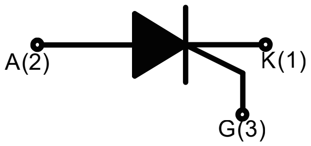
DESCRIPTION:

With high ability to withstand the shock loading of large current, TN1215-800B 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-263

TO-252



MAIN FEATURES

Symbol	JCT612	JCT812
V_{DRM}/ V_{RRM}	600V	800V
$I_{T(RMS)}$	12A	
I_{GT}	≤15mA	

ABSOLUTE MAXIMUM RATINGS

Parameter		**Symbol**	**Value**	**Unit**
Storage junction temperature range		T_{stg}	-40-150	℃
Operating junction temperature range		T_j	-40-150	℃
Repetitive peak off-state voltage(T_j=25℃)		V_{DRM}	600/800	V
Repetitive peak reverse voltage(T_j=25℃)		V_{RRM}	600/800	V
RMS on-state current	TO-252 (T_C=110℃)	$I_{T(RMS)}$	12	A
	TO-263(T_C=95 ℃)			
Non repetitive surge peak on-state current (tp=10ms)		I_{TSM}	140	A
I^2t value for fusing (tp=10ms)		I^2t	98	A^2s
Critical rate of rise of on-state current (I_G=2×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)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	V_D=12V R_L=33Ω	-	-	15	mA
V_{GT}		-	-	1.5	V
V_{GD}	V_D=V_{DRM} T_j=150℃ R_L=3.3KΩ	0.2	-	-	V
I_L	I_G=1.2I_{GT}	-	-	60	mA
I_H	I_T=500mA	-	-	50	mA
dV/dt	V_D=2/3V_{DRM} Gate Open T_j=150℃	200	-	-	V/μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	I_{TM}=24A tp=380μs	T_j=25℃	1.55	V
I_{DRM}	V_D=V_{DRM} V_R=V_{RRM}	T_j=25℃	5	μA
I_{RRM}		T_j=150℃	2	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j\text{-}c)}$	junction to case(AC)	TO-252 1.8		℃/W
		TO-263	2.8	
$R_{th(j\text{-}a)}$	junction to ambient	TO-252 70		℃/W
		TO-263	45	

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

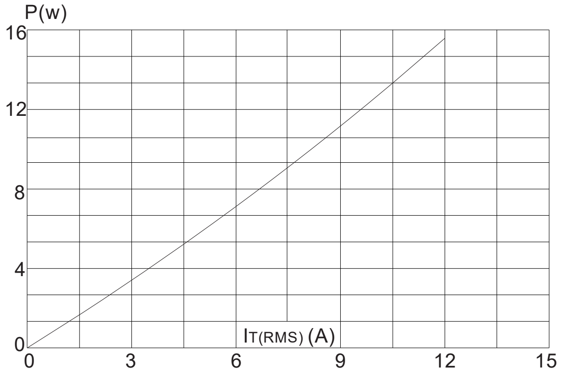


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4,copper thickness:35μm)(full cycle)

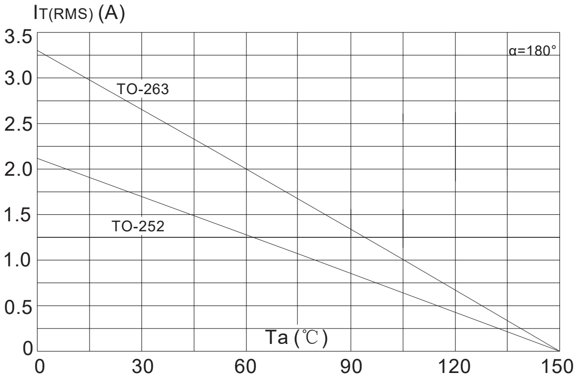


FIG.3: Surge peak on-state current versus number of cycles

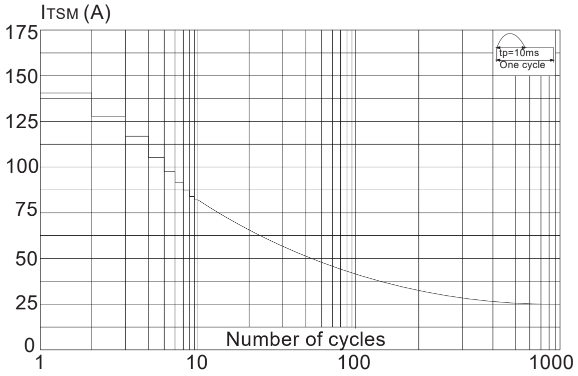


FIG.4: On-state characteristics (maximum values)

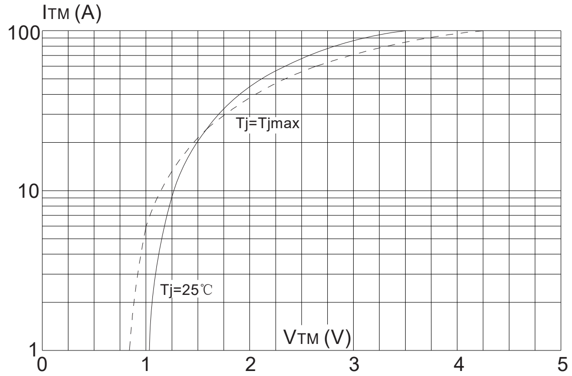


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponging value of I^2t (dI/dt < 50A/µs)

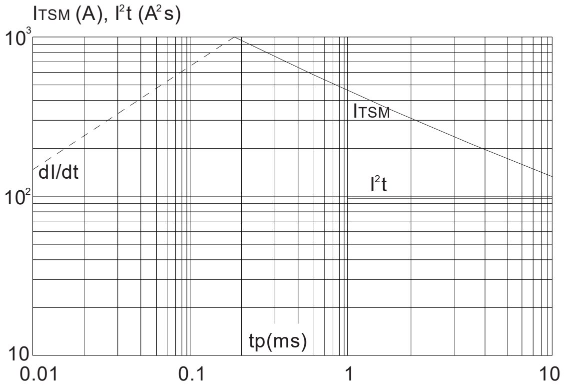
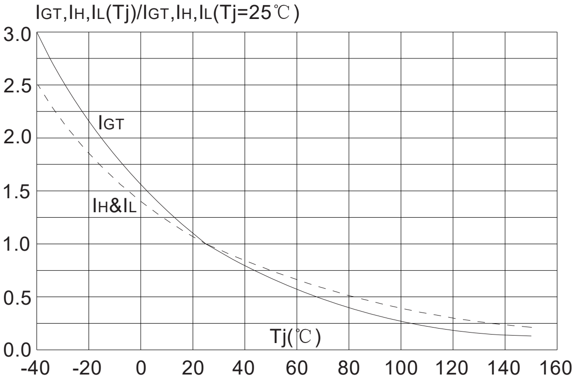


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L)to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L) (Liquidus)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