

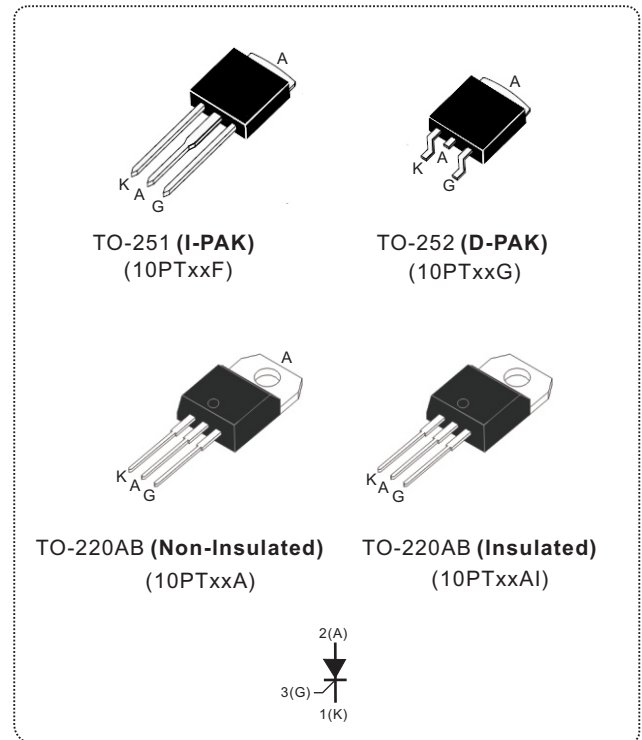
Standard SCRs, 10A

Main Features

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

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.



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	°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}	Max.	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}	V _D = V _{DRM} , V _R = V _{RRM}	T _J = 25°C	Max.	10	μA
I _{RRM}	R _{GK} = 220Ω	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	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

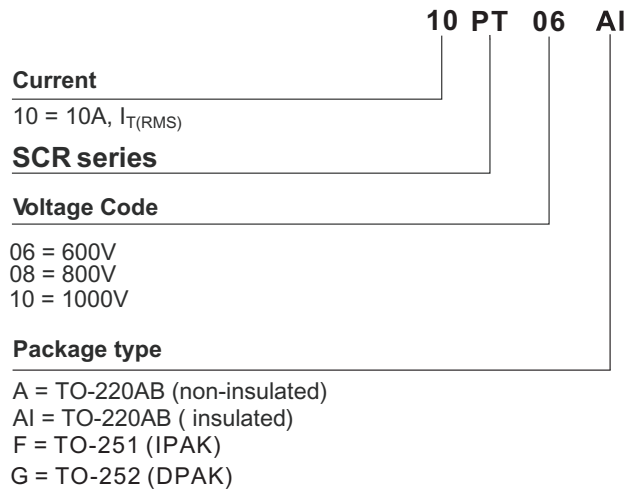


Fig.1 Maximum average power dissipation versus average on-state current

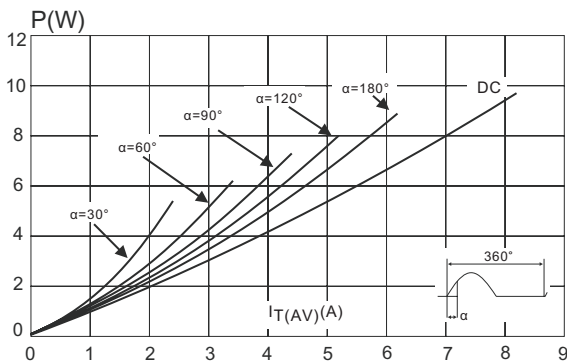


Fig.2 Correlation between maximum average power dissipation and maximum allowable temperature (T_{amb} and T_{lead})

