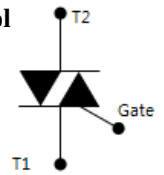
SemiHow
Know-How for Semiconductor

HTS12A60H/HTS12A80H
3 Quadrants Standard TRIAC

V_{DRM} = 600V/800V
$I_{T(RMS)}$ = 12 A
I_{TSM} = 126 A
I_{GT} = 35mA

Symbol



TO-220F

FEATURES

- Repetitive Peak Off-State Voltage : 600V/800V
- R.M.S On–State Current ($I_{T(RMS)}$ = 12A)
- Gate Trigger Current : 35mA
- High commutation capability.

Applications

General purpose of AC switching, heating control, motor control, etc

General Description

Semihow's standard TRIAC product is a glass passivated device, has a high commutative performance, stable gate triggering level to temperature and high off state voltage. It is generally suitable for power and phase control in ac application

Absolute Maximum Ratings (T_J=25℃ unless otherwise specified)

Symbol	Parameter	Conditions	Ratings		Unit
			HTS12A60H	HTS12A80H	
V_{DRM}	Repetitive Peak Off-State Voltage	Sine wave, 50/60Hz, Gate open	600	800	V
V_{RRM}	Repetitive Peak Reverse Voltage		600	800	V
$I_{T(AV)}$	Average On-State Current	Full sine wave, T_C = 85.7°C	10.8		A
$I_{T(RMS)}$	R.M.S. On-State Current		12		A
I_{TSM}	Surge On-State Current	½ cycle, 50Hz/60Hz, Sine wave, Non repetitive	120/126		A
I^2t	Fusing Current	t = 10ms	72		A^2S
P_{GM}	Forward Peak Gate Power Dissipation	T_J = 125 ˚C	5		W
$P_{G(AV)}$	Forward Average Gate Power Dissipation	T_J = 125 ˚C, over any 20ms	0.5		W
I_{FGM}	Forward Peak Gate Current	T_J = 125 ˚C, pulse width ≤ 20us	2		A
V_{RGM}	Reverse Peak Gate Voltage	T_J = 125 ˚C, pulse width ≤ 20us	5		V
T_J	Operating Junction Temperature		-40~+150		°C
T_{STG}	Storage Temperature		-40~+150		°C

Electrical Characteristics (T_J=25℃ unless otherwise specified)

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
I_{DRM}	Repetitive Peak Off-State Current	$V_D = V_{DRM}$	T_J=25°C	-	-	50	uA
			T_J=125°C	-	-	5	mA
I_{RRM}	Repetitive Peak Reverse Current	$V_D = V_{DRM}$	T_J=25°C	-	-	50	uA
			T_J=125°C	-	-	5	mA
I_{GT}	Gate Trigger Current	V_D = 12V, R_L=330Ω	1+, 1-, 3-	-	-	35	mA
V_{GT}	Gate Trigger Voltage	V_D = 12V, R_L=330Ω	1+, 1-, 3-	-	-	1.5	V
V_{GD}	Non-Trigger Gate Voltage[1]	V_D = 12V, R_L=330Ω, T_J=125°C		0.2	-	-	V
V_{TM}	Peak On-State Voltage	I_T = 17A, I_G = 20mA		-	1.2	1.4	V
dv/dt	Critical Rate of Rise of Off-State Voltage	V_D = 2/3 V_{DRM}, T_J=125°C		40	-	-	V/us
I_H	Holding current	I_T= 0.2A		-	45	-	mA

Notes :
1. Pulse Width ≤ 1.0ms, Duty Cycle ≤ 1%

Thermal Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{\theta JC}$	Thermal Resistance	Junction to Case			2.5	°C/W
$R_{\theta JA}$	Thermal Resistance	Junction to Ambient			58	°C/W

