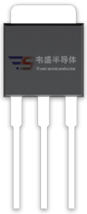
DESCRIPTION:

With high ability to withstand the shock loading of large current, T830-800W series triacs provide high dv/dt rate with strong resistance to electromagnetic interface. With high commutation performances, 3 quadrants products especially recommended for use on inductive load.

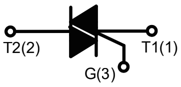

TO-251


TO-262


TO-220F


TO-220A


TO-220C



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	8	A
V_{DRM} /V_{RRM}	600/800/1200	V

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40 - 150	℃
Operating junction temperature range		T_j	-40 - 125	℃
Repetitive peak off-state voltage (T_j=25℃)		V_{DRM}	600/800/1200	V
Repetitive peak reverse voltage (T_j=25℃)		V_{RRM}	600/800/1200	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/TO-220C TO-220A(Non-Ins) (T_C=100℃)	$I_{T(RMS)}$	8	A
	TO-220A(Ins)/ TO-220F(Ins) (T_C=95℃)			
	TO-262 (T_C=90℃)			
Non repetitive surge peak on-state current (full cycle, F=50Hz)		I_{TSM}	80	A

I^2t value for fusing (tp=10ms)	I^2t	32	A^2s
Critical rate of rise of on-state current ($I_G=2\times I_{GT}$)	dI/dt	50	A/μs
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 ($T_j=25$℃ unless otherwise specified)

3 Quadrants

Symbol	Test Condition	Quadrant		Value				Unit
				TW	SW	CW	BW	
I_{GT}	$V_D=12V$ $R_L=33\Omega$	Ⅰ-Ⅱ-Ⅲ	MAX	5	10	35	50	mA
V_{GT}		Ⅰ-Ⅱ-Ⅲ	MAX	1.5				V
V_{GD}	$V_D=V_{DRM}$ $T_j=125$℃ $R_L=3.3K\Omega$	Ⅰ-Ⅱ-Ⅲ	MIN	0.2				V
I_L	$I_G=1.2I_{GT}$	Ⅰ-Ⅲ	MAX	20	25	50	70	mA
		Ⅱ		25	35	70	90	
I_H	$I_{TM}=100mA$		MAX	15	20	40	60	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125$℃		MIN	50	200	500	1000	V/μs

4 Quadrants

Symbol	Test Condition	Quadrant		Value		Unit
				C	B	
I_{GT}	$V_D=12V$ $R_L=33\Omega$	Ⅰ-Ⅱ-Ⅲ	MAX	25	50	mA
		Ⅳ		50	70	
V_{GT}		ALL	MAX	1.5		V
V_{GD}	$V_D=V_{DRM}$ $T_j=125$℃ $R_L=3.3K\Omega$	ALL	MIN	0.2		V
I_L	$I_G=1.2I_{GT}$	Ⅰ-Ⅲ-Ⅳ	MAX	50	70	mA
		Ⅱ		70	90	
I_H	$I_{TM}=200mA$		MAX	40	60	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125$℃		MIN	200	500	V/μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	I_{TM} =11A tp=380μs	T_j=25℃	1.5	V
I_{DRM}	V_D =V_{DRM} V_R =V_{RRM}	T_j=25℃	5	μA
I_{RRM}		T_j=125℃	1	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-251	2.1	℃/W
		TO-220A(Ins)	2.7	
		TO-220C/ TO-220A(Non-Ins)	1.8	
		TO-220F(Ins)	2.9	
		TO-262	3.0	

