



JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD
TO-252-2LK Plastic-Encapsulate Thyristors

CR812D Standard SCRs

MAIN CHARACTERISTICS

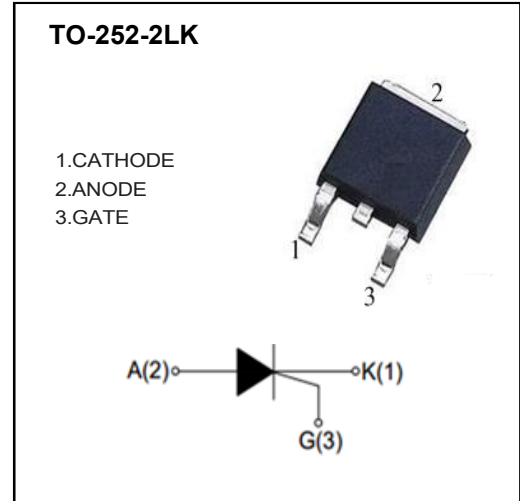
$I_{T(AV)}$	8A
V_{DRM}/V_{RRM}	800V
V_{TM}	1.6V

FEATURES

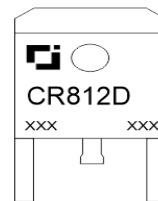
- PNP 4-layer Structure SCRs
- Mesa Glass Passivated Technology
- Multi Layers Metal Electrodes

APPLICATIONS

- LED Controller
- Motorcycle Voltage Regulator
- Hair Straightener



MARKING



CR812D:Part Number
 XXX:Internal Code

ABSOLUTE RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test condition	Value	Unit
V_{DRM}/V_{RRM}	Repetitive peak off-state voltage	$T_j=25^\circ\text{C}$	800	V
$I_{T(AV)}$	Average on-state current	TO-252-2LK ($T_c \leq 97^\circ\text{C}$)	8	A
$I_{T(RMS)}$	RMS on-state current	TO-252-2LK ($T_c \leq 97^\circ\text{C}$), Fig. 1,2	12	A
I_{TSM}	Non repetitive surge peak on-state current	Full sine wave, $T_j(\text{init})=25^\circ\text{C}$, $t_p=20\text{ms}$; Fig. 3,5	120	A
I^2t	I^2t value	$t_p=10\text{ms}$	72	A^2s
di_T/dt	Critical rate of rise of on-state current	$I_G=2 \cdot I_{GT}$, $t_r \leq 10\text{ns}$, $F=120\text{Hz}$, $T_j=125^\circ\text{C}$	50	$\text{A}/\mu\text{s}$
I_{GM}	Peak gate current	$t_p=20\mu\text{s}$, $T_j=125^\circ\text{C}$	2	A
$P_{G(AV)}$	Average gate power	$T_j=125^\circ\text{C}$	0.5	W
T_{STG}	Storage temperature		-40~+150	°C
T_j	Operating junction temperature		-40~+125	

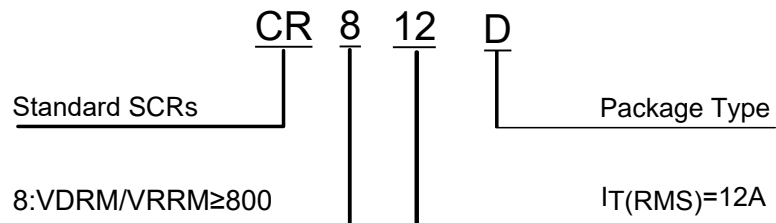
ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

Symbol	Parameter	Test condition	Value			Unit
			Min	Nom	Max	
I _{GT}	Gate trigger current	V _D =12V, R _L =33Ω, T _j =25°C, Fig. 6	-	-	15	mA
V _{GT}	Gate trigger voltage	V _D =12V, R _L =33Ω, T _j =25°C	-	-	1.0	V
V _{GD}	Non-triggering gate voltage	V _D =V _{DRM} , R _L =3.3kΩ, T _j =125°C	0.2	-	-	V
I _H	Holding current	I _T =500mA, T _j =25°C,	-	-	30	mA
I _L	Latching current	I _G =1.2I _{GT} , T _j =25°C,	-	-	40	mA
dV _D /dt	Critical rate of rise of off-state	V _D =67%V _{DRM} , Gate OPEN, T _j =125°C	200	-	-	V/μs
V _{TM}	On-state Voltage	I _{TM} =24A, Fig. 4	-	-	1.6	V
I _{DRM} / I _{RRM}	Repetitive peak off-state current	V _D =V _{DRM} /V _R RM, T _j =25°C	-	-	5	μA
		V _D =V _{DRM} /V _R RM, T _j =125°C	-	-	1	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (j-c)	Junction to case (AC)	TO-252-2LK	1.8 °C/W
R _{th} (j-a)	Junction to ambient	TO-252-2LK	70 °C/W

