

TO-220 Plastic-Encapsulate Thyristors

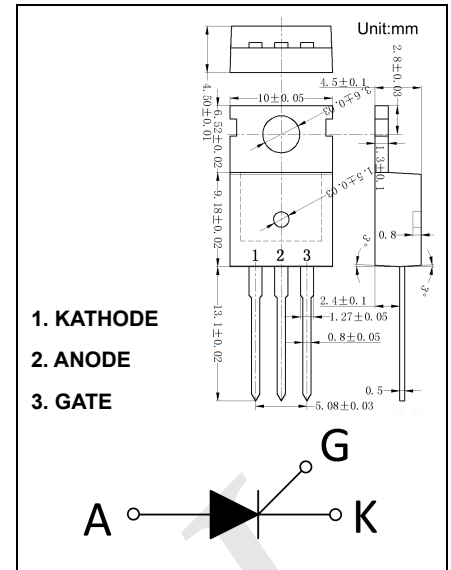
ALJCT616

10A Silicon Controlled Rectifier

Description

ALJCT616 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.

ALJCT616A provides insulation voltage rated at 2500V RMS and ALJCT616F 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	16	A
I _{TSM}	Non repetitive surge peak on-state current(t _p =10ms)	190	A
V _{DRM}	Repetitive peak off-state voltage	500	V
V _{RRM}	Repetitive peak reverse voltage	500	V
V _{DSM}	Non repetitive surge peak Off-state voltage	V _{DRM} +100	V
V _{RSM}	Non repetitive peak reverse voltage	V _{RRM} +100	V
I ² t	I ² t value for fusing (t _p =10ms)	180	A ² s
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 _{θJC}	junction to case	2.3	°C/W

Electrical Characteristics ($T_j=25^\circ\text{C}$ unless otherwise specified)

Symbol	Test Conditions	Min	Typ	Max	Unit
I_{GT}	$V_D = 12\text{V}, R_L = 33\Omega$			15	mA
V_{GT}				1.3	V
V_{GD}	$V_D = V_{DRM}, T_j = 125^\circ\text{C}, R_L = 3.3\text{K}\Omega$	0.2			V
I_L	$I_G = 1.2I_{GT}$			60	mA
I_H	$I_T = 500\text{mA}$			40	mA
dV/dt	$V_D = 2/3V_{DRM}, \text{Gate Open } T_j = 125^\circ\text{C}$	500			V/ μs
V_{TM}	$I_{TM} = 32\text{A}, t_p = 380\mu\text{s}$			1.6	V
I_{DRM}	$V_D = V_{DRM}$	$T_j = 25^\circ\text{C}$		5	μA
I_{RRM}	$V_R = V_{RRM}$	$T_j = 125^\circ\text{C}$		2	mA

Typical Characteristics

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

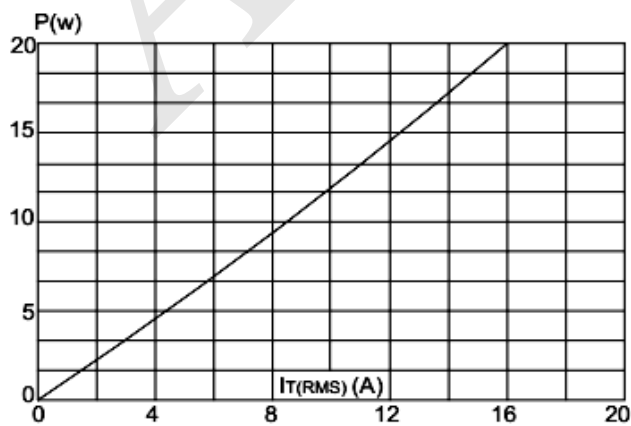


FIG.3: Surge peak on-state current versus number of cycles

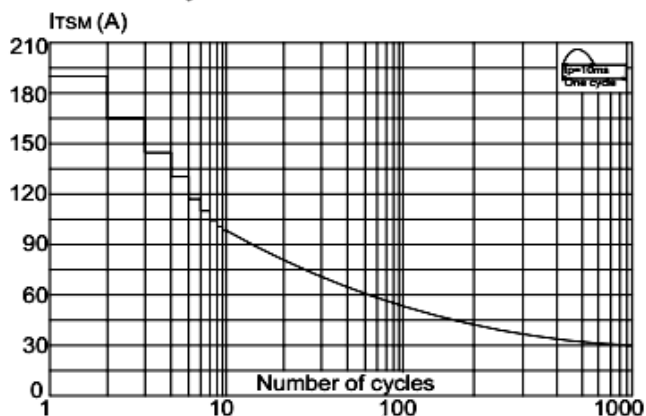


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($dI/dt < 50\text{A}/\mu\text{s}$)

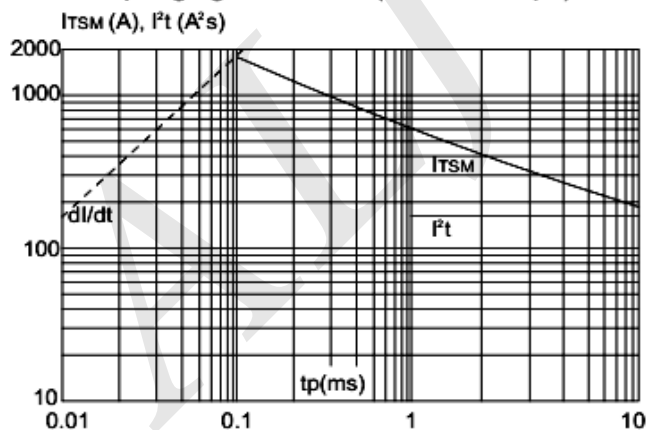


FIG.2: RMS on-state current versus case temperature

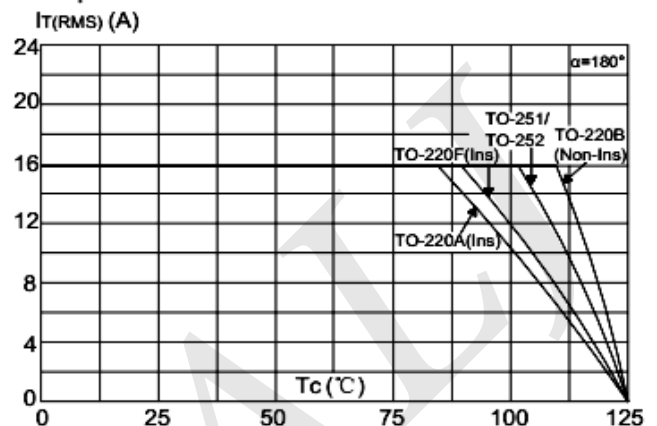


FIG.4: On-state characteristics (maximum values)

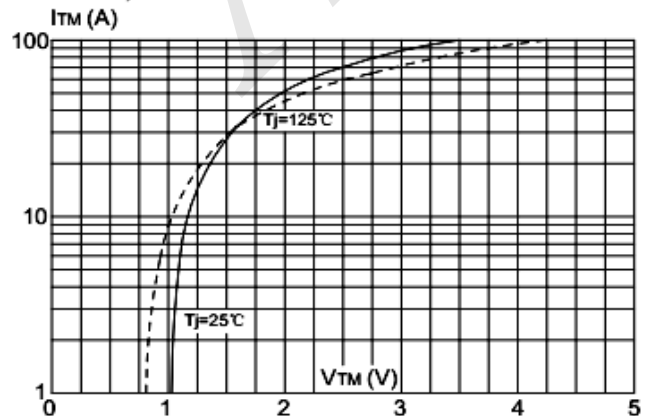


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

