

Standard SCRs, 25A

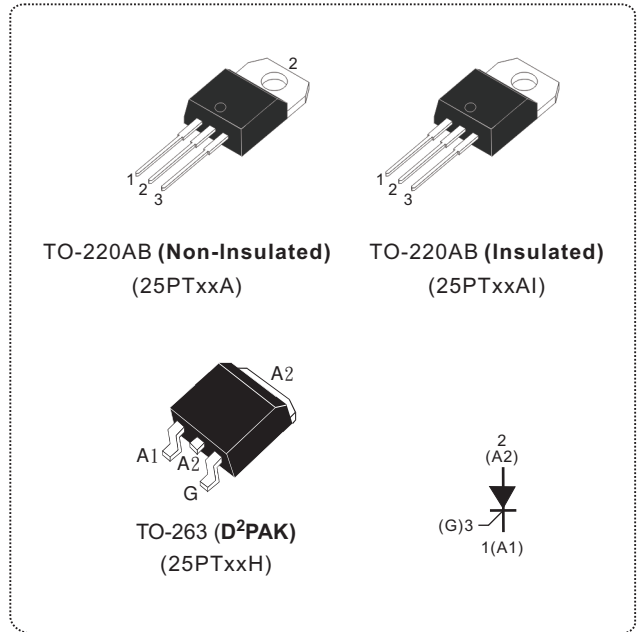
Main Features

Symbol	Value	Unit
$I_{T(RMS)}$	25	A
V_{DRM}/V_{RRM}	600 to 1600	V
I_{GT}	4 to 40	mA

DESCRIPTION

The 25PT series of silicon controlled rectifiers are high performance glass passivated technology, and are suitable for general purpose applications.

Using clip assembly technology, they provide a superior performance in surge current capabilities.



ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT
RMS on-state current full sine wave (180° conduction angle)	$I_{T(RMS)}$	TO-263/TO-220AB	$T_c=100^\circ\text{C}$	25	A
		TO-220AB insulated	$T_c=83^\circ\text{C}$		
Average on-state current (180° conduction angle)	$I_{T(AV)}$	TO-263/TO-220AB	$T_c=100^\circ\text{C}$	16	A
		TO-220AB insulated	$T_c=83^\circ\text{C}$		
Non repetitive surge peak on-state current (full cycle, T_j initial = 25°C)	I_{TSM}	F = 50 Hz	t = 20 ms	300	A
		F = 60 Hz	t = 16.7 ms	314	
I^2t Value for fusing	I^2t	$t_p = 10$ ms		450	A ² s
Critical rate of rise of on-state current $I_G = 2xI_{GT}$, $t_r \leq 100$ ns	dI/dt	F = 60 Hz	$T_j = 125^\circ\text{C}$	50	A/ μ s
Peak gate current	I_{GM}	$T_p = 20$ μ s	$T_j = 125^\circ\text{C}$	4	A
Maximum gate power	P_{GM}	$T_p = 20$ μ 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 1600	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			25PTxxxx		Unit	
				D	-		
I _{GT}	V _D = 12V, R _L = 33Ω			Min.	4	4	mA
V _{GT}				Max.	10	40	
				Max.	1.3		V
V _{GD}	V _D = V _{DRM} , R _L = 3.3KΩ R _{GK} = 220Ω	T _J = 125°C	Min.	0.2		V	
I _H	I _T = 500mA, Gate open			Max.	20	50	mA
I _L	I _G = 1.2 I _{GT}			Min.	40	90	mA
dV/dt	V _D = 67% V _{DRM} , Gate open		T _J = 125°C	Min.	500		V/μs
V _{TM}	I _T = 50A, t _p = 380μs		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 = 125°C	Max.	2		mA
V _{to}	Threshold Voltage		T _J = 125°C	Max.	0.77		V
R _d	Dynamic Resistance		T _J = 125°C	Max.	14		mΩ

THERMAL RESISTANCE						
SYMBOL	Parameter			VALUE	UNIT	
R _{th(j-c)}	Junction to case (DC)		D ² PAK/TO-220AB	1.0	°C/W	
			TO-220AB insulated	2.0		
R _{th(j-a)}	Junction to ambient		S = 1 cm ²	TO-263(D ² PAK)	45	°C/W
				TO-220AB/TO-220AB insulated	60	

S=Copper surface under tab

PRODUCT SELECTOR							
PART NUMBER	VOLTAGE (xx)					SENSITIVITY	PACKAGE
	600 V	800 V	1000 V	1200 V	1600 V		
25PTxxA/25PTxxAI	V	V	V	V	V	40 mA	TO-220AB
25PTxxH	V	V	V	V	V	40 mA	D ² PAK
25PTxxA-D/25PTxxAI-D	V	V	V	V	V	4~10 mA	TO-220AB
25PTxxH-D	V	V	V	V	V	4~10 mA	D ² PAK

