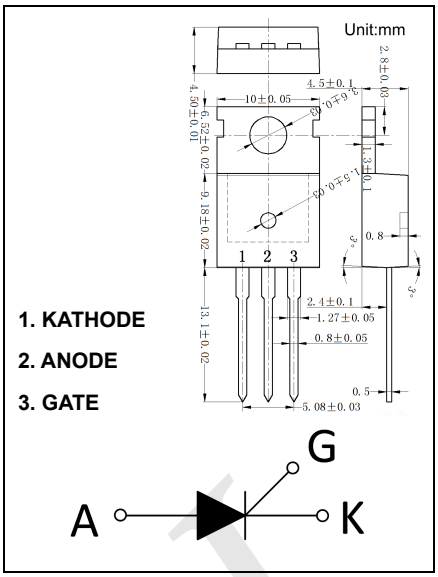
TO-220 Plastic-Encapsulate Thyristors

ALJCT610

10A Silicon Controlled Rectifier



Description

ALJCT610 series of silicon controlled rectifiers, with high ability to withstand the shock loading of large current, 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.

ALJCT610A provides insulation voltage rated at 2500V RMS and ALJCT610F provides insulation voltage rated at 2000V RMS from all three terminals to external heatsink.

Maximum Ratings (T_j=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
$I_{T(RMS)}$	RMS on-state current	10	A
I_{TSM}	Non repetitive surge peak on-state current(t_p=10ms)	120	A
V_{DRM}	Repetitive peak off-state voltage	500	V
V_{RRM}	Repetitive peak reverse voltage	500	V
I^2t	I^2t value for fusing (tp=10ms)	72	A^2s
dI/dt	Critical rate of rise of on-state current(I_G = 2×I_{GT})	50	A/μs
I_{GM}	Peak gate current	4	A
$P_{G(AV)}$	Average gate power dissipation	1	W
P_{GM}	Peak gate power	5	W
T_j	Junction Temperature	-40 ~ 125	°C
T_{stg}	Storage Temperature	-40 ~ 150	°C

Thermal Resistances

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	junction to case	4.8	°C/W

Electrical Characteristics (T_j=25°C unless otherwise specified)

Symbol	Test Conditions		Min	Typ	Max	Unit
I_{GT}	V_D = 12V, R_L = 33Ω				10	mA
V_{GT}					1.5	V
V_{GD}	V_D = V_{DRM}, T_j = 125°C, R_L = 3.3KΩ		0.2			V
I_L	I_G = 1.2I_{GT}				25	mA
I_H	I_T = 500mA				15	mA
dV/dt	V_D = 2/3V_{DRM}, Gate Open T_j = 125°C		50			V/μs
V_{TM}	I_{TM} = 20A, tp = 380μs				1.55	V
I_{DRM}	V_D = V_{DRM}	T_j = 25°C			5	μA
I_{RRM}	V_R = V_{RRM}	T_j = 125°C			1	mA

Typical Characteristics

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

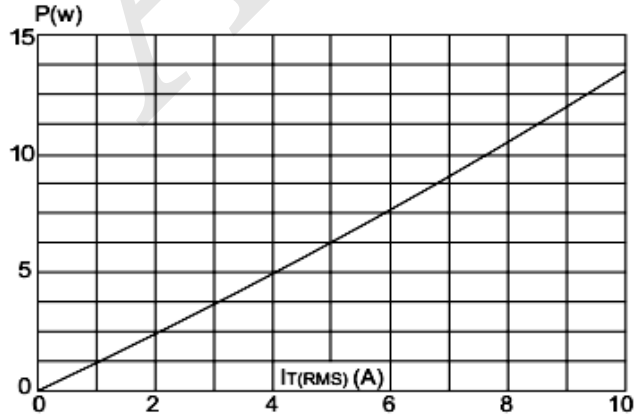


FIG.2: RMS on-state current versus case temperature

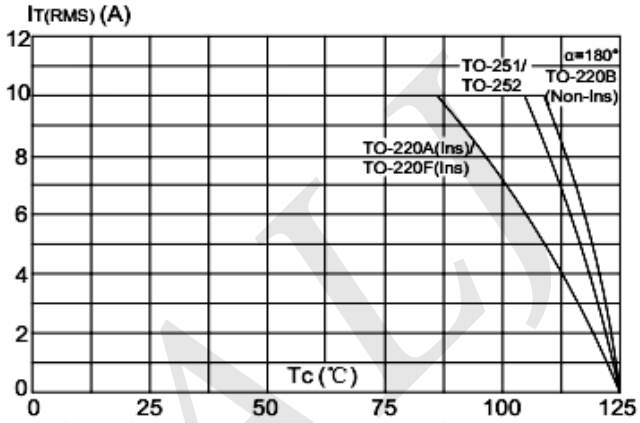


FIG.3: Surge peak on-state current versus number of cycles

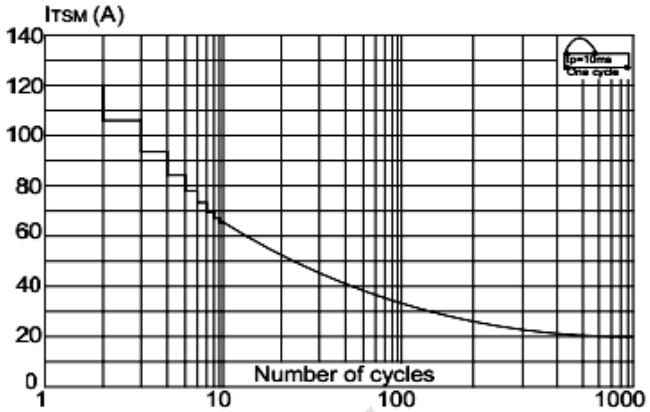


FIG.4: On-state characteristics (maximum values)

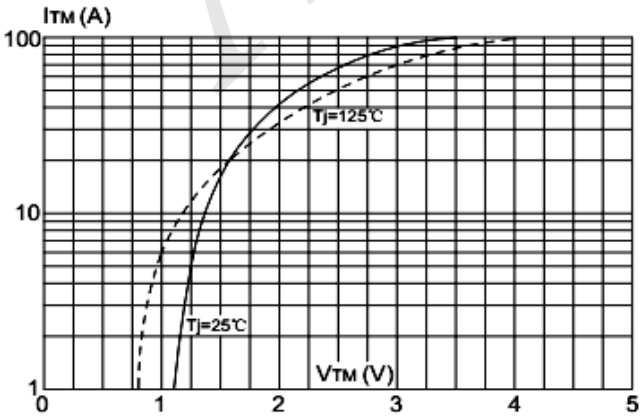


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponging value of I^2t (dI/dt < 50A/μs)

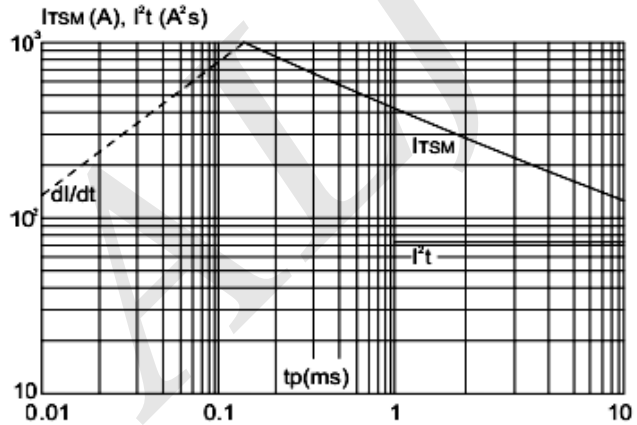


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature