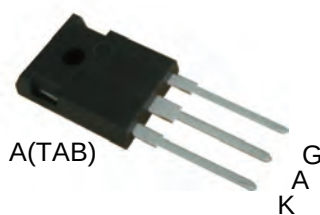


STOE50G08 thru STOE50G16

High Efficiency Thyristor Discretes

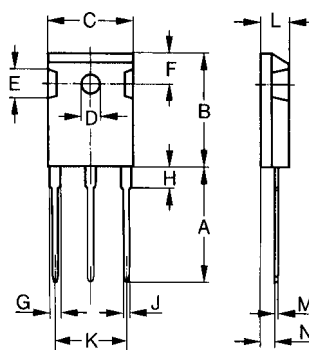


A(TAB)

G
A
K

K=Cathode, A=Anode, G=Gate

Dimensions TO-247AD



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

	V _{RRM} V	V _{RSM} V
STOE50G08	800	900
STOE50G10	1000	1100
STOE50G12	1200	1300
STOE50G16	1600	1700

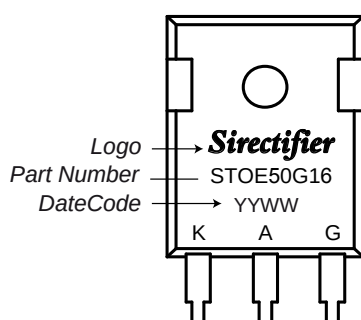
Symbol	Test Conditions		Maximum Ratings	Unit
I _{TRMS} I _{TAVM}	T _{VJ} =T _{VJM} T _C =125°C; 180° sine		80 50	A
I _{TSM}	T _{VJ} =45°C V _R =0	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	650 700	A
	T _{VJ} =T _{VJM} V _R =0	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	556 600	
i ² t	T _{VJ} =45°C V _R =0	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	2120 2040	A ² s
	T _{VJ} =T _{VJM} V _R =0	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	1540 1480	
(di/dt) _{cr}	T _{VJ} =T _{VJM} f=50Hz, t _p =200us V _D =2/3V _{DRM} I _G =0.3A di _G /dt=0.3A/us	repetitive, I _T =150A	150	A/us
		non repetitive, I _T =50A	500	
(dv/dt) _{cr}	T _{VJ} =T _{VJM} ; R _{GK} =∞; method 1 (linear voltage rise)	V _{DR} =2/3V _{DRM}	1000	V/us
P _{GM}	T _{VJ} =T _{VJM} I _T =I _{TAVM}	t _p =30us t _p =300us	10 5	W
P _{GAV}			0.5	W
V _{RGM}			10	V
T _{VJ} T _{VJM} T _{stg}			-55...+150 150 -55...+150	°C
M _d F _c	Mounting torque (M3) Mounting force with clip		0.8...1.2 20...120	Nm N
Weight	typical		6	g

STOE50G08 thru STOE50G16

High Efficiency Thyristor Discretes

Symbol	Test Conditions	Characteristic Values	Unit
I_R, I_D	$T_{VJ}=T_{VJM}; V_R=V_{RRM}; V_D=V_{DRM}$	3	mA
V_{TM}	$I_{TM}=100A; T_{VJ}=25^{\circ}C$	1.60	V
V_{TO}	For power-loss calculations only ($T_{VJ}=150^{\circ}C$)	0.88	V
r_T		7.7	m Ω
V_{GT}	$V_D=6V;$ $T_{VJ}=25^{\circ}C$ $T_{VJ}=-40^{\circ}C$	1.5 1.6	V
I_{GT}	$V_D=6V;$ $T_{VJ}=25^{\circ}C$ $T_{VJ}=-40^{\circ}C$ $T_{VJ}=125^{\circ}C$	50 80 30	mA
V_{GD}	$T_{VJ}=T_{VJM}; V_D=2/3V_{DRM}$	0.2	V
I_{GD}		3	mA
I_L	$T_{VJ}=25^{\circ}C; t_p=10\mu s;$ $I_G=0.3A; di_G/dt=0.3A/\mu s$	125	mA
I_H	$T_{VJ}=25^{\circ}C; V_D=6V; R_{GK}=\infty$	100	mA
t_{gd}	$T_{VJ}=25^{\circ}C; V_D=1/2V_{DRM}$ $I_G=0.3A; di_G/dt=0.3A/\mu s$	2	μs
R_{thJC}	DC current	0.25	K/W
R_{thch}	DC current	0.25	K/W
a	Max. acceleration, 50 Hz	50	m/s ²

Product Marking



Features / Advantages:

- Thyristor for line frequency
- Glass passivated chip

Applications:

- Line rectifying 50/60 Hz
- Softstart AC motor control
- DC Motor control
- Power converter
- AC power control
- Lighting and temperature control