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

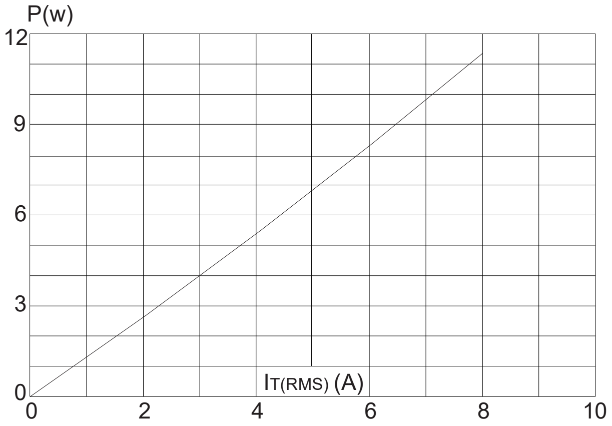


FIG.2: RMS on-state current versus case temperature

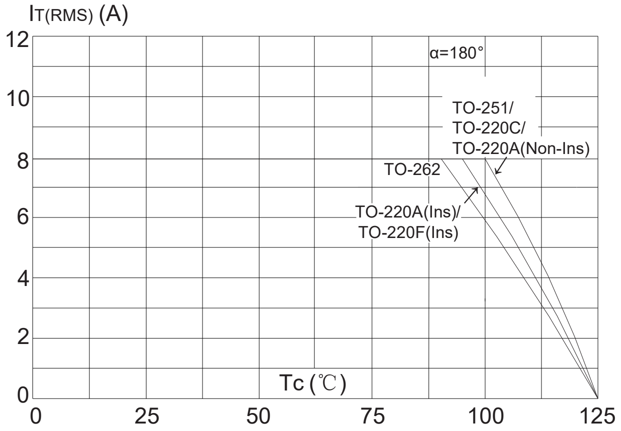


FIG.3: Surge peak on-state current versus number of cycles

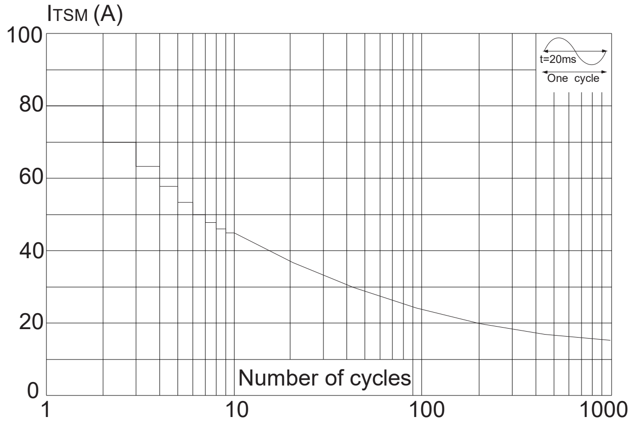


FIG.4: On-state characteristics (maximum values)

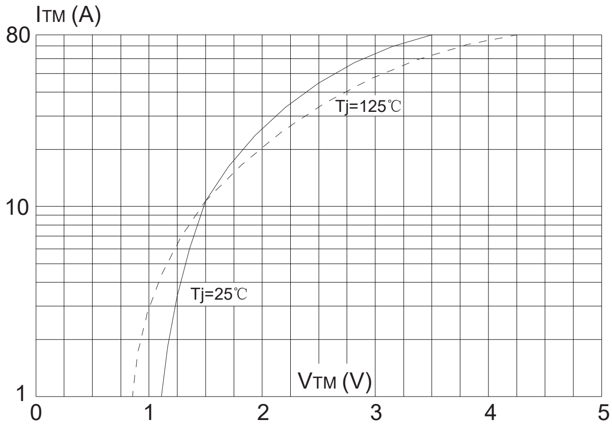


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of I^2t (dI/dt < 50A/μs)

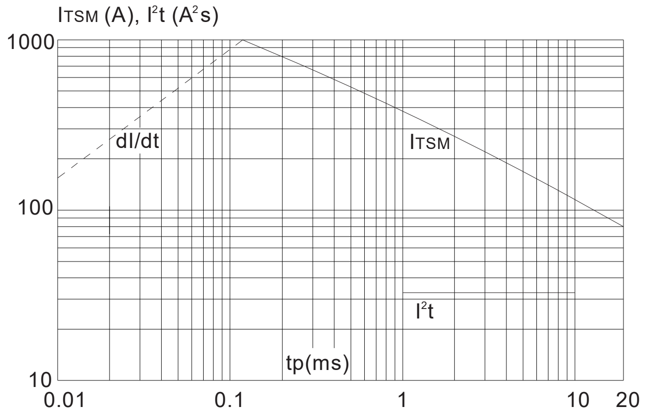


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature