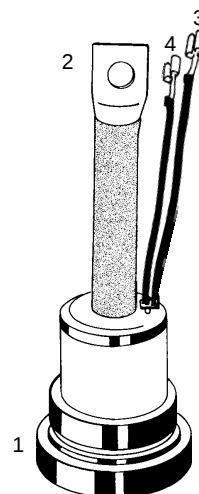
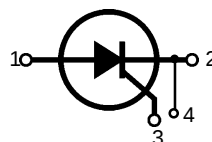


Phase Control Thyristors

$$\begin{aligned} V_{RRM} &= 1200-1800 \text{ V} \\ I_{T(RMS)} &= 600 \text{ A} \\ I_{T(AV)M} &= 380 \text{ A} \end{aligned}$$

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
1300	1200	CS 300-12io3
1700	1600	CS 300-16io3
1900	1800	CS 300-18io3

Not for new application



1 = Anode, 2 = Cathode,
3 = Gate, 4 = Auxiliary Cathode

Symbol	Test Conditions	Maximum Ratings
$I_{T(RMS)}$	$T_{VJ} = T_{VJM}$	600 A
$I_{T(AV)M}$	$T_{case} = 85^{\circ}\text{C}; 180^{\circ}$ sine	330 A
	$T_{case} = 75^{\circ}\text{C}; 180^{\circ}$ sine	380 A
I_{TSM}	$T_{VJ} = 45^{\circ}\text{C};$ $V_R = 0$	$t = 10 \text{ ms (50 Hz), sine}$ 8500 A $t = 8.3 \text{ ms (60 Hz), sine}$ 9000 A
	$T_{VJ} = T_{VJM}$ $V_R = 0$	$t = 10 \text{ ms (50 Hz), sine}$ 8000 A $t = 8.3 \text{ ms (60 Hz), sine}$ 8500 A
I^2t	$T_{VJ} = 45^{\circ}\text{C}$ $V_R = 0$	$t = 10 \text{ ms (50 Hz), sine}$ 360 000 A ² s $t = 8.3 \text{ ms (60 Hz), sine}$ 340 000 A ² s
	$T_{VJ} = T_{VJM}$ $V_R = 0$	$t = 10 \text{ ms (50 Hz), sine}$ 320 000 A ² s $t = 8.3 \text{ ms (60 Hz), sine}$ 303 500 A ² s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ $f = 50 \text{ Hz}, t_p = 200 \mu\text{s}$ $V_D = 2/3 V_{DRM}$ $I_G = 1 \text{ A}$ $di_G/dt = 1 \text{ A}/\mu\text{s}$	repetitive, $I_T = 1000 \text{ A}$ 100 A/ μs non repetitive, $I_T = I_{T(AV)M}$ 500 A/ μs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM};$ $R_{GK} = \infty; \text{method 1 (linear voltage rise)}$	$V_{DR} = 2/3 V_{DRM}$ 1000 V/ μs
P_{GM}	$T_{VJ} = T_{VJM}$ $I_T = I_{T(AV)M}$	$t_p = 30 \mu\text{s}$ 120 W $t_p = 10 \text{ ms}$ 10 W
V_{RGM}		10 V
T_{VJ}		-40...+125 $^{\circ}\text{C}$
T_{VJM}		125 $^{\circ}\text{C}$
T_{stg}		-40...+125 $^{\circ}\text{C}$
M_d	Mounting torque	3.5 Nm 31 lb.in.
Weight		500 g

Features

- Thyristor for line frequencies
- International flat base package
- Planar glassivated chip
- Long-term stability of blocking currents and voltages

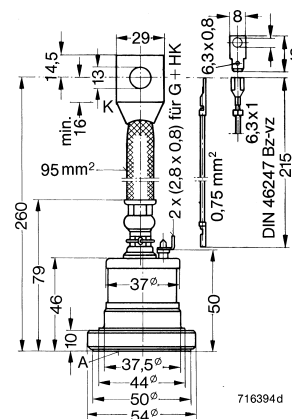
Applications

- Motor control
- Power converter
- AC power controller

Advantages

- Space and weight savings
- Simple mounting
- Improved temperature and power cycling

Dimensions in mm (1 mm = 0.0394")



Data according to IEC 60747
IXYS reserves the right to change limits, test conditions and dimensions

Symbol	Test Conditions	Characteristic Values
I_R, I_D	$T_{VJ} = T_{VJM}; V_R = V_{RRM}; V_D = V_{DRM}$	≤ 40 mA
V_T	$I_T = 1000$ A; $T_{VJ} = 25^\circ\text{C}$	≤ 1.43 V
V_{T0}	For power-loss calculations only ($T_{VJ} = 125^\circ\text{C}$)	1.0 V
r_T		0.43 m Ω
V_{GT}	$V_D = 6$ V; $T_{VJ} = 25^\circ\text{C}$	≤ 2.0 V
	$T_{VJ} = -40^\circ\text{C}$	≤ 2.8 V
I_{GT}	$V_D = 6$ V; $T_{VJ} = 25^\circ\text{C}$	≤ 150 mA
	$T_{VJ} = -40^\circ\text{C}$	≤ 250 mA
V_{GD}	$T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$	≤ 0.2 V
I_{GD}		≤ 1 mA
I_L	$T_{VJ} = 25^\circ\text{C}; t_p = 10$ μs $I_G = 0.7$ A; $di_G/dt = 0.7$ A/ μs	≤ 100 mA
I_H	$T_{VJ} = 25^\circ\text{C}; V_D = 6$ V; $R_{GK} = \infty$	≤ 100 mA
t_{gd}	$T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$ $I_G = 0.7$ A; $di_G/dt = 0.7$ A/ μs	≤ 2 μs
t_q	$T_{VJ} = T_{VJM}; I_T = 330$ A, $t_p = 300$ μs ; $di/dt = -20$ A/ μs $V_R = 100$ V; $dv/dt = 20$ V/ μs ; $V_D = 2/3 V_{DRM}$	typ. 150 μs
R_{thJC}	DC current	0.09 K/W
R_{thJH}	DC current	0.12 K/W
d_s	Creepage distance on surface	1.55 mm
d_A	Strike distance through air	1.55 mm
a	Max. acceleration, 50 Hz	50 m/s ²

