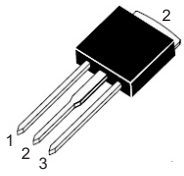
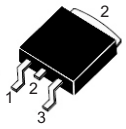
Stansard SCRs, 16A

Main Features

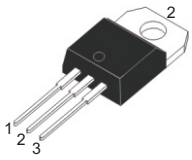
Symbol	Value	Unit
$I_{T(RMS)}$	16	A
V_{DRM}/V_{RRM}	600 to 1000	V
I_{GT}	25	mA



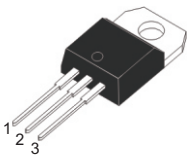
TO-251 **(I-PAK)**
(16PTxxF)



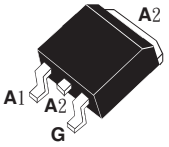
TO-252 **(D-PAK)**
(16PTxxG)



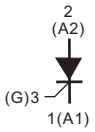
TO-220AB **(Non-Insulated)**
(16PTxxA)



TO-220AB **(Insulated)**
(16PTxxAI)



TO-263 (**D²PAK**)
(16PTxxH)



DESCRIPTION

The 16PT 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-251/TO-252 TO-220AB/TO-263	T_c=110°C	16	A
		TO-220AB insulated	T_c=86°C		
Average on-state current (180° conduction angle)	$I_{T(AV)}$	TO-251/TO-252 TO-220AB/TO-263	T_c=110°C	10	A
		TO-220AB insulated	T_c=86°C		
Non repetitive surge peak on-state current (full cycle, T_j initial = 25°C)	I_{TSM}	F =50 Hz	t = 20 ms	190	A
		F =60 Hz	t = 16.7 ms	200	
I^2t Value for fusing	I^2t	t_p = 10 ms		180	A^2s
Critical rate of rise of on-state current I_G = 2xI_{GT}, t_r≤100ns	dI/dt	F = 60 Hz	T_j = 125°C	50	A/µs
Peak gate current	I_{GM}	T_p = 20 µs	T_j = 125°C	4	A
Maximum gate power	P_{GM}	T_p =20µs	T_j = 125°C	10	W
Average gate power dissipation	$P_{G(AV)}$	T_j =125°C		1	W
Repetitive peak off-state voltage	V_{DRM}	T_j =125°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 ºC unless otherwise specified)

SYMBOL	TEST CONDITIONS			16PTxxxx	Unit
I_{GT}	V_D = 12V, R_L = 33Ω		Min.	2	mA
			Max.	15	
V_{GT}			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.	40	mA
I_L	$I_G = 1.2 \times I_{GT}$		Min.	60	mA
dV/dt	V_D = 67% V_{DRM}, Gate open	T_j = 125°C	Min.	500	V/μs
V_{TM}	I_T = 32A, 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.	23	mΩ

THERMAL RESISTANCE

SYMBOL	Parameter			VALUE	UNIT
$R_{th(j-c)}$	Junction to case (DC)		IPAK/DPAK/TO-220AB/TO-263	1.1	°C/W
$R_{th(j-a)}$	Junction to ambient	S = 1 cm^2	TO-263(D^2PAK)	45	°C/W
		S = 0.5 cm^2	TO-252(D-PAK)	70	
			TO-220AB	60	
			TO-251(I-PAK)	100	

S=Copper surface under tab

PRODUCT SELECTOR

PART NUMBER	VOLTAGE (xx)			SENSITIVITY	PACKAGE
	600 V	800 V	1000 V		
16PTxxA/16PTxxAI	V	V	V	25 mA	TO-220AB
16PTxxF	V	V	V	25 mA	I-PAK
16PTxxG	V	V	V	25 mA	D-PAK
16PTxxH	V	V	V	25 mA	D^2PAK

ORDERING INFORMATION

ORDERING TYPE	MARKING	PACKAGE	WEIGHT	BASE Q'TY	DELIVERY MODE
16PTxxA	16PTxxA	TO-220AB	2.0g	50	Tube
16PTxxAI	16PTxxAI	TO-220AB (insulated)	2.3g	50	Tube
16PTxxF	16PTxxF	TO-251(I-PAK)	0.40g	80	Tube
16PTxxG	16PTxxG	TO-252(D-PAK)	0.38g	80	Tube
16PTxxH	16PTxxH	TO-263(D^2PAK)	2.0g	50	Tube

Note: xx = voltage

ORDERING INFORMATION SCHEME

16 PT 06 AI

Current

16 = 16A, $I_{T(RMS)}$

SCR series

Voltage Code

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

Package type

A = TO-220AB (non-insulated)
AI = TO-220AB (insulated)
F = TO-251 (I-PAK)
G = TO-252 (D-PAK)
H = TO-263 (D^2PAK)

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

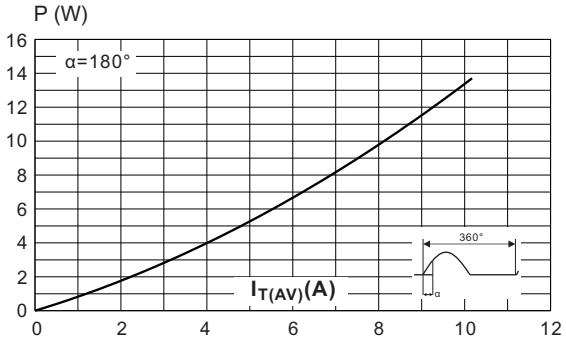


Fig.2 Average and D.C. on-state current versus case temperature.