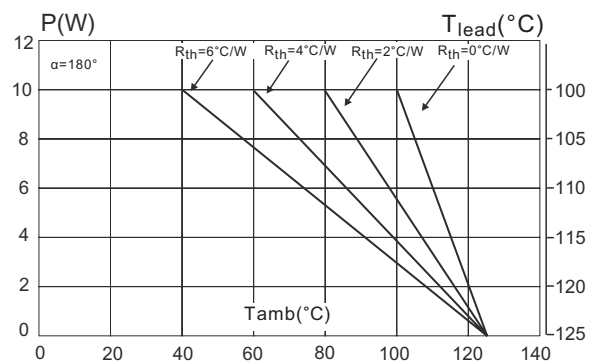


Fig.3 Average on-state current versus case temperature

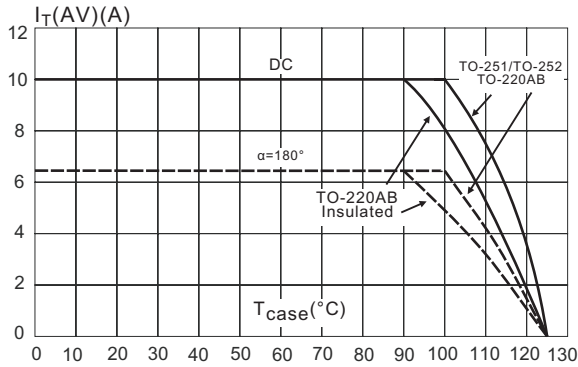


Fig.4 Relative variation of thermal impedance versus pulse duration

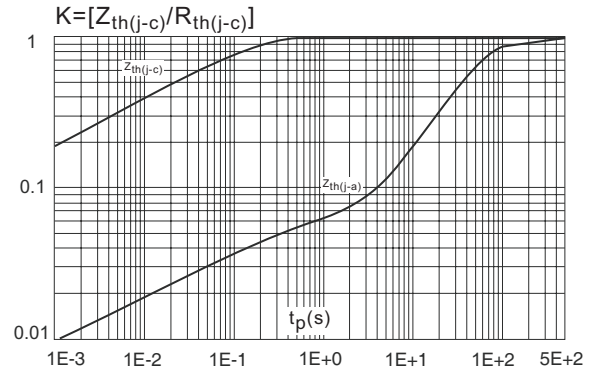


Fig.5 Relative variation of gate trigger current versus junction temperature

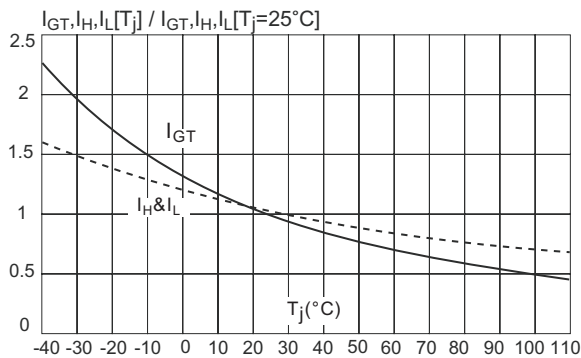


Fig.6 Surge peak on-state current versus number of cycles

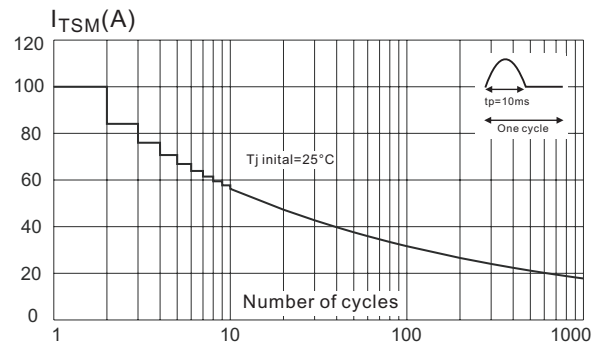


Fig.7 Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms, and corresponding values of I^2t

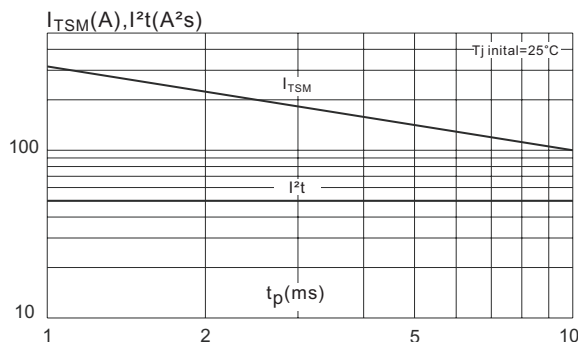
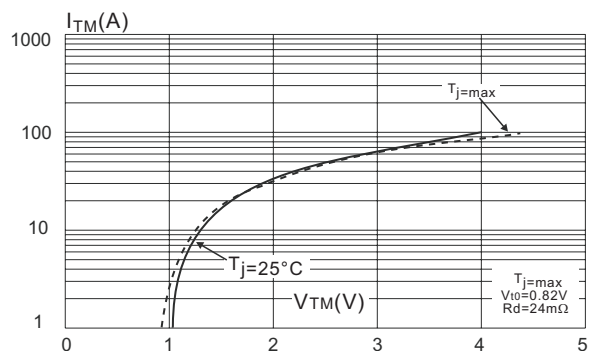
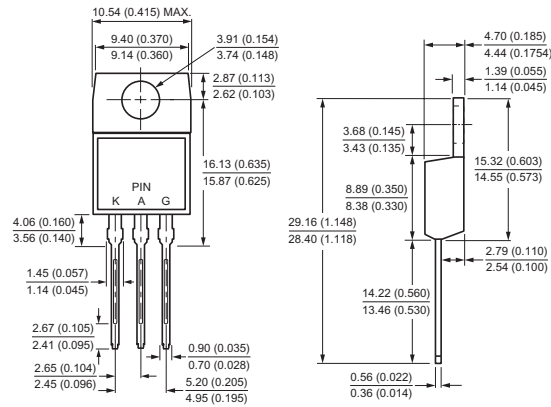


Fig.8 On-state characteristics (maximum values)

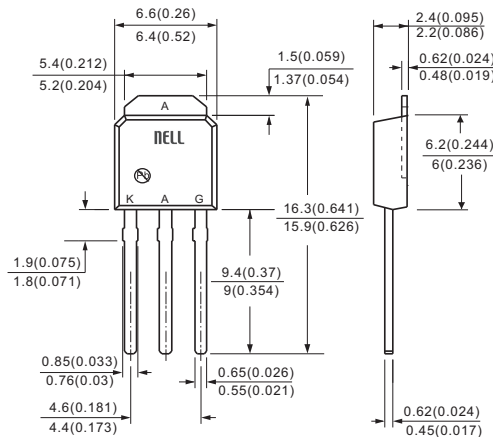


Case Style

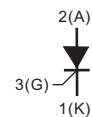
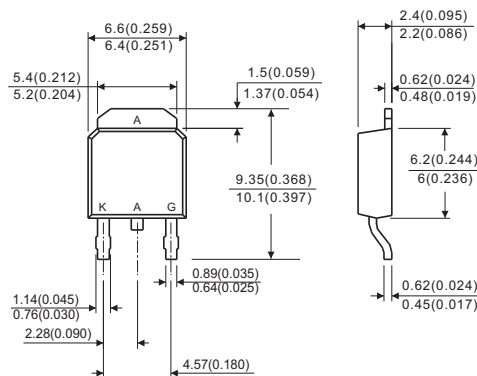
TO-220AB



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



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



All dimensions in millimeters(inches)