

Sensitive gate SCRs, 2A

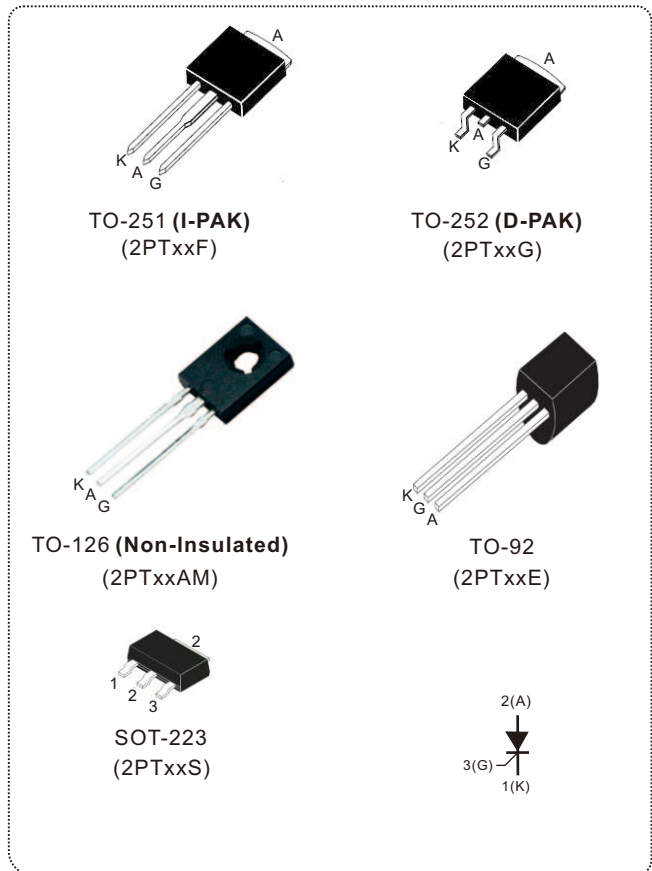
Main Features

Symbol	Value	Unit
$I_{T(RMS)}$	2	A
V_{DRM}/V_{RRM}	600 to 800	V
I_{GT}	10 to 200	μA

DESCRIPTION

Thanks to highly sensitive triggering levels, the 2PT series is suitable for all applications where the available gate current is limited, such as motor control for hand tools, kitchen aids, capacitive discharge ignitions, overvoltage crowbar protection for low power supplies among others.

Available in through-hole or surface-mount packages, they provide an optimized performance in a limited space area.



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	$T_c=90^\circ C$	2	A	
		TO-126/SOT-223	$T_c=80^\circ C$			
		TO-92	$T_c=63^\circ C$			
Average on-state current (180° conduction angle)	$I_{T(AV)}$	TO-251/TO-252	$T_c=90^\circ C$	1.28	A	
		TO-126/SOT-223	$T_c=80^\circ C$			
		TO-92	$T_c=63^\circ C$			
Non repetitive surge peak on-state current (full cycle, T_j initial = 25°C)	I_{TSM}	F = 50 Hz	t = 20 ms	20	A	
		F = 60 Hz	t = 16.7 ms	21		
I^2t Value for fusing	I^2t		$t_p = 10$ ms	2	A^2s	
Critical rate of rise of on-state current $I_G = 2xI_{GT}$, $t_r \leq 100ns$	di/dt	F = 60 Hz	$T_j = 110^\circ C$	50	A/ μs	
Peak gate current	I_{GM}	$T_p = 20 \mu s$	$T_j = 110^\circ C$	0.2	A	
Average gate power dissipation	$P_{G(AV)}$	$T_p = 20 \mu s$	$T_j = 110^\circ C$	0.1	W	
Repetitive peak off-state voltage	V_{DRM}	$T_j = 110^\circ C$		600 and 800	V	
Repetitive peak reverse voltage	V_{RRM}					
Storage temperature range	T_{stg}				- 40 to + 150	°C
Operating junction temperature range	T_j				- 40 to + 110	