Typical Characteristics

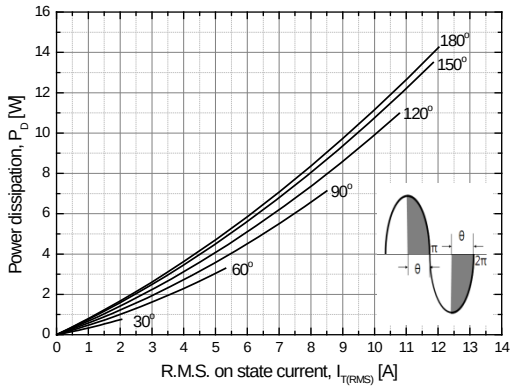


Fig 1. R.M.S. current vs. Power dissipation

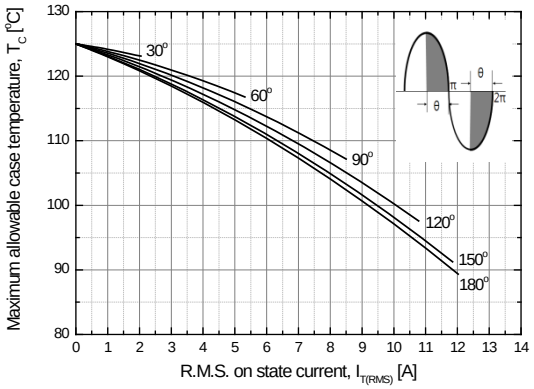


Fig 2. R.M.S. current vs. Case temperature

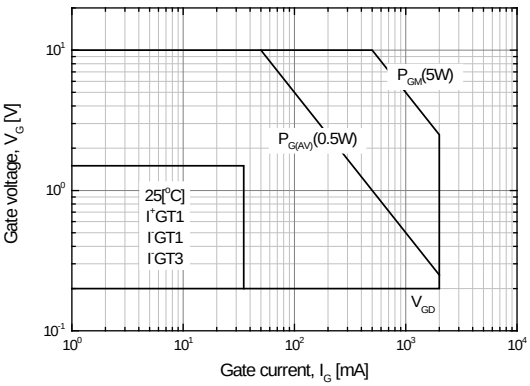


Fig 3. Gate power characteristics

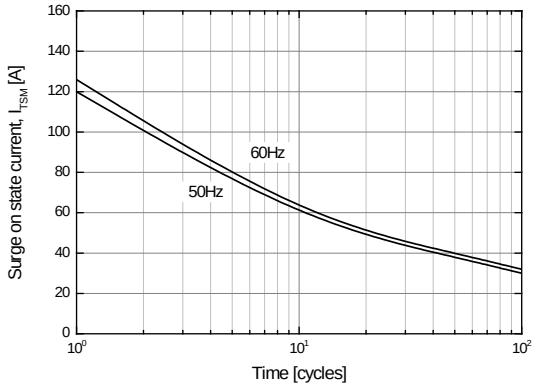


Fig 4. Surge on state current rating (Non-repetitive)

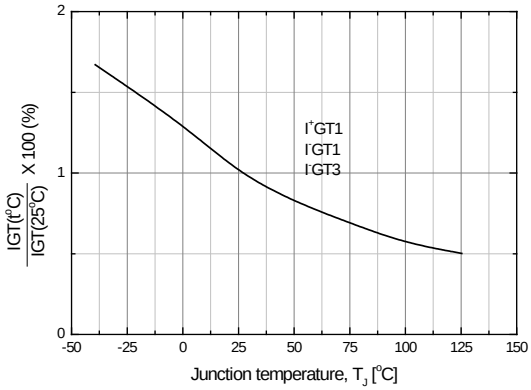


Fig 5. Gate trigger current vs. junction temperature

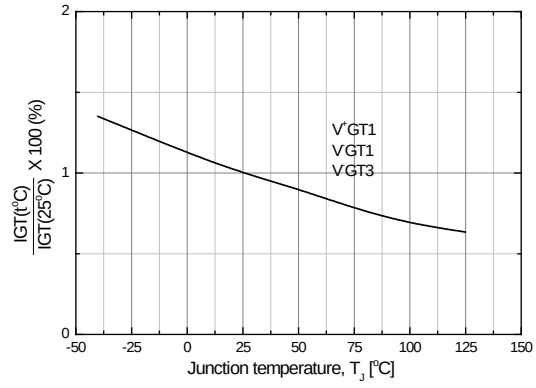


Fig 6. Gate trigger voltage vs. junction temperature

Typical Characteristics

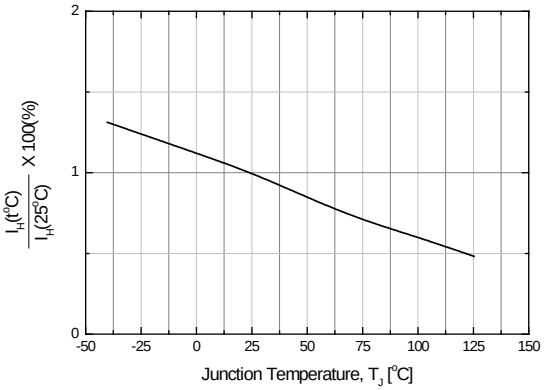


Fig 7. Holding current vs. Junction temperature

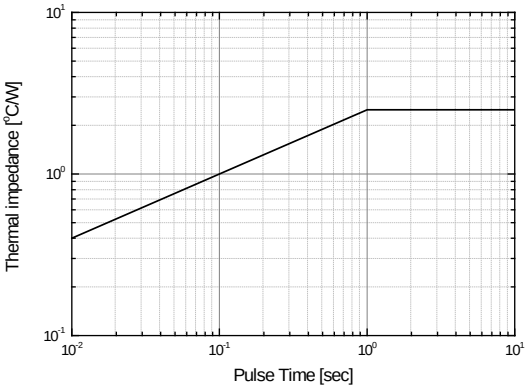


Fig 8. Thermal Impedance vs. pulse time

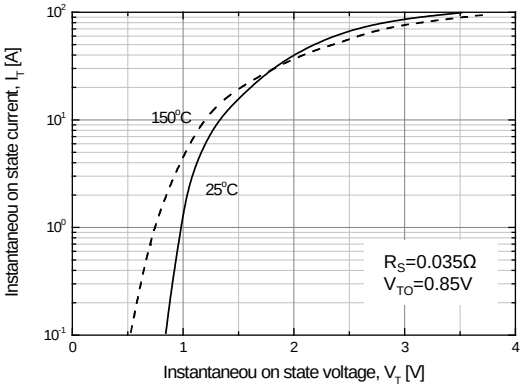
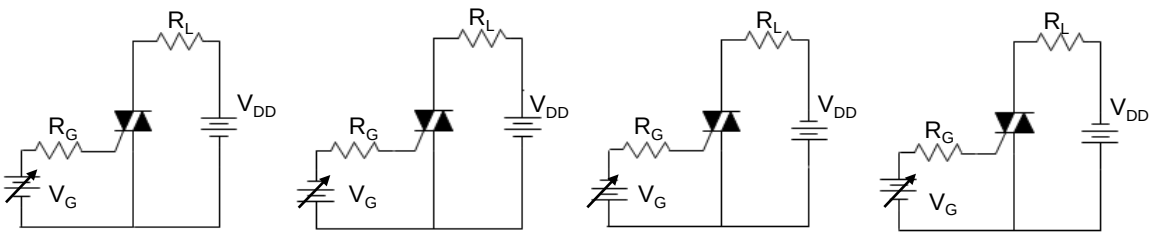


Fig 9. Instantaneous on state current vs. Instantaneous on state voltage

Measurement of gate trigger current



(1) Quadrant I (2) Quadrant II (3) Quadrant III (4) Quadrant IV

Note. Whole parameter and test condition can not be over absolute maximum ratings in this datasheet.

Package Dimension

TO-220F