ORDERING INFORMATION					
ORDERING TYPE	MARKING	PACKAGE	WEIGHT	BASE Q'TY	DELIVERY MODE
25PTxxA-y	25PTxxA-y	TO-220AB	2.0g	50	Tube
25PTxxAI-y	25PTxxAI-y	TO-220AB (insulated)	2.3g	50	Tube
25PTxxH-y	25PTxxH-y	TO-263(D ² PAK)	2.0g	50	Tube

Note: xx = voltage , y = sensitivity

ORDERING INFORMATION SCHEME

25 PT 06 AI - D

Current

25 = 25A, $I_{T(RMS)}$

SCR series

Voltage Code

06 = 600V
 08 = 800V
 10 = 1000V
 12 = 1200V
 16 = 1600V

Package type

A = TO-220AB (non-insulated)
 AI = TO-220AB (insulated)
 H = TO-263 (D²PAK)

I_{GT} Sensitivity

D = 4~10mA
 Blank = 4~40mA

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

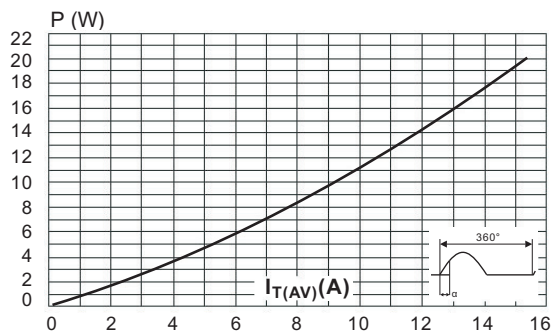


Fig.2 Average and DC on-state current versus case temperature.

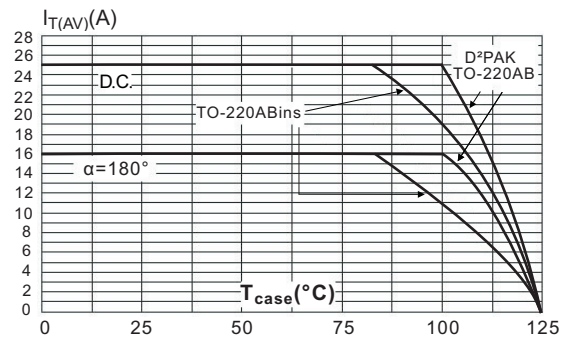


Fig.3 Average and DC on-state current versus ambient temperature.

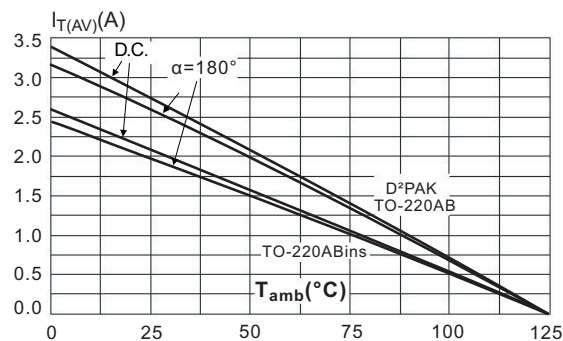


Fig.4 Relative variation of thermal impedance versus pulse duration. (D²PAK, and TO-220AB)

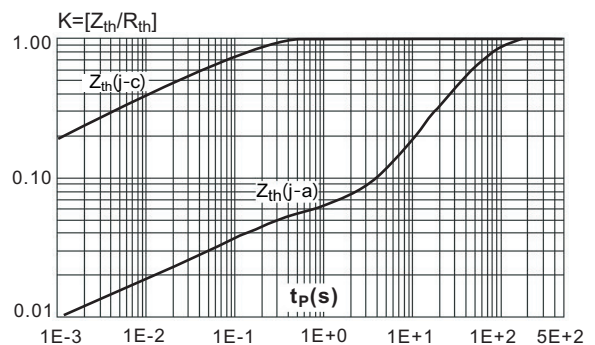


Fig.5 Relative variation of thermal impedance versus pulse duration. (TO-220AB ins)

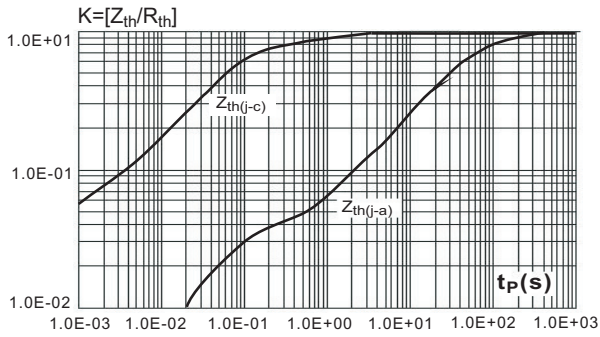


Fig.6 Relative variation of gate trigger holding, and latching currents versus junction temperature.

