

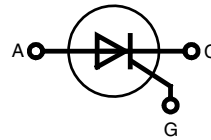
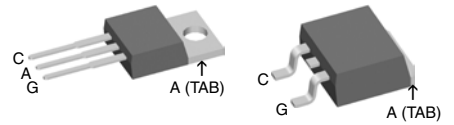
Phase Control Thyristor

$$V_{RRM} = 800/1200 \text{ V}$$

$$I_{T(RMS)} = 29 \text{ A}$$

$$I_{T(AV)M} = 19 \text{ A}$$

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type	Type
800	800	CS 19-08ho1	CS 19-08ho1S
1200	1200	CS 19-12ho1	CS 19-12ho1S


TO-220 AB
TO-263 AA


A = Anode, C = Cathode, G = Gate

Symbol	Conditions	Maximum Ratings	
$I_{T(RMS)}$	$T_{VJ} = T_{VJM}$	29	A
$I_{T(AV)M}$	$T_C = 85^\circ\text{C}$, 180° sine	19	A
I_{TSM}	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0 \text{ V}$	t = 10 ms (50 Hz), sine	160 A
		t = 8.3 ms (60 Hz), sine	180 A
	$T_{VJ} = T_{VJM}$ $V_R = 0$	t = 10 ms (50 Hz), sine	140 A
		t = 8.3 ms (60 Hz), sine	160 A
I^2t	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0 \text{ V}$	t = 10 ms (50 Hz), sine	128 A ² s
		t = 8.3 ms (60 Hz), sine	134 A ² s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$; f = 50 Hz; $t_p = 200 \mu\text{s}$ $V_D = 2/3 V_{DRM}$ $I_G = 0.15 \text{ A}$ $di_G/dt = 0.15 \text{ A}/\mu\text{s}$	repetitive, $I_T = 20 \text{ A}$	100 A/ μs
		non repetitive, $I_T = I_{T(AV)M}$	500 A/ μs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$; $V_D = 2/3 V_{DRM}$ $R_{GK} = \infty$; method 1 (linear voltage rise)	500	V/ μs
P_{GM}	$T_{VJ} = T_{VJM}$; $t_p = 30 \mu\text{s}$ $I_T = I_{T(AV)M}$; $t_p = 300 \mu\text{s}$	5	W
		2.5	W
P_{GAV}		0.5	W
V_{RGM}		10	V
T_{VJ}		-40 ... +125	°C
T_{VJM}		125	°C
T_{stg}		-40 ... 125	°C
M_d	Mounting torque with screw M3; TO-220 Mounting torque with screw M3.5; TO-220	0.45	Nm
		0.55	Nm
Weight	typ.	2	g

Data according to IEC 60747

Features

- SCR for frequency up to 400 Hz
- International standard package
- High performance glass passivated chip
- Long-term stability of leakage current and blocking voltage
- Epoxy meets UL 94V-0

Applications

- Motor control
- Power converter
- AC power controller
- Light and temperature control
- SCR for inrush current limiting in power supplies or AC drive

