} = 12A, V_R = 25V dI_{TM} = 30A/μs, dV_D/dt =50V/μs	T_j = 110°C	TYP.	70	μS

THERMAL RESISTANCE

SYMBOL	Parameter			VALUE	UNIT
$R_{th(j-c)}$	Junction to case (DC)		IPAK/DPAK/TO-220AB	2.5	°C/W
$R_{th(j-a)}$	Junction to ambient	S = 0.5 cm^2	TO-252(D-PAK)	70	°C/W
			TO-220AB	60	
			TO-251(I-PAK)	100	

PRODUCT SELECTOR

PART NUMBER	VOLTAGE (xx)			SENSITIVITY	PACKAGE
	600 V	800 V	1000 V		
6PTxxA/6PTxxAI	V	V	V	15 mA	TO-220AB
6PTxxF	V	V	V	15 mA	I-PAK
6PTxxG	V	V	V	15 mA	D-PAK

ORDERING INFORMATION

ORDERING TYPE	MARKING	PACKAGE	WEIGHT	BASE Q'TY	DELIVERY MODE
6PTxxA	6PTxxA	TO-220AB	2.0g	50	Tube
6PTxxAI	6PTxxAI	TO-220AB (insulated)	2.3g	50	Tube
6PTxxF	6PTxxF	TO-251(I-PAK)	0.40g	80	Tube
6PTxxG	6PTxxG	TO-252(D-PAK)	0.38g	80	Tube

Note: xx = voltage

ORDERING INFORMATION SCHEME

6 PT 06 AI

Current

6 = 6A, $I_{T(RMS)}$

SCR series

Voltage Code

06 = 600V
08 = 800V
10 = 1000V

Package type

A = TO-220AB (non-insulated)
AI = TO-220AB (insulated)
F = TO-251 (IPAK)
G = TO-252 (DPAK)

Fig.1 Maximum average power dissdipation versus average on-state current

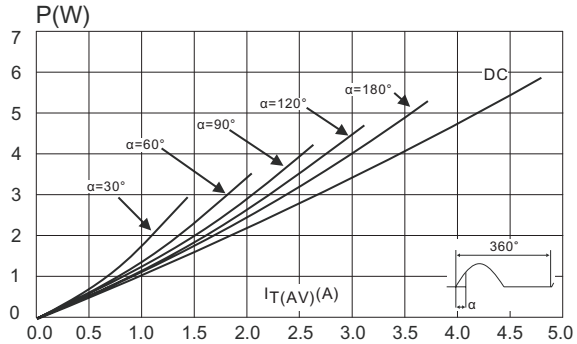


Fig.2 Correlation between maximum average power dissipation and maximum allowable temperature(T_{amb} and T_{lead})

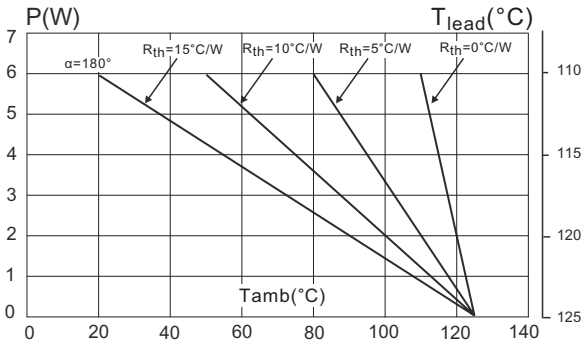


Fig.3 Average on-state current versus case temperature

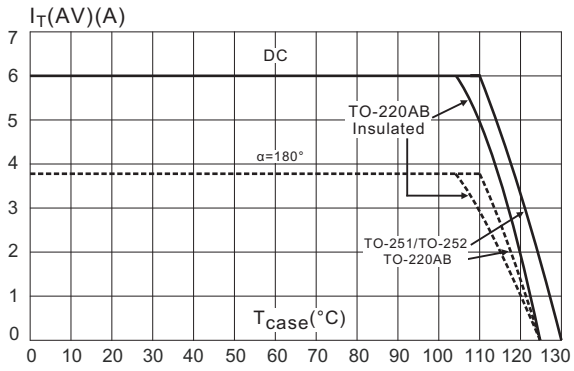


Fig.4 Relative variation of thermal impedance versus pulse duration

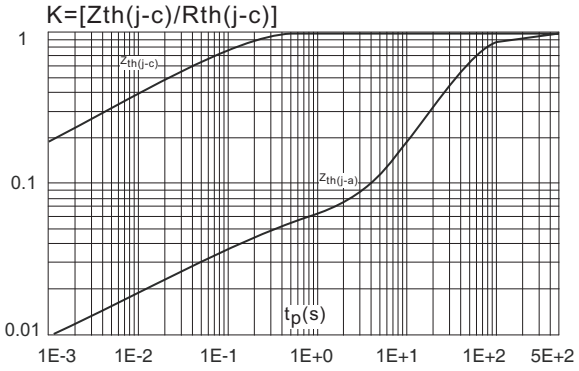


Fig.5 Relative variation of gate trigger current versus junction temperature

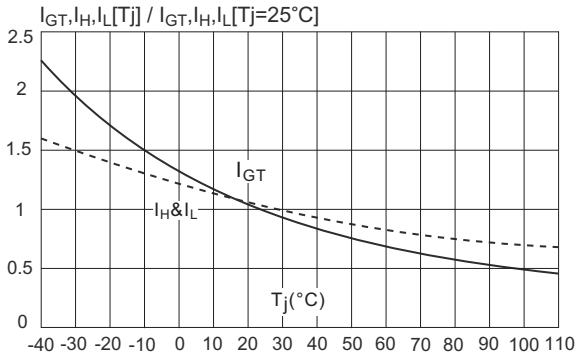


Fig.6 Surge peak on-state current versus number of cycles

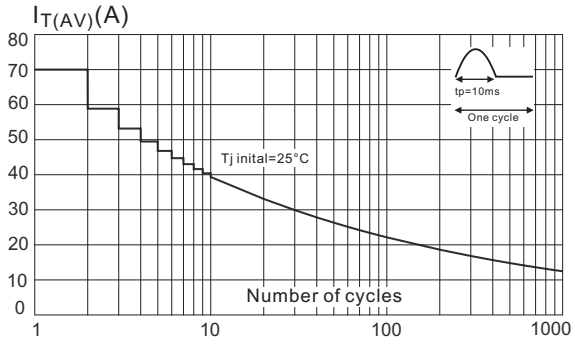


Fig.7 Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10 ms, and corresponding values of I²t

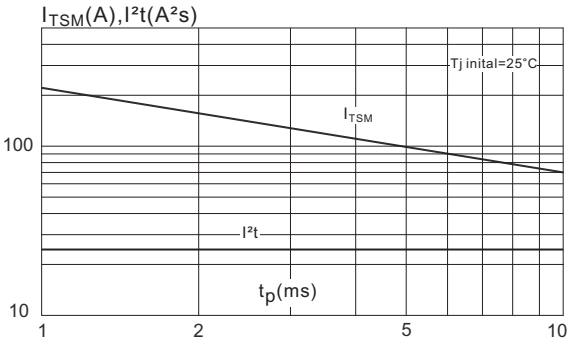
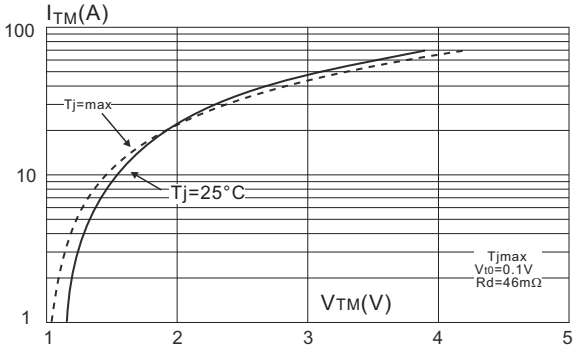
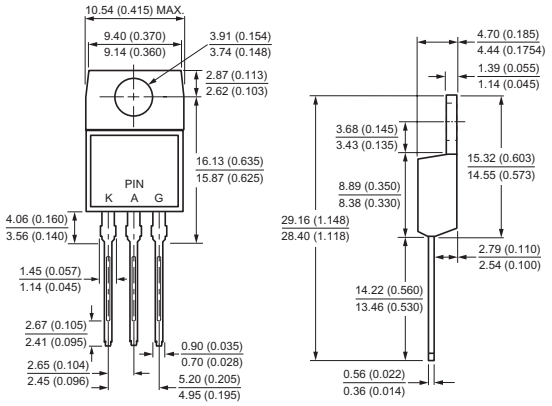


Fig.8 On-state characteristics (maximum values)

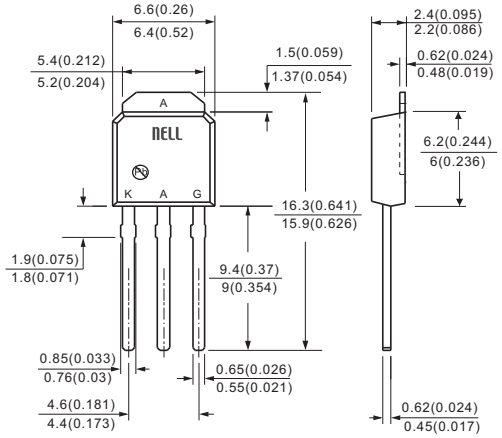


Case Style

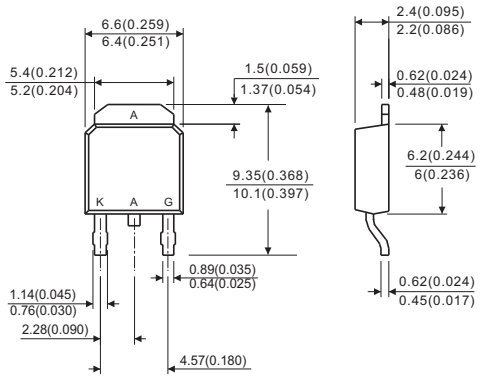
TO-220AB

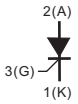


TO-251
(I-PAK)



TO-252
(D-PAK)





All dimensions in millimeters(inches)