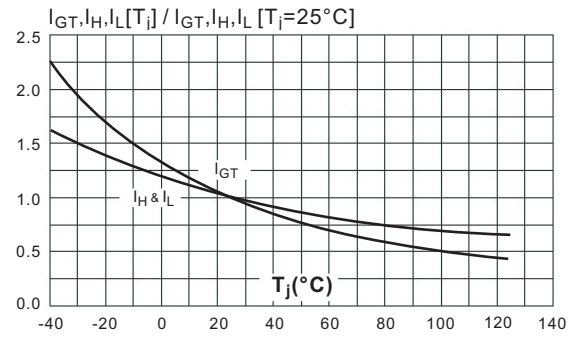


Fig.7 Surge peak on-state current versus number of cycles.

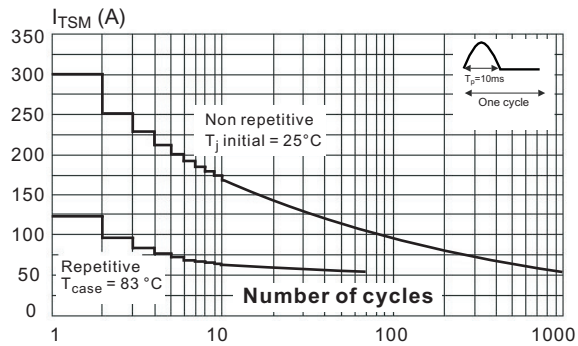


Fig.8 Non-repetitive surge peak on-state current, and corresponding values of I²t

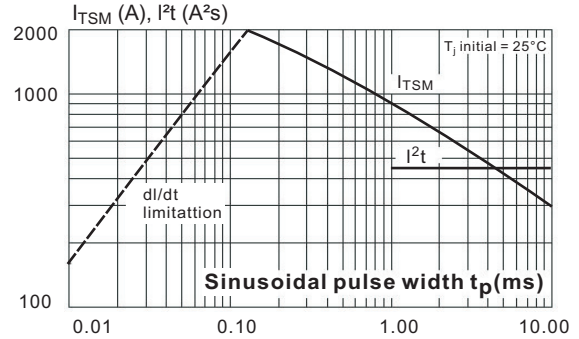


Fig.9 On-state characteristics (maximum values)

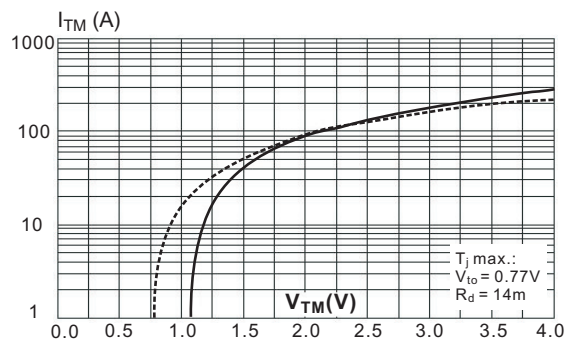
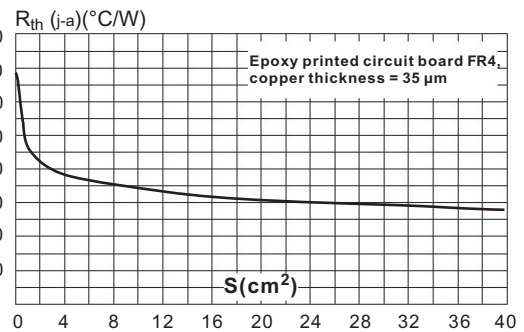
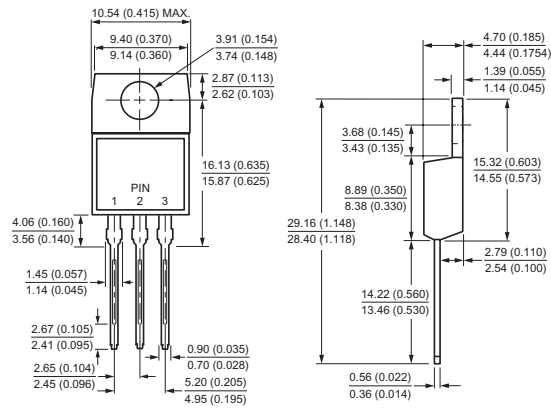


Fig.10 Thermal resistance junction to ambient versus copper surface under tab (D²PAK)

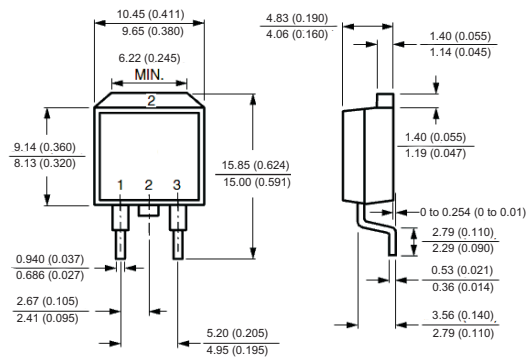


Case Style

TO-220AB



TO-263(D²PAK)



All dimensions in millimeters(inches)

