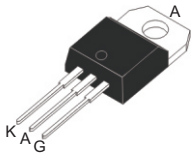
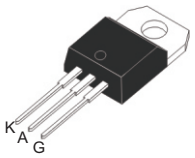
Stansard SCRs, 40A

Main Features

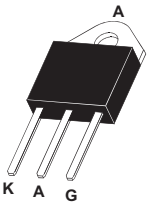
Symbol	Value	Unit
$I_{T(RMS)}$	40	A
V_{DRM}/V_{RRM}	600 to 1600	V
I_{GT}	4 to 60	mA



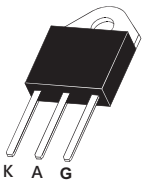
TO-220AB **(non-Insulated)**
(40PTxxA)



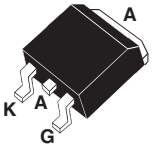
TO-220AB **(Insulated)**
(40PTxxAI)



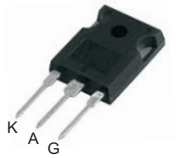
TO-3P (**non-Insulated)**
(40PTxxB)



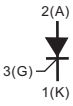
TO-3P (**Insulated)**
(40PTxxBI)



TO-263 (**D^2PAK)**
(40PTxxH)



TO-247AB **(non-Insulated)**
(40PTxxC)



DESCRIPTION

The 40PT series of silicon controlled rectifiers are high performance glass passivated technology, and are suitable for general purpose applications, where in-rush current conditions are critical such as overvoltage crowbar protection circuits in power supplies, in-rush current limiting circuits, solid state relay in back to back configuration, welding equipment and high power motor control.

Base on a clip assembly technology, they offer 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-3P/TO-247AB	T_c=95°C	40	A
		TO-220AB/TO-263	T_c=90°C		
		TO-220AB insulated/TO-3P insulated	T_c=80°C		
Average on-state current (180° conduction angle)	$I_{T(AV)}$	TO-3P/TO-247AB	T_c=95°C	25	A
		TO-220AB/TO-263	T_c=90°C		
		TO-220AB insulated/TO-3P insulated	T_c=80°C		
Non repetitive surge peak on-state current (full cycle, T_j initial = 25°C)	I_{TSM}	F =50 Hz	t = 20 ms	460	A
		F =60 Hz	t = 16.7 ms	480	
I^2t Value for fusing	I^2t	t_p = 10 ms		1058	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 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	
Maximum peak reverse gate voltage	V_{RGM}			5	V

ELECTRICAL SPECIFICATIONS (T_J = 25 ºC unless otherwise specified)

SYMBOL	TEST CONDITIONS			40PT06XX 40PT08XX	40PT10XX 40PT12XX	40PT16XX	Unit
I_{GT}	V_D = 12V, R_L = 33Ω		Min.	4	15	30	mA
			Max.	30	40	60	
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.	60	80	100	mA
I_L	$I_G = 1.2 \times I_{GT}$		Max.	80	100	150	mA
dV/dt	V_D = 67% V_{DRM}, Gate open	T_j = 125°C	Min.	700	1000	1000	V/μs
V_{TM}	I_T = 80A, t_P = 380μs	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 = 125°C	Max.	4			mA
V_{to}	Threshold Voltage	T_j = 125°C	Max.	0.85			V
R_d	Dynamic Resistance	T_j = 125°C	Max.	10			mΩ

THERMAL RESISTANCE

SYMBOL	Parameter			VALUE	UNIT
$R_{th(j-c)}$	Junction to case (DC)		D^2PAK/TO-220AB/TO-3P/TO-247AB	0.8	°C/W
			TO-220AB insulated/TO-3P insulated	0.9	
$R_{th(j-a)}$	Junction to ambient	S = 1 cm^2	TO-263(D^2PAK)	45	°C/W
			TO-220AB/TO-220AB insulated	60	
			TO-3P/TO-247AB/TO-3P insulated	50	

S=Copper surface under tab

PRODUCT SELECTOR

PART NUMBER	VOLTAGE (xx)					SENSITIVITY	PACKAGE
	600 V	800 V	1000 V	1200 V	1600 V		
40PTxxA/40PTxxAI	V	V	V	V	V	35 mA	TO-220AB
40PTxxH	V	V	V	V	V	35 mA	D^2PAK
40PTxxB/40PTxxBI	V	V	V	V	V	35 mA	TO-3P
40PTxxC	V	V	V	V	V	35 mA	TO-247AB

ORDERING INFORMATION

ORDERING TYPE	MARKING	PACKAGE	WEIGHT	BASE Q'TY	DELIVERY MODE
40PTxxA	40PTxxA	TO-220AB	2.0g	50	Tube
40PTxxAI	40PTxxAI	TO-220AB (insulated)	2.3g	50	Tube
40PTxxH	40PTxxH	TO-263(D^2PAK)	2.0g	50	Tube
40PTxxB	40PTxxB	TO-3P	4.3g	30	Tube
40PTxxBI	40PTxxBI	TO-3P insulated	4.8g	30	Tube
40PTxxC	40PTxxC	TO-247AB	5g	30	Tube

