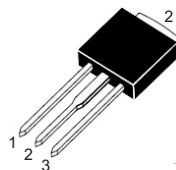


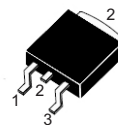
Standard SCRs, 10A

Main Features

Symbol	Value	Unit
$I_{T(RMS)}$	10	A
V_{DRM}/V_{RRM}	600 to 1000	V
I_{GT}	15	mA



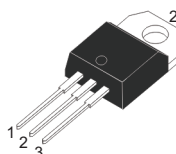
TO-251 (I-PAK)
(10PTxxF)



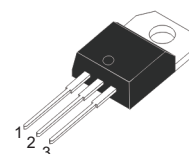
TO-252 (D-PAK)
(10PTxxG)

DESCRIPTION

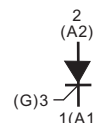
The 10PT series of silicon controlled rectifiers are high performance glass passivated technology, and are designed for power supply up to 400Hz on resistive or inductive load.



TO-220AB (Non-Insulated)
(10PTxxA)



TO-220AB (Insulated)
(10PTxxAI)



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	$T_c=100^{\circ}\text{C}$	10	A
		TO-220AB insulated	$T_c=90^{\circ}\text{C}$		
Average on-state current (180° conduction angle)	$I_{T(AV)}$	TO-251/TO-252/TO-220AB	$T_c=100^{\circ}\text{C}$	6.4	A
		TO-220AB insulated	$T_c=90^{\circ}\text{C}$		
Non repetitive surge peak on-state current (full cycle, T_j initial = 25°C)	I_{TSM}	F = 50 Hz	t = 20 ms	100	A
		F = 60 Hz	t = 16.7 ms	105	
I^2t Value for fusing	I^2t	$t_p = 10 \text{ ms}$		50	A^2s
Critical rate of rise of on-state current $I_G = 2xI_{GT}$, $t_r \leq 100\text{ns}$	di/dt	F = 60 Hz	$T_j = 125^{\circ}\text{C}$	50	$\text{A}/\mu\text{s}$
Peak gate current	I_{GM}	$T_p = 20 \mu\text{s}$	$T_j = 125^{\circ}\text{C}$	4	A
Maximum gate power	P_{GM}	$T_p = 20\mu\text{s}$	$T_j = 125^{\circ}\text{C}$	10	W
Average gate power dissipation	$P_{G(AV)}$	$T_j = 125^{\circ}\text{C}$		1	W
Repetitive peak off-state voltage	V_{DRM}	$T_j = 125^{\circ}\text{C}$		600 to 1000	V
Repetitive peak reverse voltage	V_{RRM}				
Storage temperature range	T_{stg}			- 40 to + 150	$^{\circ}\text{C}$
Operating junction temperature range	T_j			- 40 to + 125	

ELECTRICAL SPECIFICATIONS (T _J = 25 °C, unless otherwise specified)					
SYMBOL	TEST CONDITIONS		10PTxxxx	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 = 20A, 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.	10	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 cm²	DPAK	70	°C/W
			IPAK	100	
			TO-220AB	60	

S=Copper surface under tab

PRODUCT SELECTOR					
PART NUMBER	VOLTAGE (xx)			SENSITIVITY	PACKAGE
	600 V	800 V	1000 V		
10PTxxA/10PTxxAI	V	V	V	15 mA	TO-220AB
10PTxxF	V	V	V	15 mA	I-PAK
10PTxxG	V	V	V	15 mA	D-PAK

ORDERING INFORMATION					
ORDERING TYPE	MARKING	PACKAGE	WEIGHT	BASE Q'TY	DELIVERY MODE
10PTxxA	10PTxxA	TO-220AB	2.0g	50	Tube
10PTxxAI	10PTxxAI	TO-220AB (insulated)	2.3g	50	Tube
10PTxxF	10PTxxF	TO-251(I-PAK)	0.40g	80	Tube
10PTxxG	10PTxxG	TO-252(D-PAK)	0.38g	80	Tube

Note: xx = voltage

ORDERING INFORMATION SCHEME

	10	PT	06	AI
Current				
10 = 10A, $I_{T(RMS)}$				
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 dissipation versus average on-state current

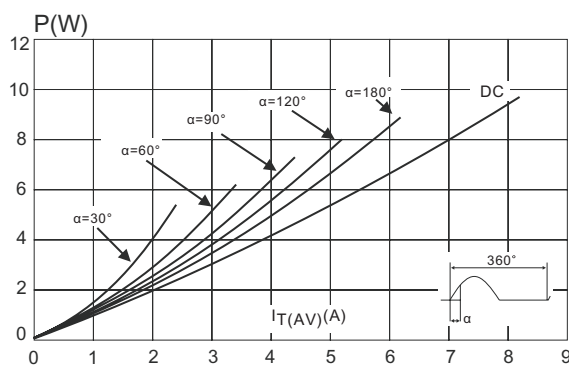


Fig.2 Correlation between maximum average power dissipation and maximum allowable temperature (T_{amb} and T_{lead})

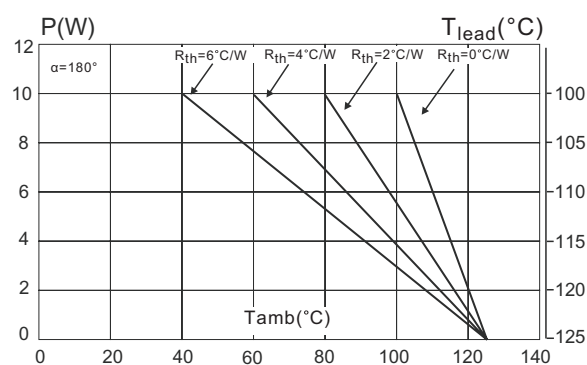


Fig.3 Average on-state current versus case temperature

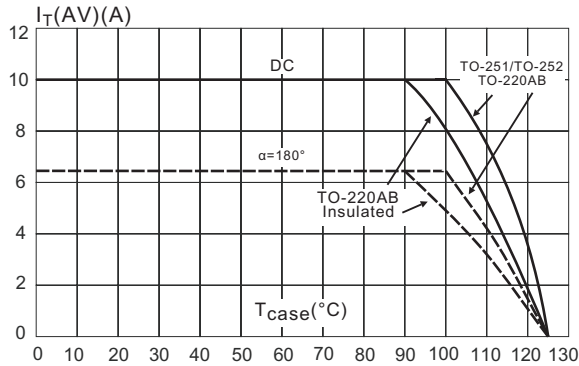


Fig.4 Relative variation of thermal impedance versus pulse duration

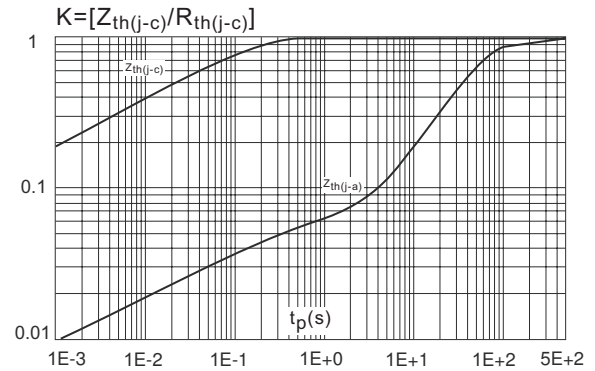


Fig.5 Relative variation of gate trigger current versus junction temperature

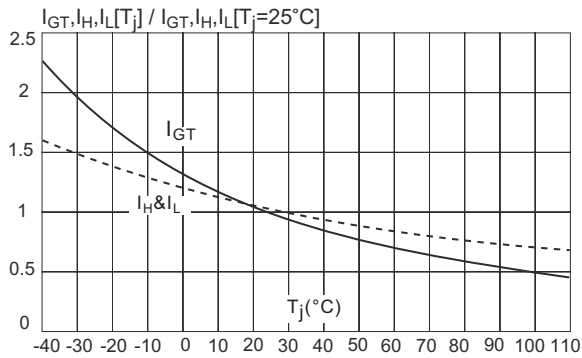


Fig.6 Surge peak on-state current versus number of cycles

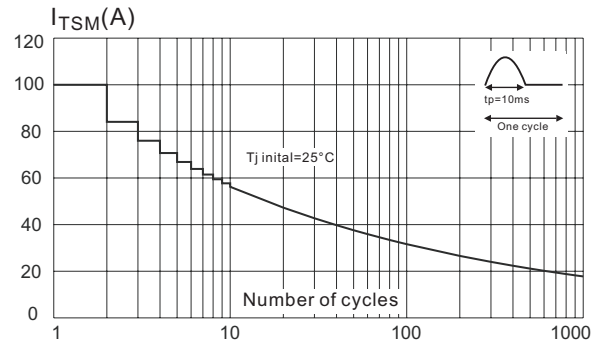


Fig.7 Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms, and corresponding values of I^2t