PART NUMBER



CHARACTERISTICS CURVES

FIG.1: Maximum power dissipation versus RMS on-state current (full cycle)

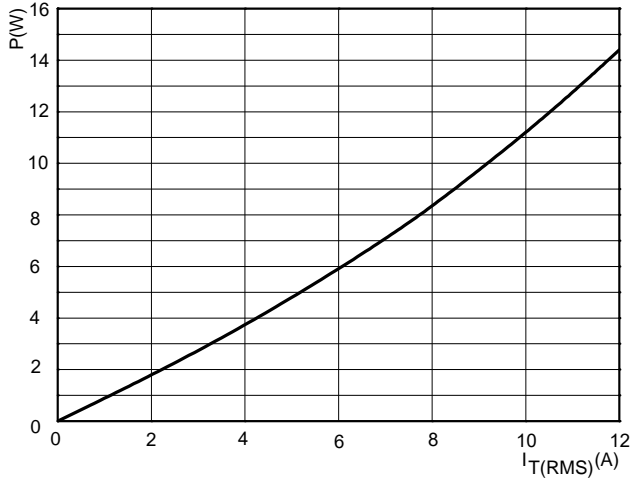


FIG.2: RMS on-state current versus case temperature (full cycle)

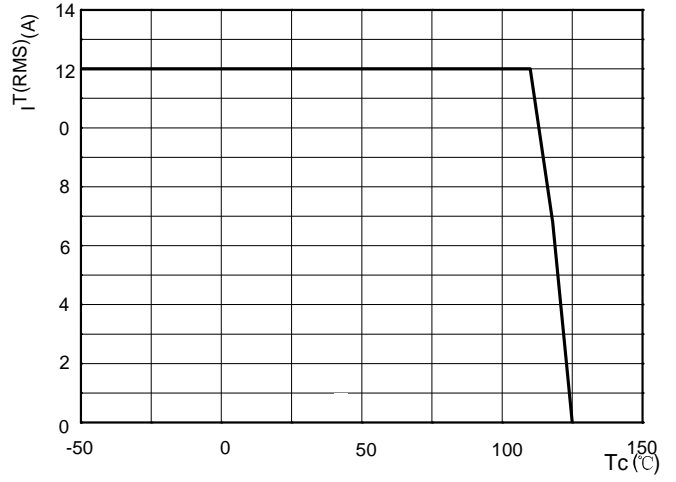


FIG.3: Surge peak on-state current versus number of cycles

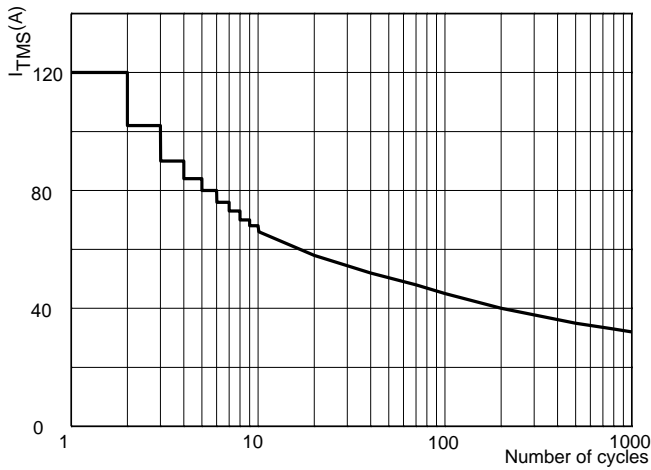


FIG.4: On-state characteristics (maximum values)