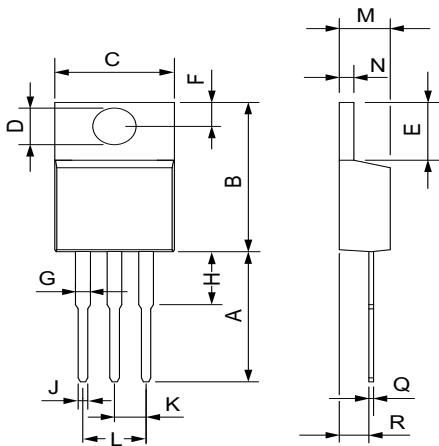
Advantages

- Space and weight savings
- Simple mounting

Symbol	Conditions	Characteristic Values	
		typ.	max.
I_R, I_D	$V_R = V_{RRM}; V_D = V_{DRM}; T_{VJ} = T_{VJM}$		5 mA
V_T	$I_T = 20 \text{ A}; T_{VJ} = 25^\circ\text{C}$		1.6 V
V_{T0}	For power-loss calculations only		0.85 V
r_T	$T_{VJ} = 125^\circ\text{C}$		27 mΩ
V_{GT}	$V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$		1.5 V
	$T_{VJ} = -40^\circ\text{C}$		2.5 V
I_{GT}	$V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$		28 mA
	$T_{VJ} = -40^\circ\text{C}$		50 mA
V_{GD}	$V_D = \frac{2}{3} V_{DRM}; T_{VJ} = T_{VJM}$		0.2 V
I_{GD}			3 mA
I_L	$t_p = 10 \mu\text{s}; T_{VJ} = 25^\circ\text{C}$ $I_G = 0.1 \text{ A}; di_G/dt = 0.1 \text{ A}/\mu\text{s}$		75 mA
I_H	$V_D = 6 \text{ V}; R_{GK} = \infty; T_{VJ} = 25^\circ\text{C}$		50 mA
t_{gd}	$V_D = \frac{1}{2} V_{DRM}; T_{VJ} = 25^\circ\text{C}$ $I_G = 0.1 \text{ A}; di_G/dt = 0.1 \text{ A}/\mu\text{s}$		2 μs
R_{thJC}	DC current		1.0 K/W
R_{thJH}	DC current	0.25	K/W
a	Max. acceleration; 50 Hz		50 m/s ²

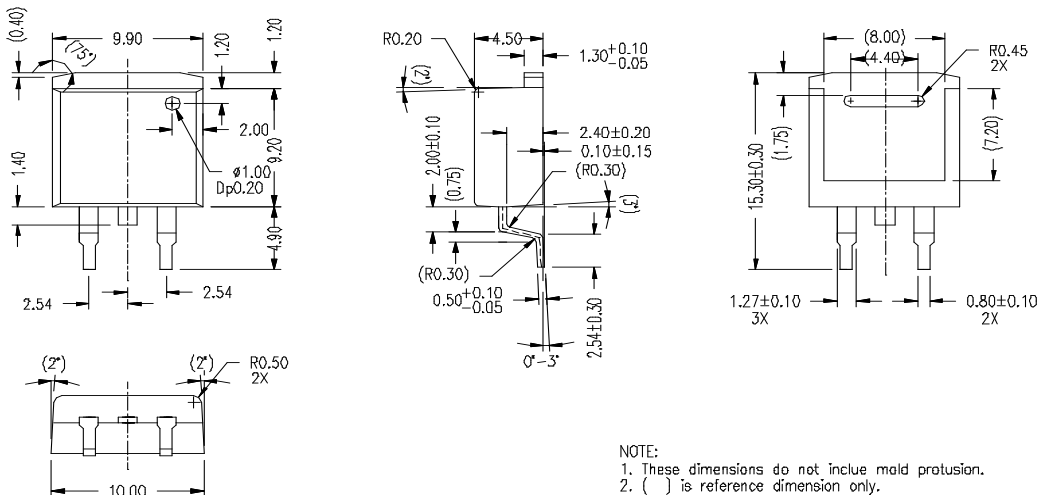
TO-220 AB

Dimensions (1 mm = 0.0394")



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	12.70	13.97	0.500	0.550
B	14.73	16.00	0.580	0.630
C	9.91	10.66	0.390	0.420
D	3.54	4.08	0.139	0.161
E	5.85	6.85	0.230	0.270
F	2.54	3.18	0.100	0.125
G	1.15	1.65	0.045	0.065
H	2.79	5.84	0.110	0.230
J	0.64	1.01	0.025	0.040
K	2.54	BSC	0.100	BSC
M	4.32	4.82	0.170	0.190
N	1.14	1.39	0.045	0.055
Q	0.35	0.56	0.014	0.022
R	2.29	2.79	0.090	0.110

TO-263 AA



NOTE:
 1. These dimensions do not include mold protrusion.
 2. () is reference dimension only.

IXYS reserves the right to change limits, test conditions and dimensions.

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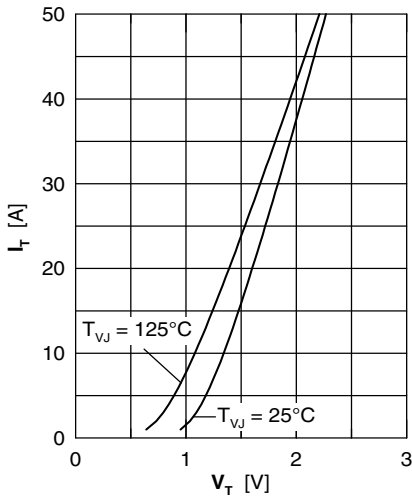


