

DESCRIPTION:

With high ability to withstand the shock loading of large current, TYN810 series of silicon controlled rectifiers provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc.



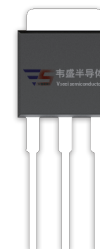
TO-220F



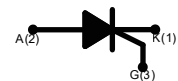
TO-220A

MAIN FEATURES

Symbol	Value	Symbol
V_{DRM}/V_{RRM}	600/800	V
$I_{T(RMS)}$	10	A
I_{GT}	≤ 10	mA



TO-251



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40-150	$^{\circ}\text{C}$
Operating junction temperature range		T_j	-40-150	$^{\circ}\text{C}$
Repetitive peak off-state voltage($T_j=25^{\circ}\text{C}$)		V_{DRM}	600/800	V
Repetitive peak reverse voltage($T_j=25^{\circ}\text{C}$)		V_{RRM}	600/800	V
Non repetitive surge peak Off-state voltage		V_{DSM}	$V_{DRM} + 100$	V
Non repetitive peak reverse voltage		V_{RSM}	$V_{RRM} + 100$	V
RMS on-state current	TO-251 ($T_C=120^{\circ}\text{C}$)	$I_{T(RMS)}$	10	A
	TO-220A(Non-Ins) ($T_C=125^{\circ}\text{C}$)			
	TO-220A(Ins) / TO-220F(Ins) ($T_C=110^{\circ}\text{C}$)			

Non repetitive surge peak on-state current (tp=10ms)	I_{TSM}	120	A
I^2t value for fusing (tp=10ms)	I^2t	72	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	50	$A/\mu s$
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	5	W

ELECTRICAL CHARACTERISTICS ($T_j=25^\circ C$ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12V$ $R_L=33\Omega$	-	-	10	mA
V_{GT}		-	-	1.5	V
V_{GD}	$V_D=V_{DRM}$ $T_j=150^\circ C$ $R_L=3.3K\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	40	mA
I_H	$I_T=500mA$	-	-	30	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=150^\circ C$	200	-	-	$V/\mu s$

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=20A$ $tp=380\mu s$	$T_j=25^\circ C$	1.55	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	5	μA
I_{RRM}		$T_j=150^\circ C$	1	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220A(Ins)	2.5	°C/W
		TO-220F(Ins)	2.8	
		TO-220A(Non-Ins) 1.4		
		TO-251	2.0	

FIG.1 Maximum power dissipation versus RMS on-state current

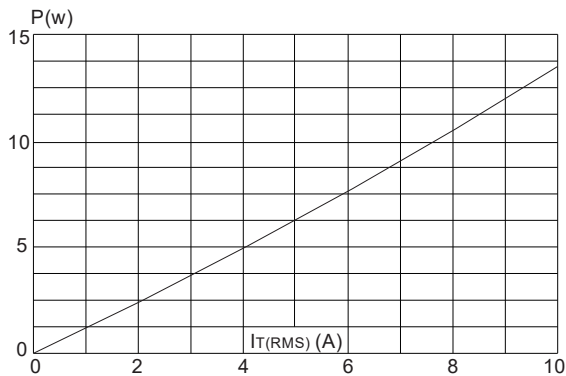


FIG.2: RMS on-state current versus case temperature

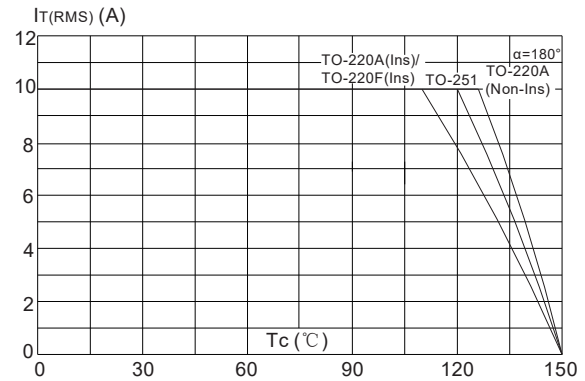


FIG.3: Surge peak on-state current versus number of cycles

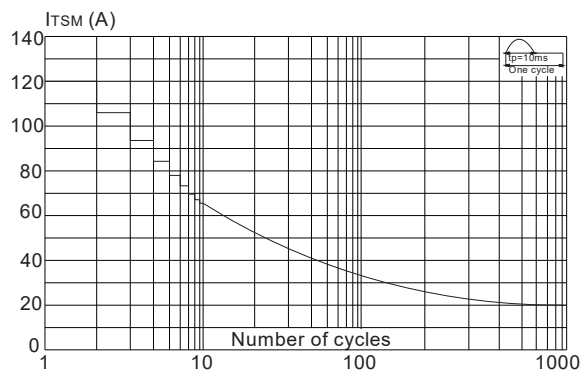


FIG.4: On-state characteristics (maximum values)

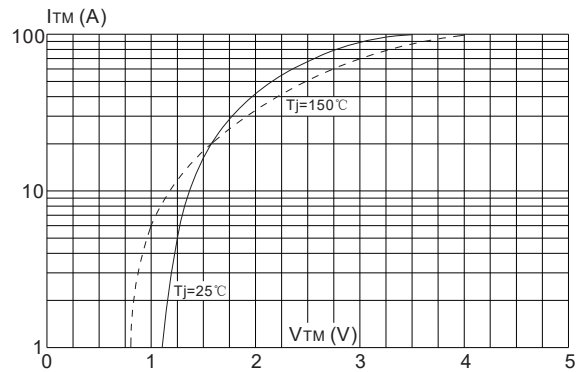


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $I^2 t$ ($di/dt < 50\text{A}/\mu\text{s}$)

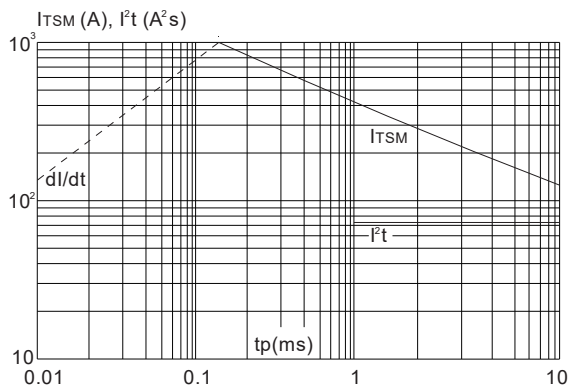


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