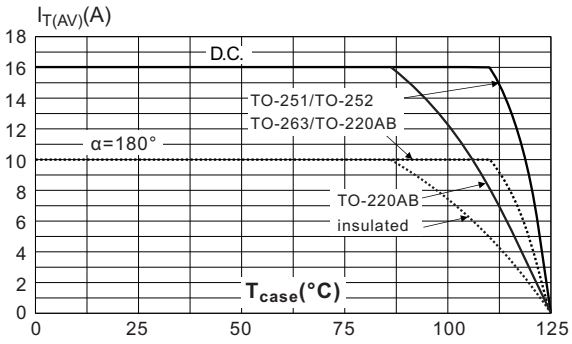


Fig.3 Average and D.C. on-state current versus ambient temperature. (copper surface under tab: S=1cm^2) (D^2PAK)

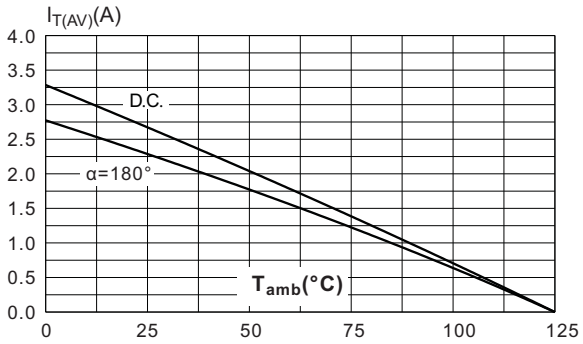


Fig.4 Relative variation of thermal impedance versus pulse duration.

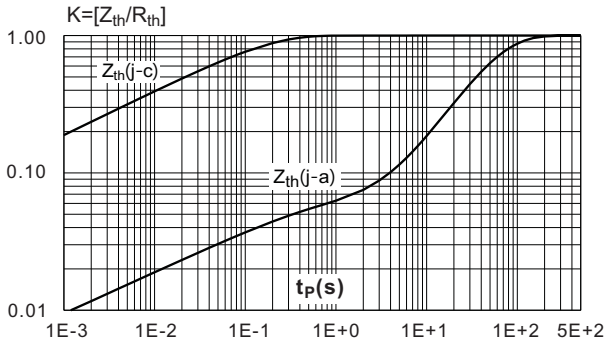


Fig.5 Relative variation of gate trigger current, holding current and latching current and latching current versus junction temperature.

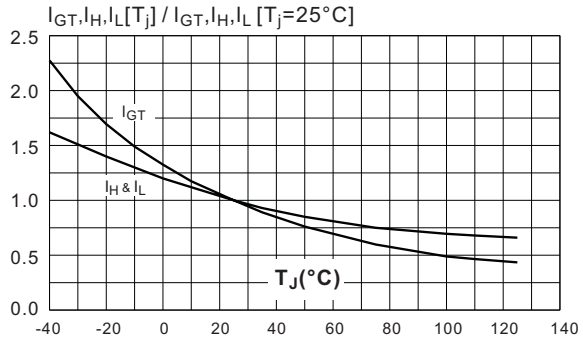


Fig.6 Surge peak on-state current versus number of cycles.

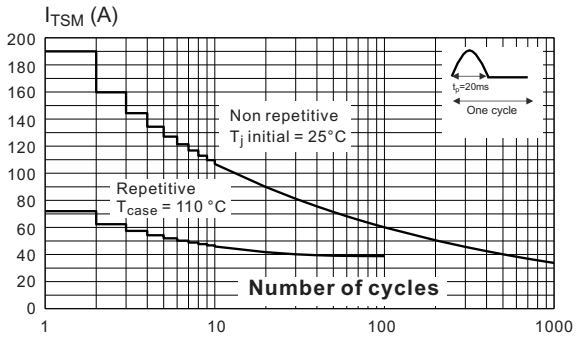


Fig.7 Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10 ms, and corresponding values of I^2t

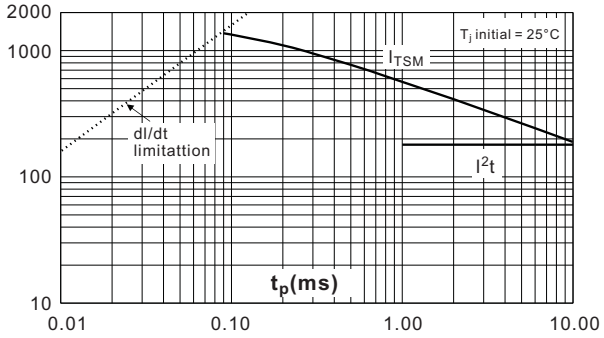


Fig.8 On-state characteristics (maximum values)