Note: xx = voltage

ORDERING INFORMATION SCHEME

40 PT 06 AI

Current

40 = 40A, $I_{T(RMS)}$

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)
B = TO-3P (non-insulated)
BI = TO-3P (insulated)
C = TO-247AB
H = TO-263 (D^2PAK)

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

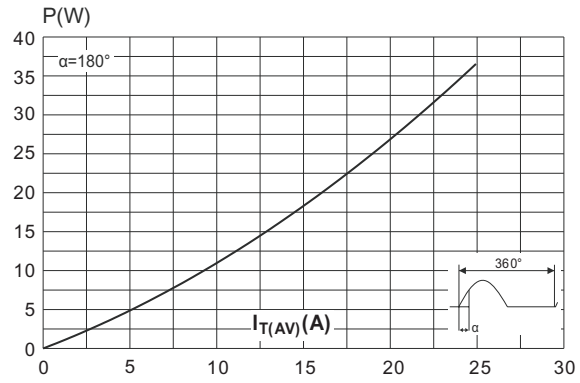


Fig.2 RMS on-state current versus case temperature.

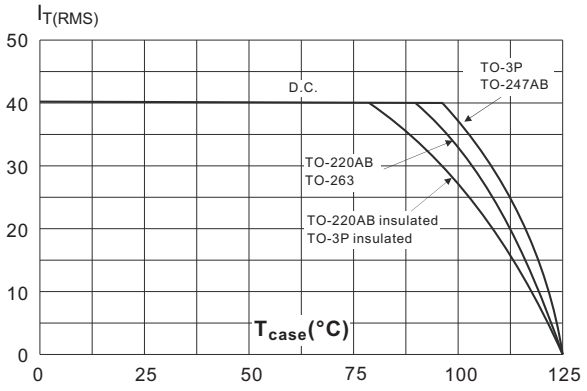


Fig.3 Relative variation of thermal impedance versus pulse duration.

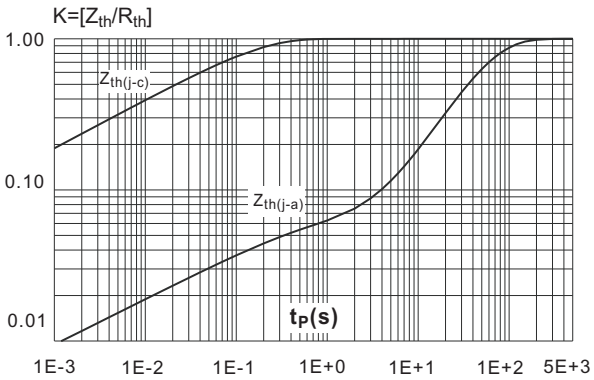


Fig.4 Relative variation of gate trigger current, holding current and latching current versus junction temperature.

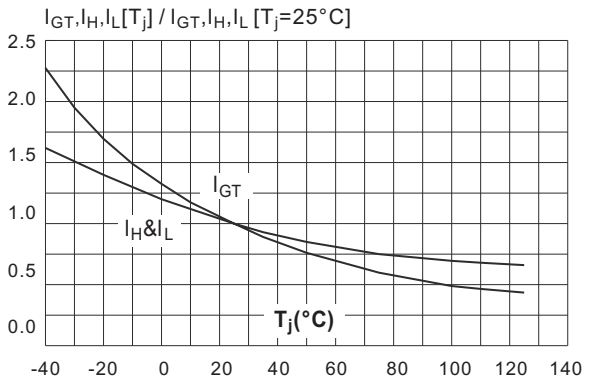


Fig.5 Surge peak on-state current versus number of cycles.

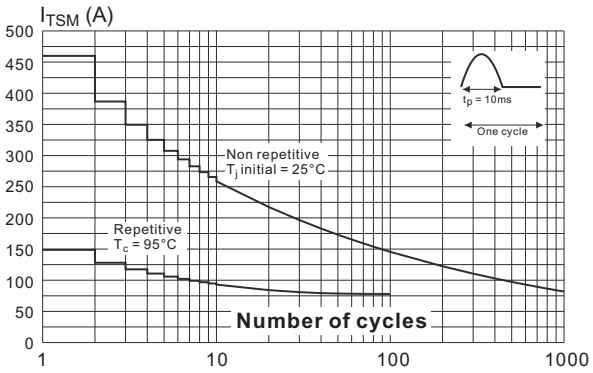


Fig.6 Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10 ms, and corresponding values of I^2t .