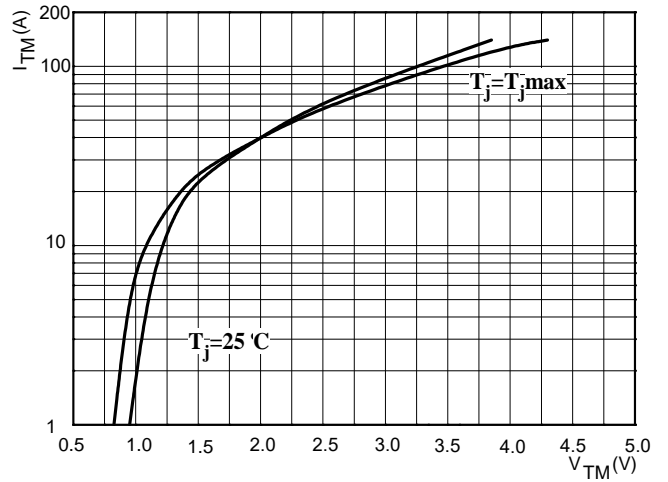


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

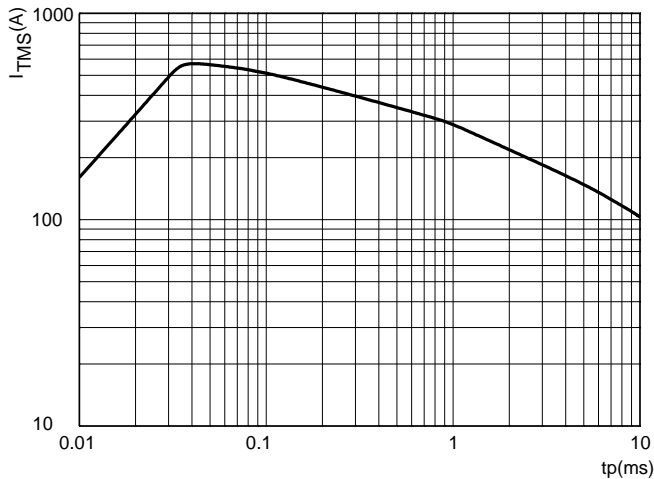
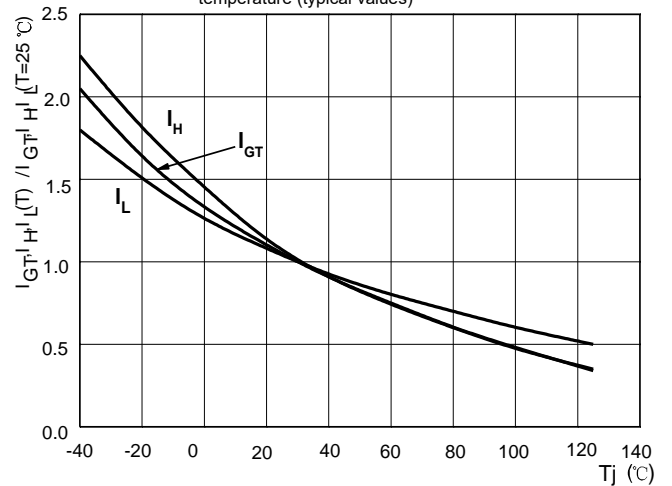
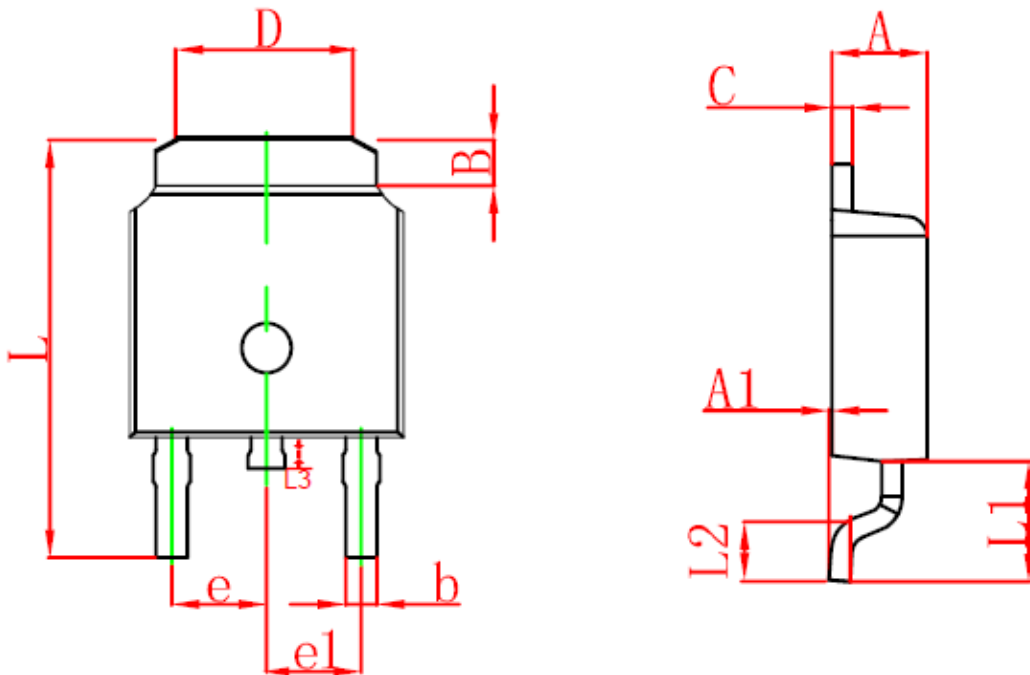


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



TO-252-2LK PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	2.100	2.500
A1	0.000	0.127
B	1.070	1.470
b	0.710	0.810
C	0.700	0.900
D	3.400	3.800
e	2.250	2.350
e1	2.250	2.350
L	10.000	10.400
L1	2.600	3.000
L2	1.400	1.700
L3	0.600	1.000

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