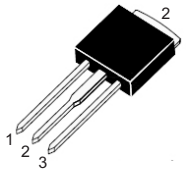
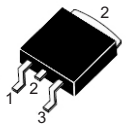
Stansard SCRs, 6A

Main Features

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



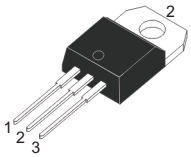
TO-251 **(I-PAK)**
(6PTxxF)



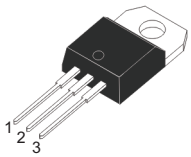
TO-252 **(D-PAK)**
(6PTxxG)

DESCRIPTION

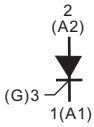
The 6PT series of silicon controlled rectifiers are high performance glass passivated technology, and are designed for power supply up to 400Hz on resistive or inductive load.



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



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



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 I_{GT}		Min.	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

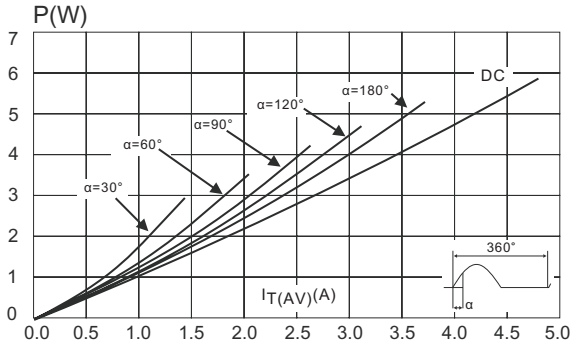


Fig.2 Correlation between maximum average power dissipation and maximum allowable temperature(T_{amb} and T_{lead})