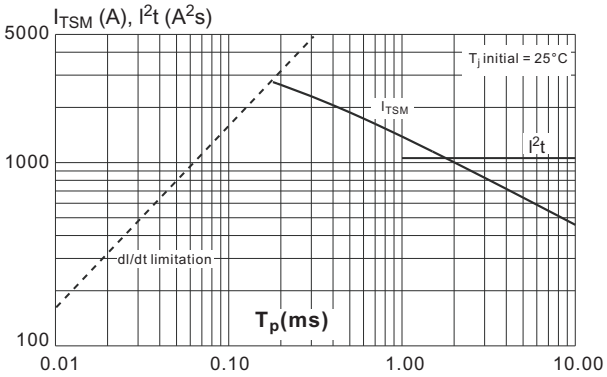
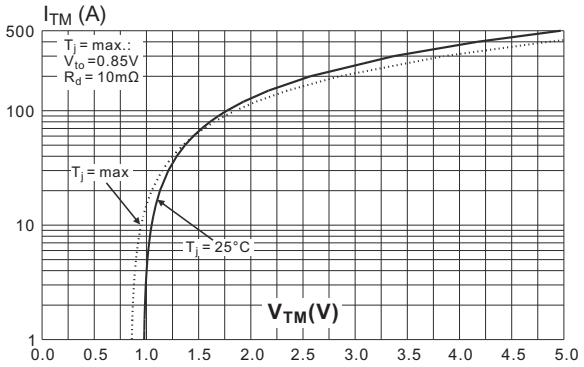
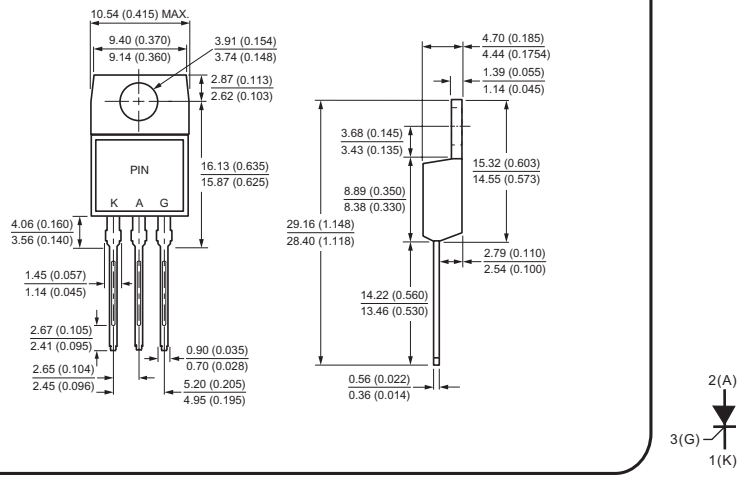


Fig.7 On-state characteristics (maximum values)



Case Style

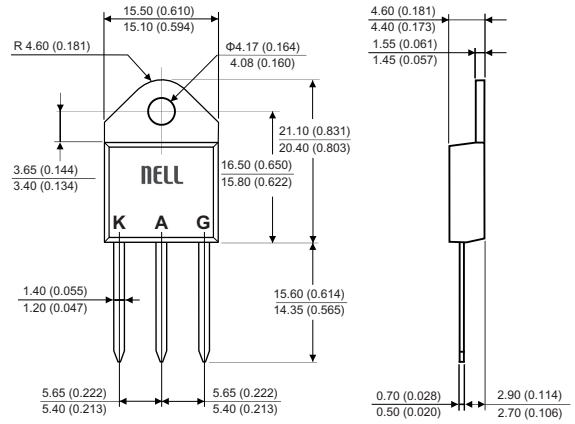
TO-220AB



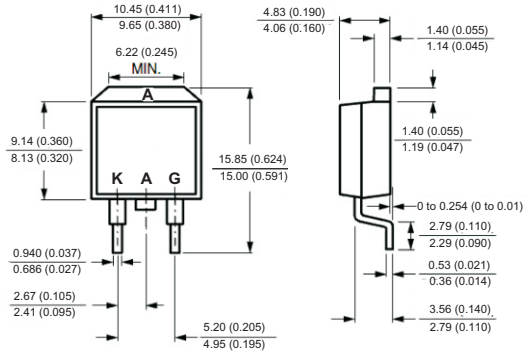
All dimensions in millimeters(inches)

Case Style

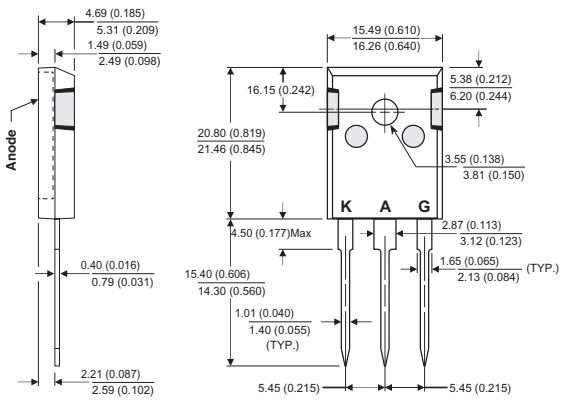
TO-3P

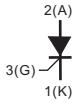


TO-263(D²PAK)



TO-247AB





All dimensions in millimeters(inches)