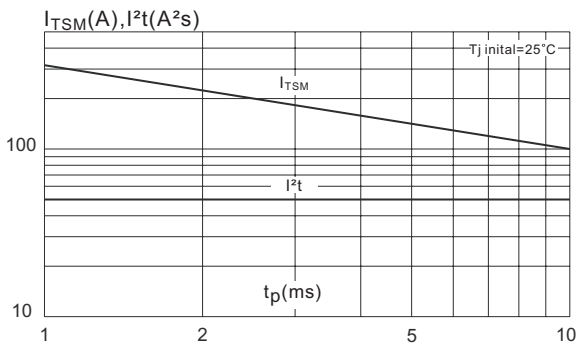
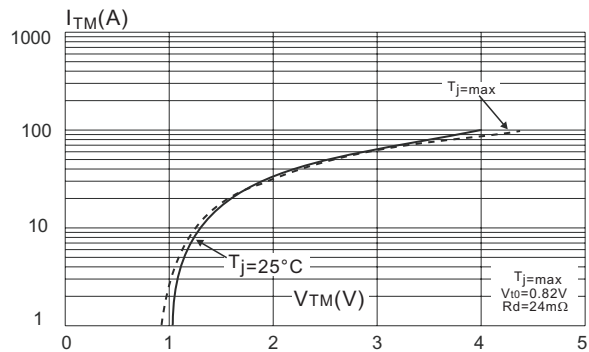
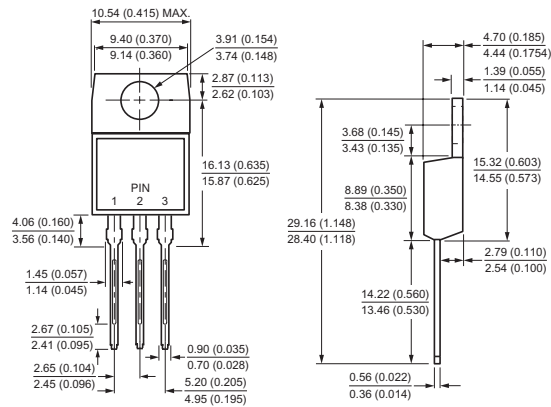


Fig.8 On-state characteristics (maximum values)

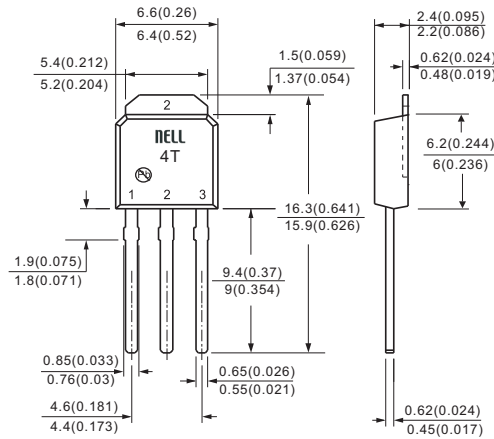


Case Style

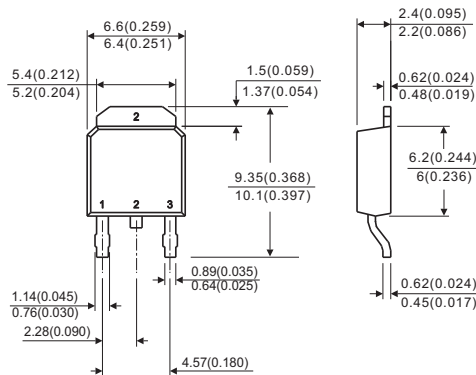
TO-220AB



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



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



All dimensions in millimeters(inches)

