

Phase Control Thyristor

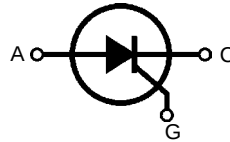
$$V_{RRM} = 1200-1600 \text{ V}$$

$$I_{T(RMS)} = 75 \text{ A}$$

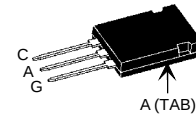
$$I_{T(AV)M} = 48 \text{ A}$$

Preliminary Data Sheet

V_{RSM}	V_{RRM}	Type
V_{DSM}	V_{DRM}	
V	V	
1300	1200	CS 60-12io1
1500	1400	CS 60-14io1
1700	1600	CS 60-16io1



PLUS247



C = Cathode, A = Anode, G = Gate

Symbol	Test Conditions	Maximum Ratings
$I_{T(RMS)}$	$T_{VJ} = T_{VJM}$ (lead current limit)	75 A
$I_{T(AV)M}$	$T_C = 105^\circ\text{C}$; 180° sine	48 A
I_{TSM}	$T_{VJ} = 45^\circ\text{C}$; $V_R = 0 \text{ V}$	$t = 10 \text{ ms}$ (50 Hz), sine 1500 A
		$t = 8.3 \text{ ms}$ (60 Hz), sine 1600 A
	$T_{VJ} = T_{VJM}$; $V_R = 0 \text{ V}$	$t = 10 \text{ ms}$ (50 Hz), sine 1350 A
		$t = 8.3 \text{ ms}$ (60 Hz), sine 1450 A
i^2t	$T_{VJ} = 45^\circ\text{C}$; $V_R = 0 \text{ V}$	$t = 10 \text{ ms}$ (50 Hz), sine 11,200 A ² s
		$t = 8.3 \text{ ms}$ (60 Hz), sine 10,750 A ² s
	$T_{VJ} = T_{VJM}$; $V_R = 0 \text{ V}$	$t = 10 \text{ ms}$ (50 Hz), sine 9100 A ² s
		$t = 8.3 \text{ ms}$ (60 Hz), sine 8830 A ² s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$; $f = 50 \text{ Hz}$, $t_p = 200 \mu\text{s}$ $V_D = 2/3 V_{DRM}$ $I_G = 0.3 \text{ A}$ $di_G/dt = 0.3 \text{ A}/\mu\text{s}$	repetitive, $I_T = 60 \text{ A}$ 150 A/ μs
		non repetitive, $I_T = I_{T(AV)M}$ 500 A/ μs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$; $R_{GK} = \infty$; method 1 (linear voltage rise)	$V_{DR} = 2/3 V_{DRM}$ 1000 V/ μs
P_{GM}	$T_{VJ} = T_{VJM}$; $I_T = I_{T(AV)M}$	$t_p = 30 \mu\text{s}$ 10 W
		$t_p = 300 \mu\text{s}$ 5 W
$P_{G(AV)}$		0.5 W
V_{RGM}		10 V
T_{VJ}		-40...+140 °C
T_{VJM}		140 °C
T_{stg}		-40...+125 °C
F_C	Mounting Force	20...120/4.5...27 N/lbs
Weight		6 g

Features

- Thyristor for line frequency
- International standard package JEDEC TO-247
- Planar passivated chip
- Long-term stability of blocking currents and voltages

Applications

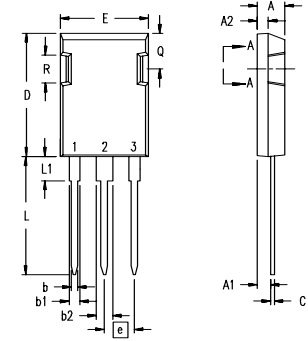
- Motor control
- Power converter
- AC power controller
- Switch-mode and resonant mode power supplies
- Light and temperature control

Advantages

- Easy to mount
- Space and weight savings
- Simple mounting

Symbol	Test Conditions	Characteristic Values	
I_R, I_D	$T_{VJ} = T_{VJM}; V_R = V_{RRM}; V_D = V_{DRM}$ $T_{VJ} = 25^\circ\text{C}$	$\leq$	10 mA 0.2 mA
V_T	$I_T = 100 \text{ A}; T_{VJ} = 25^\circ\text{C}$	$\leq$	1.4 V
V_{T0}	For power-loss calculations only ($T_{VJ} = 125^\circ\text{C}$)		0.85 V
r_T			3.7 mΩ
V_{GT}	$V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$	$\leq$	1.5 V
	$T_{VJ} = -40^\circ\text{C}$	$\leq$	1.6 V
I_{GT}	$V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$	$\leq$	100 mA
	$T_{VJ} = -40^\circ\text{C}$	$\leq$	200 mA
V_{GD}	$T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$	$\leq$	0.2 V
I_{GD}		$\leq$	10 mA
I_L	$T_{VJ} = 25^\circ\text{C}; t_p = 10 \mu\text{s}$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$	$\leq$	450 mA
I_H	$T_{VJ} = 25^\circ\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$	$\leq$	200 mA
t_{gd}	$T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$	$\leq$	2 μs
R_{thJC}	DC current	0.32	K/W
R_{thJK}	DC current	0.47	K/W

PLUS247™ Outline



Terminals: 1 - Cathode
2 - Anode
3 - Gate
Tab - Anode

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.83	5.21	.190	.205
A ₁	2.29	2.54	.090	.100
A ₂	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b ₁	1.91	2.13	.075	.084
b ₂	2.92	3.12	.115	.123
C	0.61	0.80	.024	.031
D	20.80	21.34	.819	.840
E	15.75	16.13	.620	.635
e	5.45 BSC		.215 BSC	
L	19.81	20.32	.780	.800
L1	3.81	4.32	.150	.170
Q	5.59	6.20	.220	.244
R	4.32	4.83	.170	.190

Leads and tab are solder plated.