ELECTRICAL SPECIFICATIONS (T _J = 25 °C unless otherwise specified)						
SYMBOL	TEST CONDITIONS		2PTxxxx	Unit		
I _{GT}	V _D = 12V, R _L = 33Ω		Min.	10	μA	
			Max.	200		
V _{GT}			Max.	0.8	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 = 50mA		Max.	5	mA	
I _L	I _G = 1.2 I _{GT}		Max.	6	mA	
dV/dt	V _D = 67% V _{DRM} , R _{GK} = 1KΩ, T _J = 110°C		Min.	10	V/μs	
V _{TM}	I _T = 4A, t _p = 380 μs	T _J = 25°C	Max.	1.5	V	
I _{DRM}	V _D =V _{DRM} , V _R =V _{R_{RRM}} , R _{GK} =1K		T _J = 25°C	Max.	5	μA
I _{RRM}			T _J = 110°C	Max.	100	μA

THERMAL RESISTANCE					
SYMBOL	Parameter		VALUE	UNIT	
R _{th(j-c)}	Junction to case		TO-252(D-PAK)/TO-251(I-PAK)	6.5	°C/W
			TO-126/SOT-223	7.0	
			TO-92	10	

PRODUCT SELECTOR				
PART NUMBER	VOLTAGE (xx)		SENSITIVITY	PACKAGE
	600 V	800 V		
2PTxxF-S	V	V	70~200 μA	I-PAK
2PTxxF-03	V	V	10~30 μA	I-PAK
2PTxxF-05	V	V	20~50 μA	I-PAK
2PTxxF-06	V	V	30~60 μA	I-PAK
2PTxxF-08	V	V	50~80 μA	I-PAK
2PTxxG-S	V	V	70~200 μA	D-PAK
2PTxxG-03	V	V	10~30 μA	D-PAK
2PTxxG-05	V	V	20~50 μA	D-PAK
2PTxxG-06	V	V	30~60 μA	D-PAK
2PTxxG-08	V	V	50~80 μA	D-PAK
2PTxxAM-S	V	V	70~200 μA	TO-126
2PTxxAM-03	V	V	10~30 μA	TO-126
2PTxxAM-05	V	V	20~50 μA	TO-126
2PTxxAM-06	V	V	30~60 μA	TO-126
2PTxxAM-08	V	V	50~80 μA	TO-126
2PTxxE-S	V	V	70~200 μA	TO-92
2PTxxE-03	V	V	10~30 μA	TO-92
2PTxxE-05	V	V	20~50 μA	TO-92
2PTxxE-06	V	V	30~60 μA	TO-92
2PTxxE-08	V	V	50~80 μA	TO-92
2PTxxS	V	V	10~200 μA	SOT-223

ORDERING INFORMATION					
ORDERING TYPE	MARKING	PACKAGE	WEIGHT	BASE Q'TY	DELIVERY MODE
2PTxxF-yy	2PTxxF-yy	TO-251(I-PAK)	0.40g	80	Tube
2PTxxG-yy	2PTxxG-yy	TO-252(D-PAK)	0.38g	80	Tube
2PTxxAM-yy	2PTxxAM-yy	TO-126	0.75g	500	Bag
2PTxxE-yy	2PTxxE-yy	TO-92	0.23g	500	Bag
2PTxxS-yy	2PTxxS-yy	SOT-223	0.24g	4000	7" T&R

Note: xx = voltage, yy = sensitivity

ORDERING INFORMATION SCHEME	
<p>2 PT 06 F - S</p>	<p>Current 2 = 2A, $I_{T(RMS)}$</p> <p>SCR series</p> <p>Voltage Code 06 = 600V 08 = 800V</p> <p>Package type E = TO-92 F = TO-251 (I-PAK) G = TO-252 (D-PAK) AM = TO-126 S = SOT-223</p> <p>IGT Sensitivity 03 = 10~30 μA 05 = 20~50 μA 06 = 30~60 μA 08 = 50~80 μA S = 70~200 μA Blank = 10~200 μA</p>