Package: TO-247

- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0



Standard applicable to Power Semiconductors

- IEC191-1/4
- IEC747-1
- IEC747-6
- IEC68-2-...
- UL94-V0

Product Reliability

- IEC147-4
- IEC68-2-14
- IEC68-2-20
- IEC68-2-27
- CECC50000-4.4.3

STOE50G08 thru STOE50G16

High Efficiency Thyristor Discretes

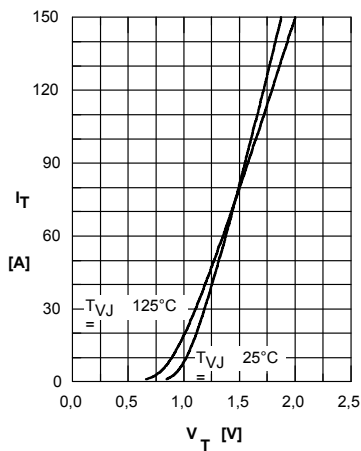


Fig. 1 Forward characteristics

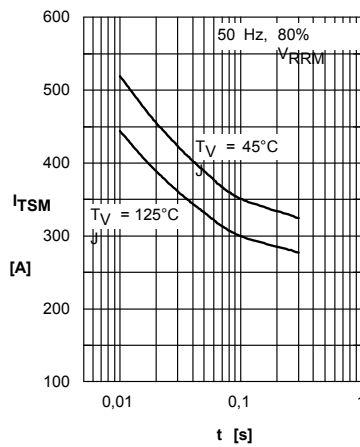


Fig. 2 Surge overload current
 I_{TSM} : crest value, t : duration

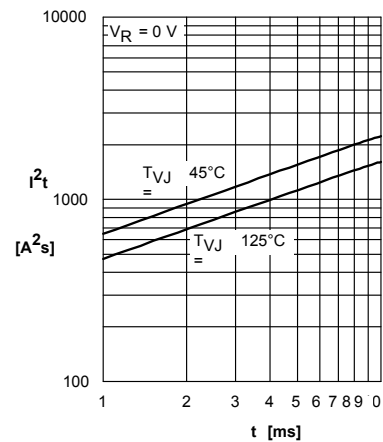


Fig. 3 I^2t versus time (1-10 s)

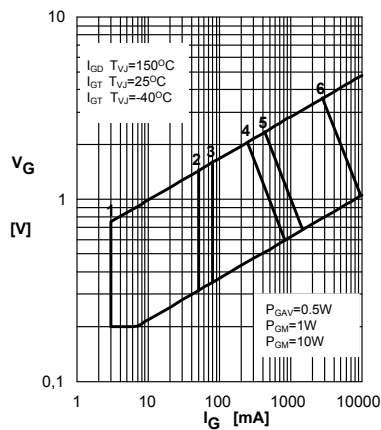


Fig. 4 Gate voltage & gate current

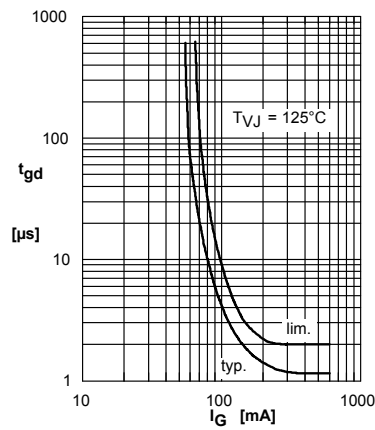


Fig. 5 Gate controlled delay time t_{gd}

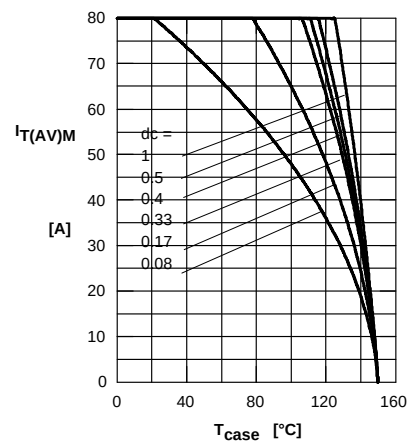


Fig. 6 Max. forward current at case temperature

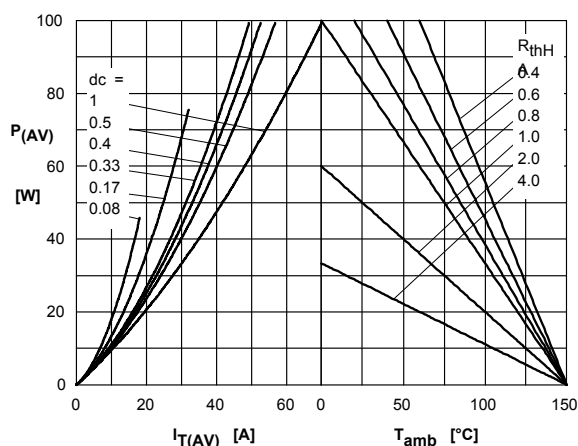


Fig. 7a Power dissipation versus direct output current

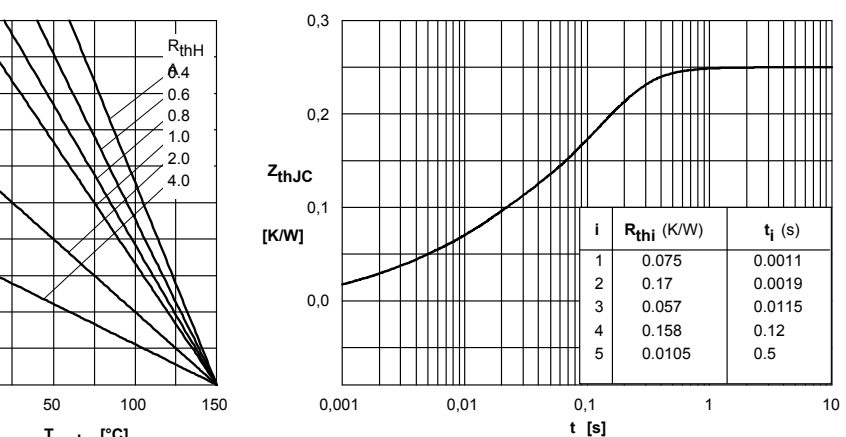


Fig. 7 Transient thermal impedance junction to case