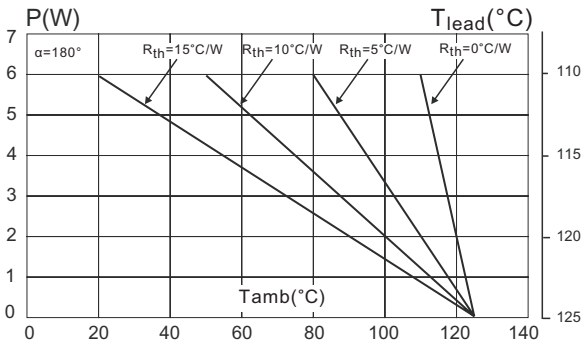


Fig.3 Average on-state current versus case temperature

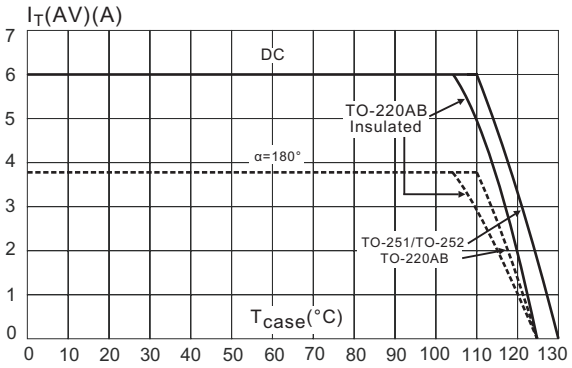


Fig.4 Relative variation of thermal impedance versus pulse duration

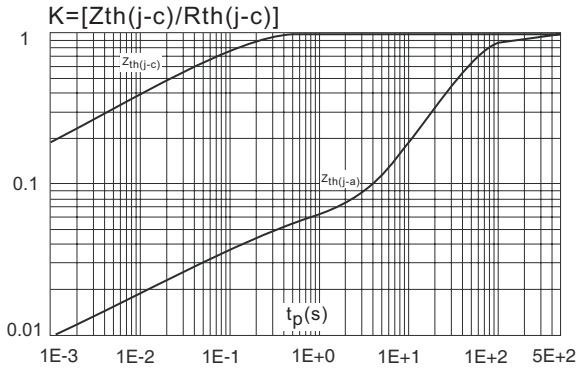


Fig.5 Relative variation of gate trigger current versus junction temperature

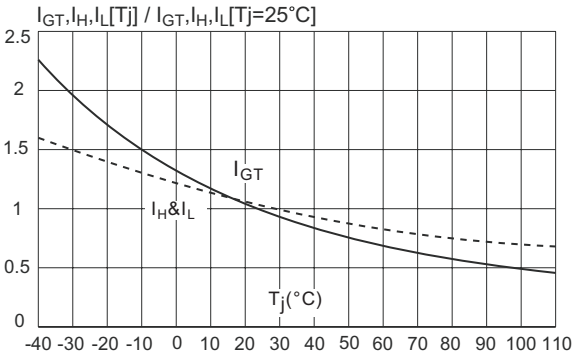


Fig.6 Surge peak on-state current versus number of cycles

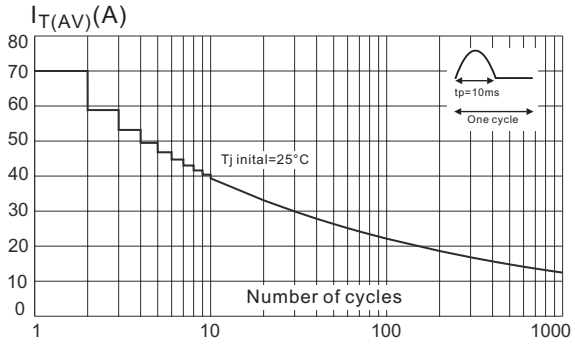


Fig.7 Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10 ms, and corresponding values of I²t

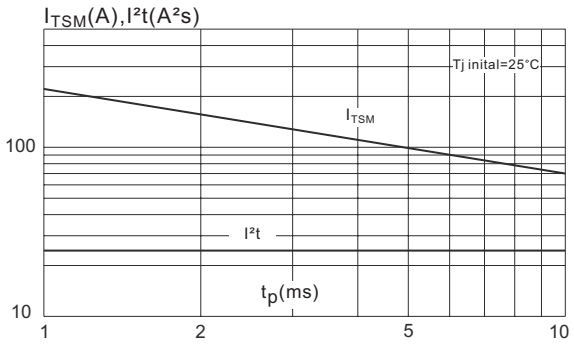
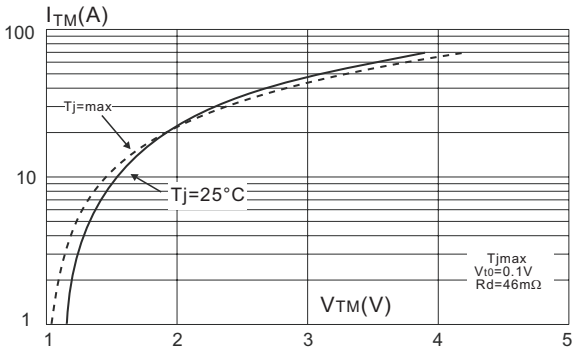
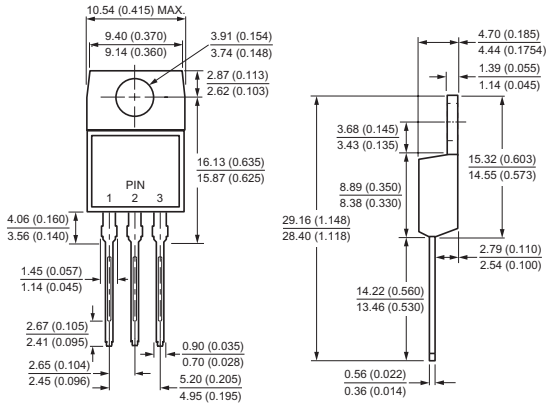


Fig.8 On-state characteristics (maximum values)

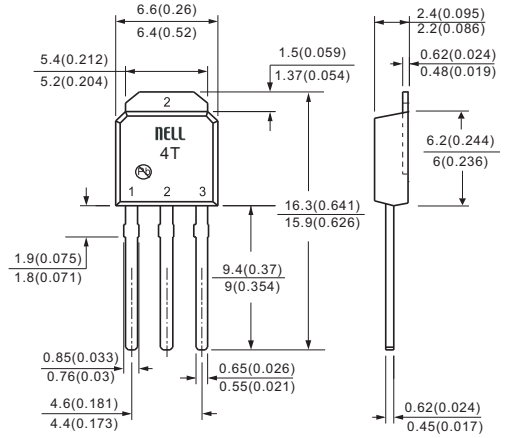


Case Style

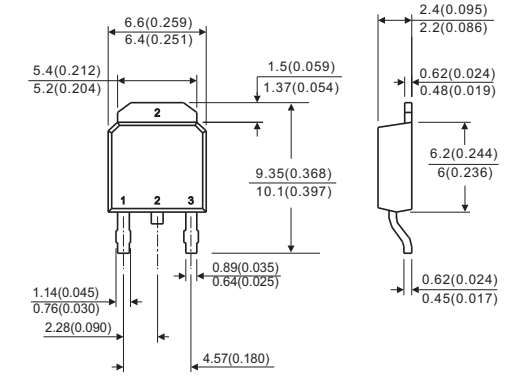
TO-220AB

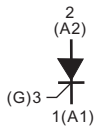


TO-251
(I-PAK)



TO-252
(D-PAK)





All dimensions in millimeters(inches)