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

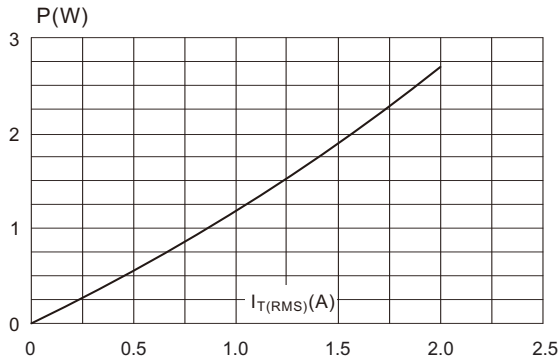


Fig.2 RMS on-state current versus case temperature

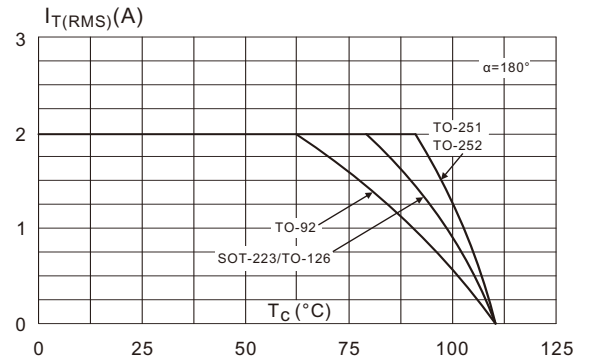


Fig.3 Surge peak on-state current versus number of cycles

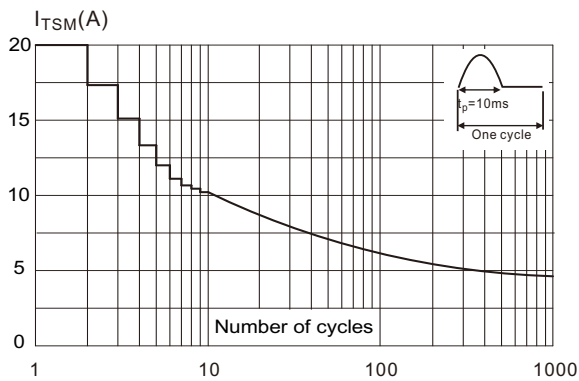


Fig.4 Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

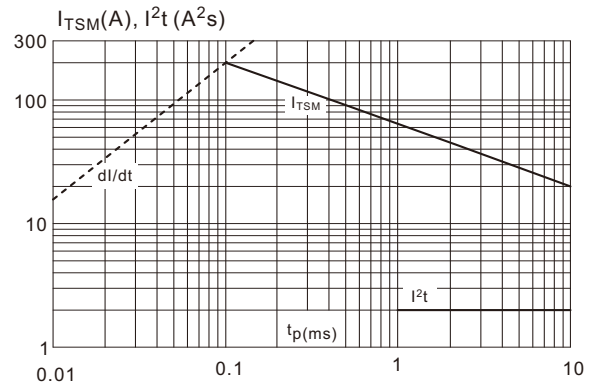


Fig.5 On-state characteristics (maximum values)

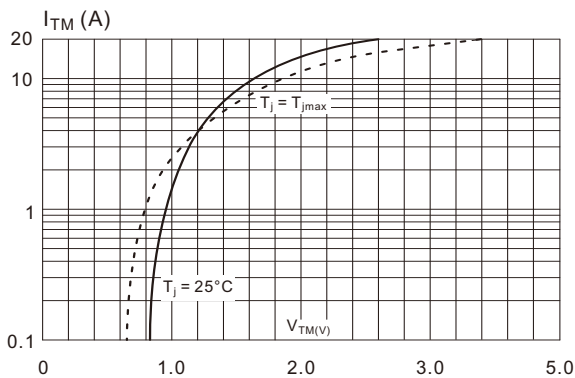
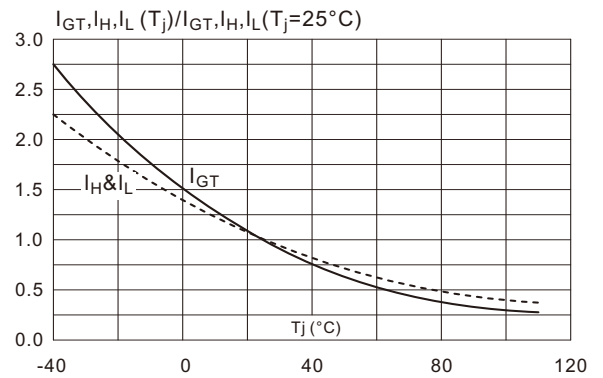
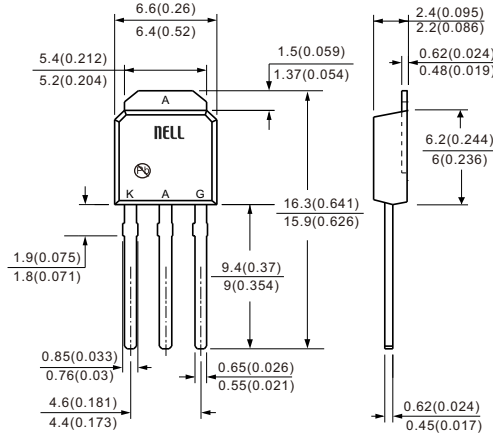


Fig.6 Relative variation of gate trigger current and holding current versus junction temperature

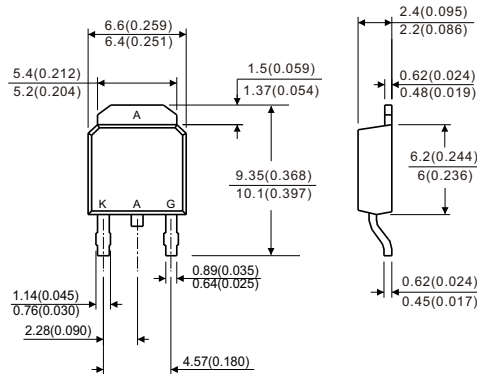


Case Style

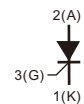
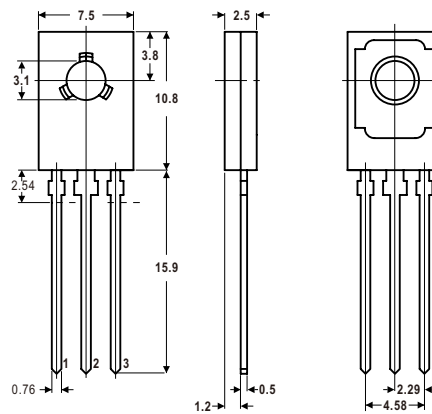
**TO-251
(I-PAK)**



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



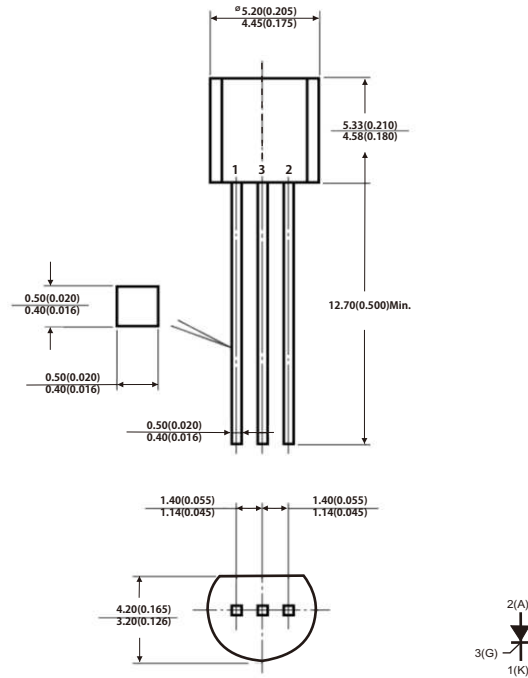
TO-126



All dimensions in millimeters(inches)

Case Style

TO-92



All dimensions in millimeters(inches)

SOT-223