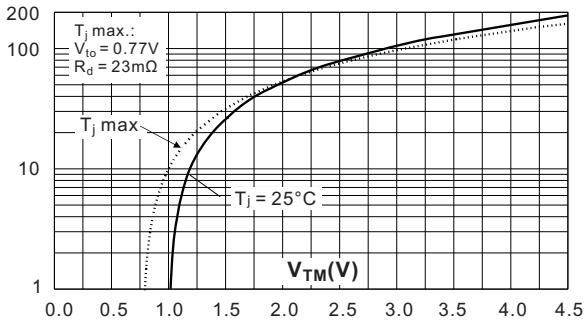
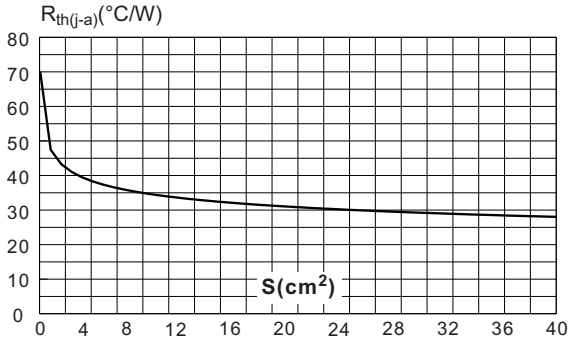
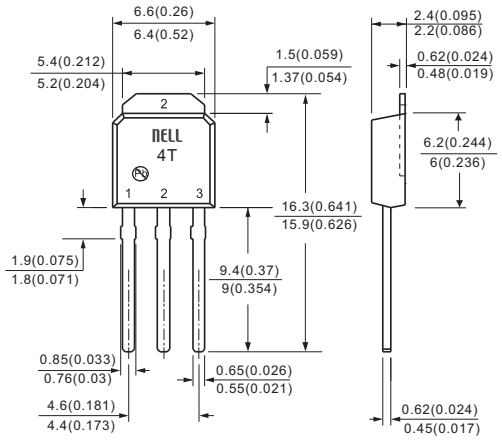


Fig.9 Thermal resistance junction to ambient versus copper surface under tab (epoxy printed circuit board Fr4, copper thickness:35 µm)(D^2PAK)

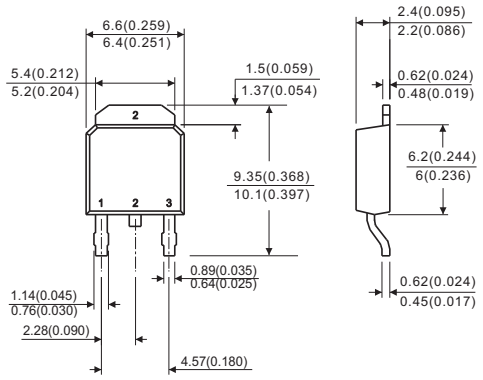


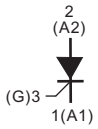
Case Style

TO-251
(I-PAK)



TO-252
(D-PAK)

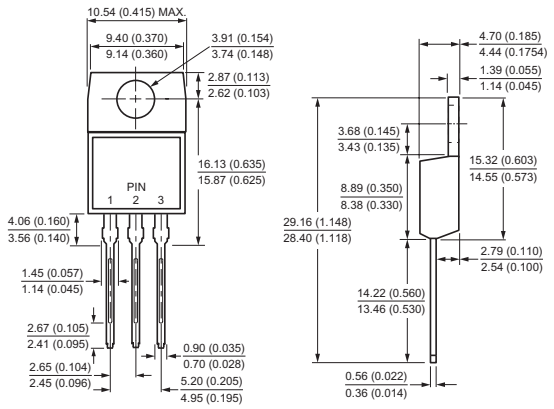




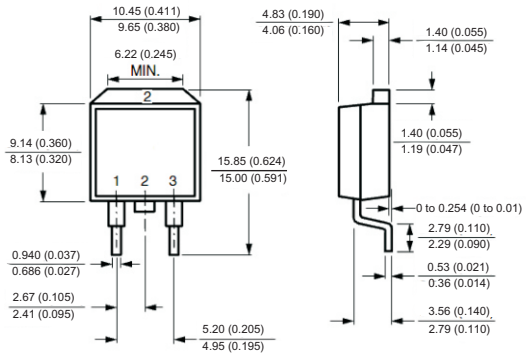
All dimensions in millimeters(inches)

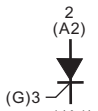
Case Style

TO-220AB



TO-263(D^2PAK)





All dimensions in millimeters(inches)