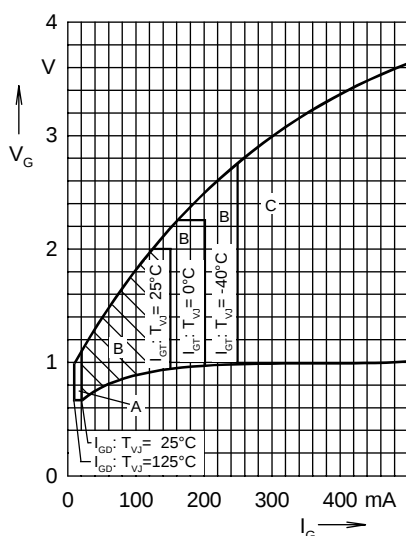


Fig. 1 Gate voltage and gate current
Triggering:
A = no; B = possible; C = safe

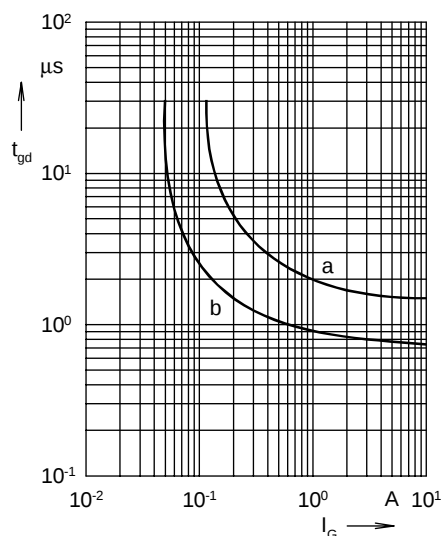


Fig. 2 Gate controlled delay time t_{gd}
a = limit; b = typical

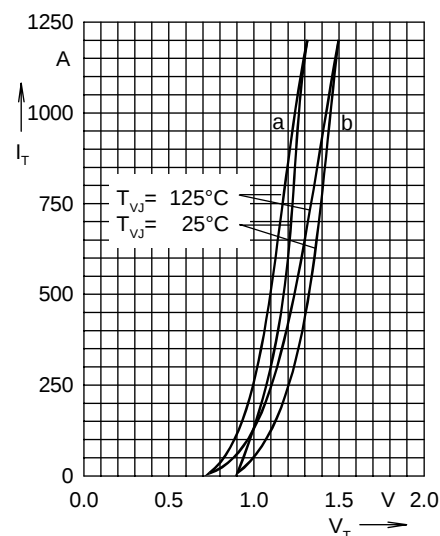


Fig. 3 On-state characteristics
a = typical; b = limit

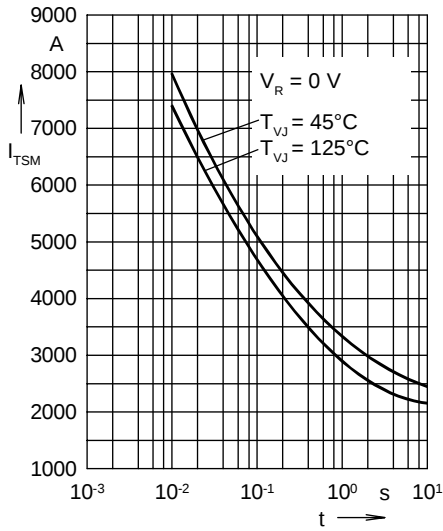


Fig. 4 Surge overload current
 I_{TSM} : crest value, t : duration

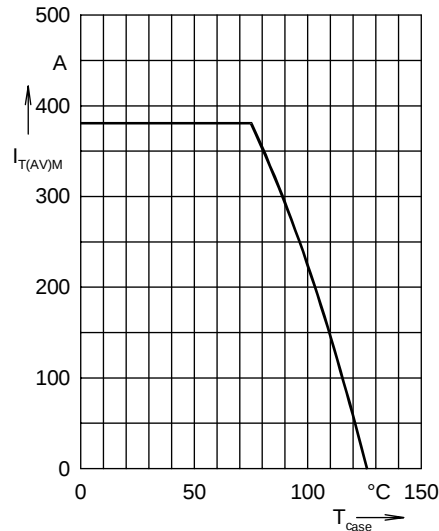


Fig. 5 Maximum forward current at case temperature 180° sine

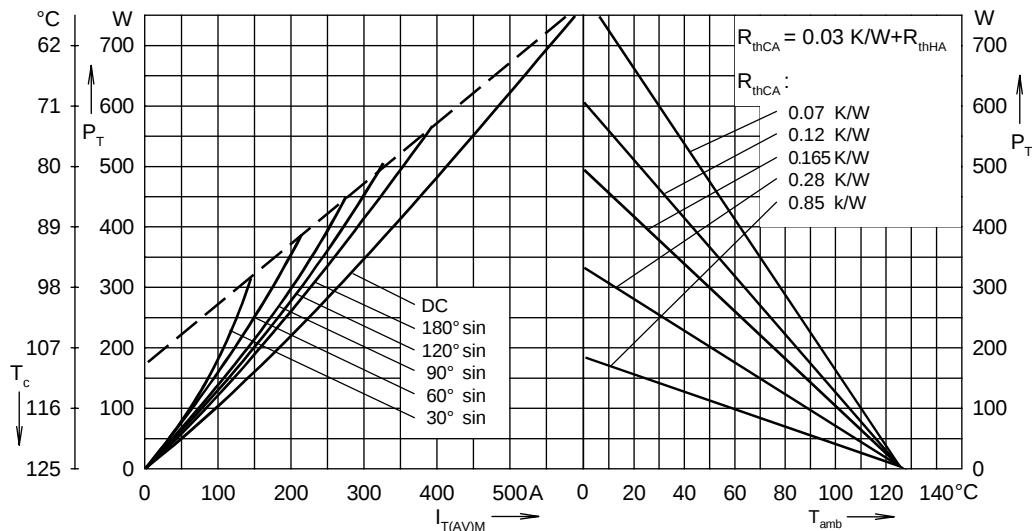


Fig. 6 Power dissipation versus on-state current and ambient temperature (sinusoidal current)

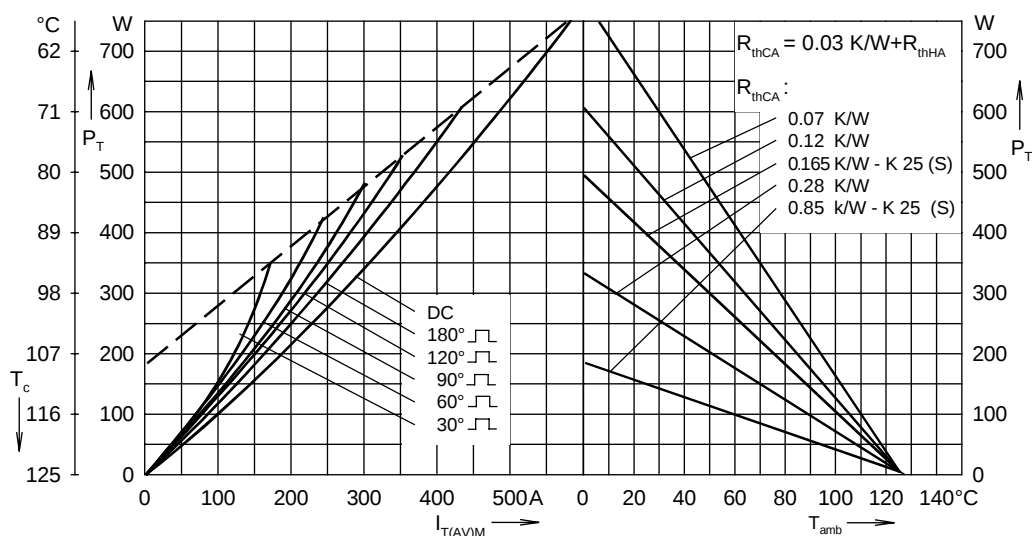


Fig. 7 Power dissipation versus on-state current and ambient temperature (rectangular current)