Fig. 1 Forward characteristics

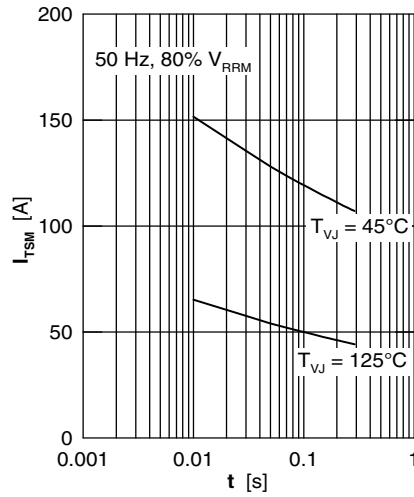


Fig. 2 Surge overload current
 I_{TSM} : crest value, t : duration

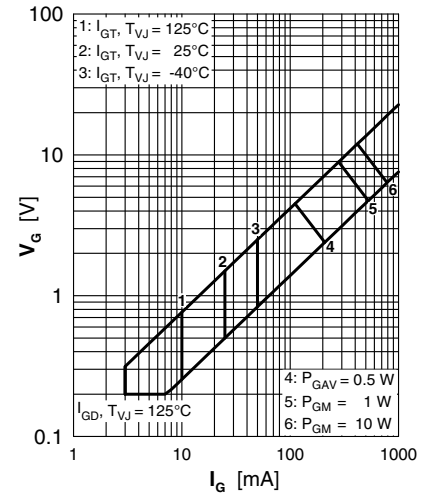


Fig. 3 Gate trigger range

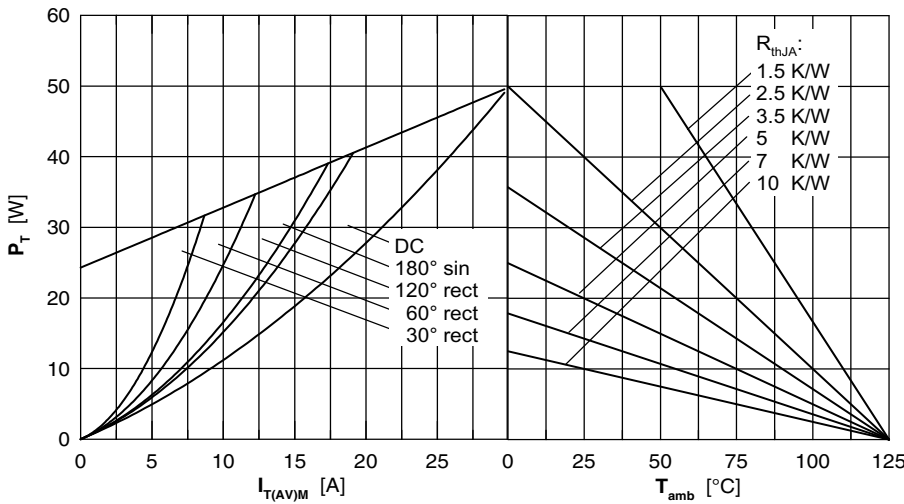


Fig. 4 Power dissipation versus forward current and ambient temperature

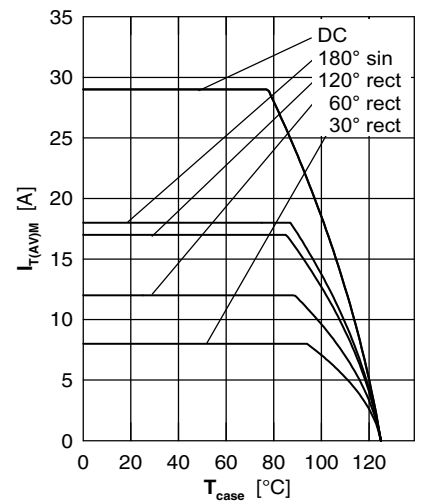


Fig. 5 Max. forward current at case temperature

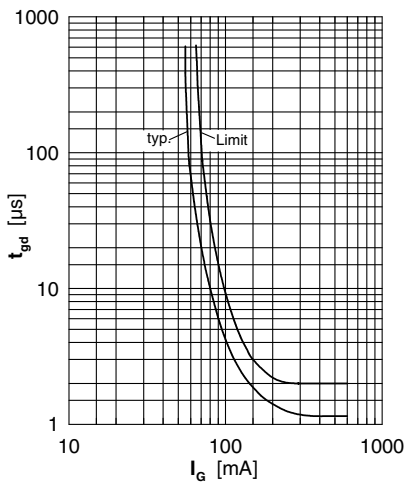


Fig. 6 Forward characteristics