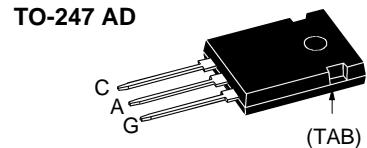
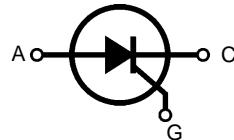


Phase Control Thyristor

V_{RRM} = 1200-1600 V
I_{T(RMS)} = 30 A
I_{T(AV)M} = 19 A

V _{RSM} V _{DSM}	V _{RRM} V _{DRM}	Type
V	V	
1200	1200	CS 20-12io1
1400	1400	CS 20-14io1
1600	1600	CS 20-16io1



C = Cathode, A = Anode, G = Gate
TAB = Anode

Symbol	Test Conditions	Maximum Ratings		Features
I _{T(RMS)}	T _{VJ} = T _{VJM}	30	A	
I _{T(AV)M}	T _{case} = 85°C; 180° sine	19	A	
I _{TSM}	T _{VJ} = 45°C; V _R = 0 V	200	A	
	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	215	A	
	T _{VJ} = T _{VJM} V _R = 0 V	180	A	
	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	195	A	
I ² t	T _{VJ} = 45°C V _R = 0 V	200	A ² s	
	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	195	A ² s	
	T _{VJ} = T _{VJM} V _R = 0 V	162	A ² s	
	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	158	A ² s	
(di/dt) _{cr}	T _{VJ} = T _{VJM} f = 50Hz, t _p = 200 μs V _D = 2/3 V _{DRM} I _G = 0.3 A di _G /dt = 0.3 A/μs	repetitive, I _T = 40 A non repetitive, I _T = I _{T(AV)M}	150 500	A/μs
(dv/dt) _{cr}	T _{VJ} = T _{VJM} ; R _{gk} = ∞; 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 μs t _p = 300 μs	10 5 0.5	W
P _{GAV}				W
V _{RGM}			10	V
T _{VJ}			-40...+125	°C
T _{VJM}			125	°C
T _{stg}			-40...+125	°C
M _d	Mounting torque M3		0.8...1.2	Nm
Weight			6	g

Applications

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

Advantages

- Easy to mount with 1 screw (isolated mounting screw hole)
- Space and weight savings
- Simple mounting
- Improved temperature and power cycling

Symbol	Test Conditions	Characteristic Values		
I_R, I_D	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$; $V_D = V_{DRM}$	≤	2	mA
V_T	$I_T = 25 \text{ A}$; $T_{VJ} = 25^\circ\text{C}$	≤	2.1	V
V_{TO}	For power-loss calculations only ($T_{VJ} = 125^\circ\text{C}$)	1.1		V
r_T		40		$\text{m}\Omega$
V_{GT}	$V_D = 6 \text{ V}$; $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$	≤	1.0	V
I_{GT}	$V_D = 6 \text{ V}$; $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$	≤	1.2	V
I_L	$T_{VJ} = 25^\circ\text{C}$; $t_p = 10 \mu\text{s}$ $I_G = 0.3 \text{ A}$; $di_G/dt = 0.3 \text{ A}/\mu\text{s}$	≤	65	mA
I_H	$T_{VJ} = 25^\circ\text{C}$; $V_D = 6 \text{ V}$; $R_{GK} = \infty$	≤	80	mA
t_{gd}	$T_{VJ} = 25^\circ\text{C}$; $V_D = 1/2 V_{DRM}$ $I_G = 0.3 \text{ A}$; $di_G/dt = 0.3 \text{ A}/\mu\text{s}$	≤	50	mA
R_{thJC}	DC current	0.62		K/W
R_{thJH}	DC current	0.82		K/W
a	Max. acceleration, 50 Hz	50		m/s^2

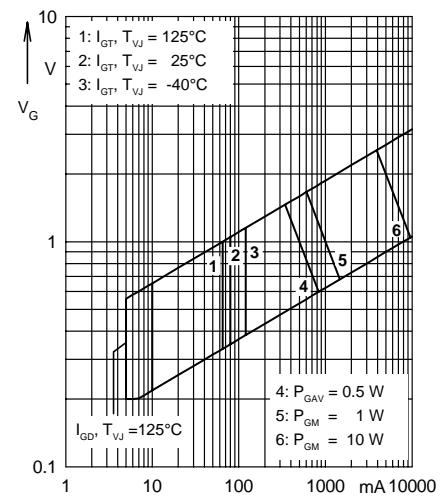
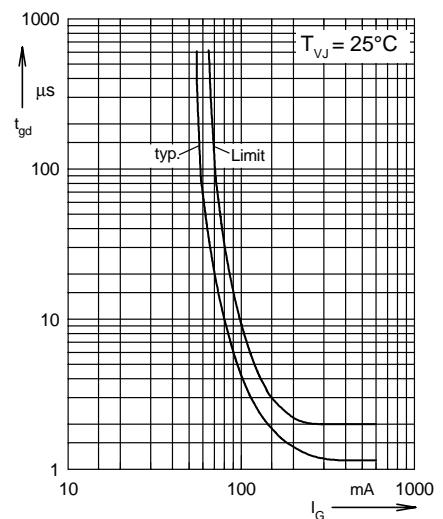
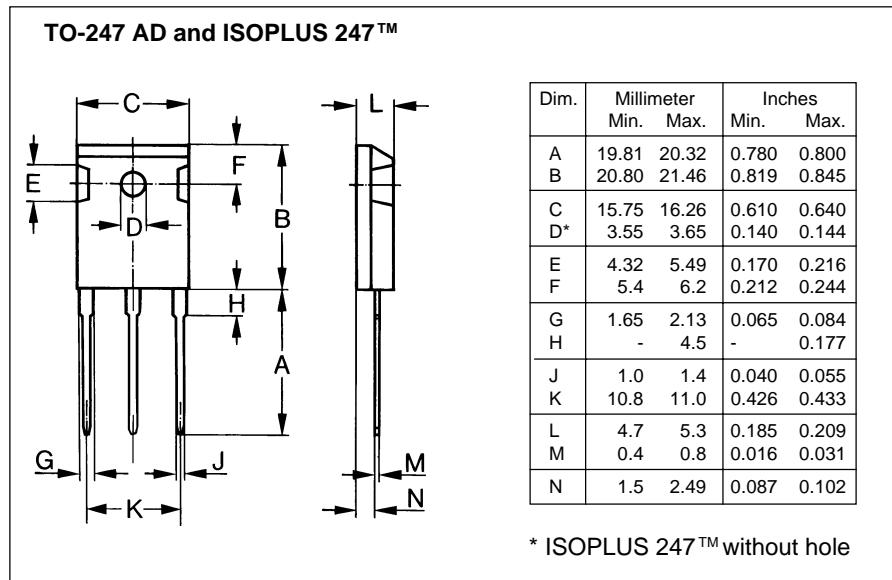


Fig. 1 Gate trigger range

Fig. 2 Gate controlled delay time t_{gd} 

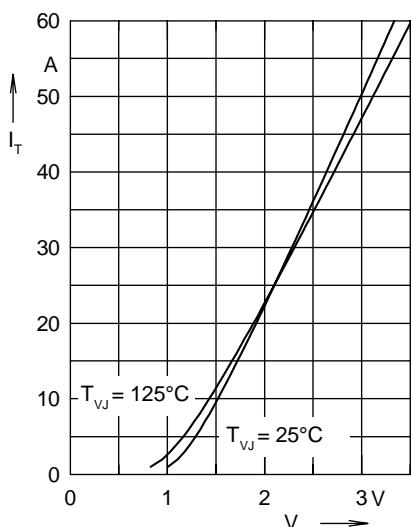


Fig. 3 Forward characteristics

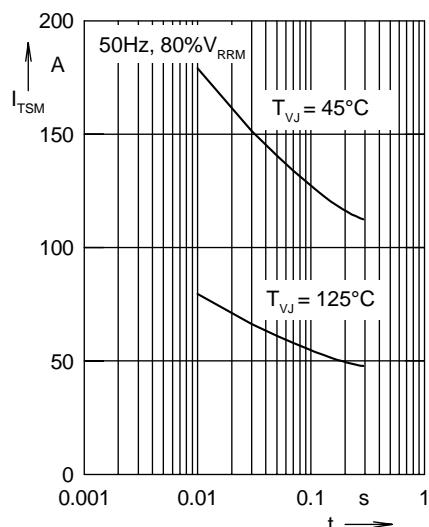


Fig. 4 Surge overload current
 $I_{TS(M)}$: crest value, t: duration

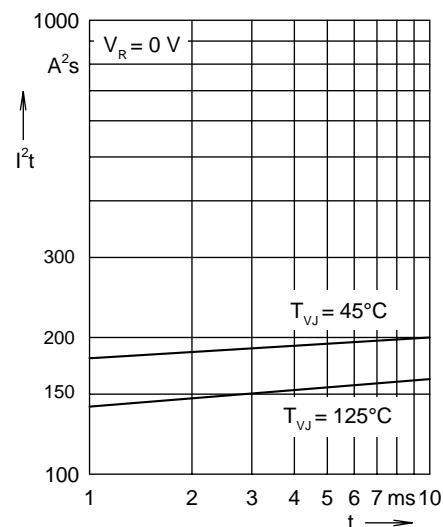


Fig. 5 I^2t versus time (1-10 ms)

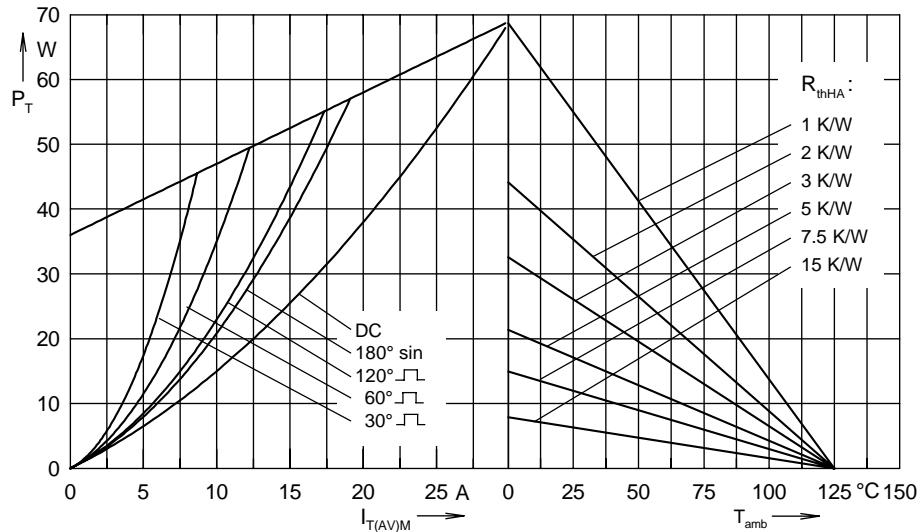


Fig. 6 Power dissipation versus forward current and ambient temperature

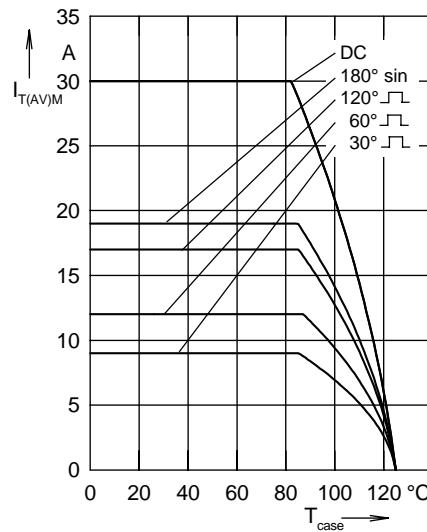


Fig. 7 Max. forward current at case temperature

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.62
180°	0.71
120°	0.748
60°	0.793
30°	0.817

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.206	0.013
2	0.362	0.118
3	0.052	1.488

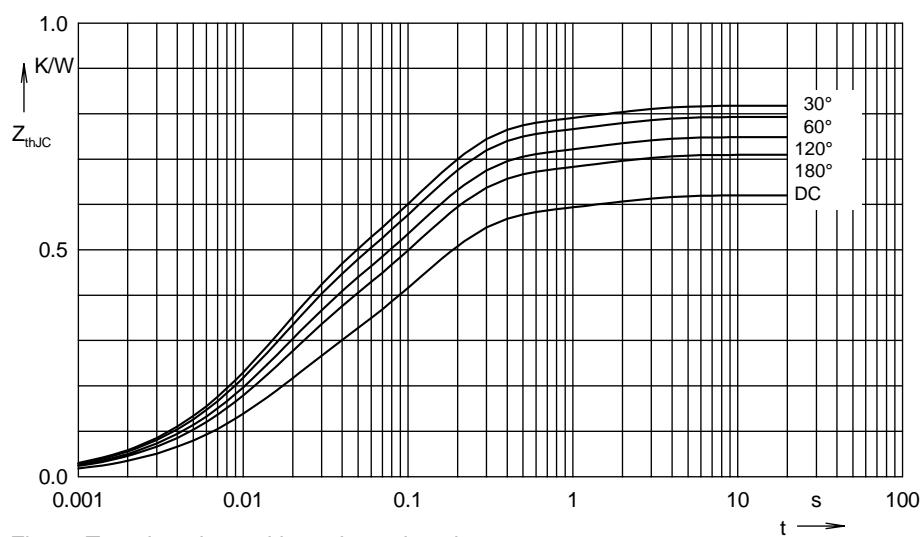


Fig. 8 Transient thermal impedance junction to case