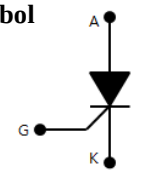
SemiHow
Know-How for Semiconductor

V_{DRM} = 600 V
$I_{T(RMS)}$ = 1 A
I_{TSM} = 11 A
I_{GT} = 200uA

MCR100-8
Silicon Controlled Rectifier

Symbol



TO-92

FEATURES

- Repetitive Peak Off-State Voltage: 600V
- R.M.S On–State Current ($I_{T(RMS)}$ = 1A)
- Low Gate Trigger Current: 200uA

Applications

Leakage detector, Electronic Ballast or protection circuit.

General Description

Semihow's SCR product is a single directional PNPN device, has a low gate trigger current and high stability in gate trigger current to temperature, generally suitable for sensing and detection circuits.

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

Symbol	Parameter	Conditions	Ratings	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	Sine wave, 50/60Hz, Gate open	600	V
V_{RRM}	Repetitive Peak Reverse Voltage		600	V
$I_{T(AV)}$	Average On-State Current	Full sine wave, T_C = 80.4°C	0.64	A
$I_{T(RMS)}$	R.M.S. On-State Current		1	A
I_{TSM}	Surge On-State Current	½ cycle, 50Hz/60Hz, Sine wave, Non repetitive	10/11	A
I^2t	Fusing Current	t = 10ms	0.5	A^2S
P_{GM}	Forward Peak Gate Power Dissipation	T_J = 125 ˚C, pulse width ≤ 1.0us	2	W
$P_{G(AV)}$	Forward Average Gate Power Dissipation	T_J = 125 ˚C, t = 8.3ms	0.1	W
I_{FGM}	Forward Peak Gate Current	T_J = 125 ˚C, pulse width ≤ 1.0us	1	A
V_{RGM}	Reverse Peak Gate Voltage	T_J = 125 ˚C, pulse width ≤ 1.0us	5	V
T_J	Operating Junction Temperature		-40~+125	°C
T_{STG}	Storage Temperature		-40~+150	°C

Electrical Characteristics (T_C=25℃ unless otherwise specified)

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
I_{DRM}	Repetitive Peak Off-State Current	$V_D = V_{DRM}$	T_C=25°C	-	-	50	uA
			T_C=125°C	-	-	5	mA
I_{RRM}	Repetitive Peak Reverse Current	$V_D = V_{DRM}$	T_C=25°C	-	-	50	uA
			T_C=125°C	-	-	5	mA
I_{GT}	Gate Trigger Current	V_D = 12V, R_L=330Ω		-	-	200	uA
V_{GT}	Gate Trigger Voltage	V_D = 12V, R_L=330Ω		-	-	1.0	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 = 1.4A, I_G = 5mA		-	1.2	1.6	V
dv/dt	Critical Rate of Rise of Off-State Voltage	V_D = 2/3 V_{DRM}, T_J=125°C		10	-	-	V/us
I_H	Holding current	I_T= 0.2A		-	-	2	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			56	°C/W
$R_{\theta JA}$	Thermal Resistance	Junction to Ambient			150	°C/W

Typical Characteristics

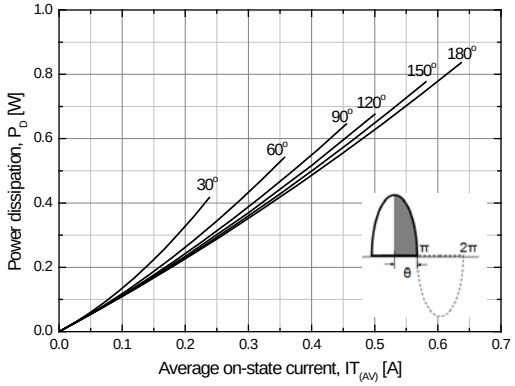


Fig 1. Average Current vs. Power dissipation

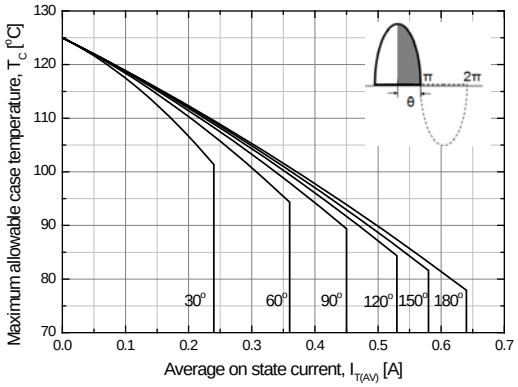


Fig 2. Average current vs. Case Temperature

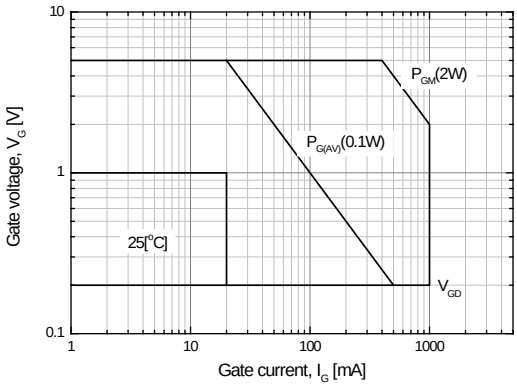


Fig 3. Gate power characteristics

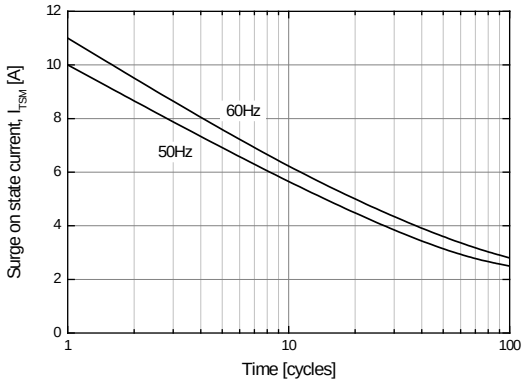


Fig 4. Surge on state current rating (Non-repetitive)

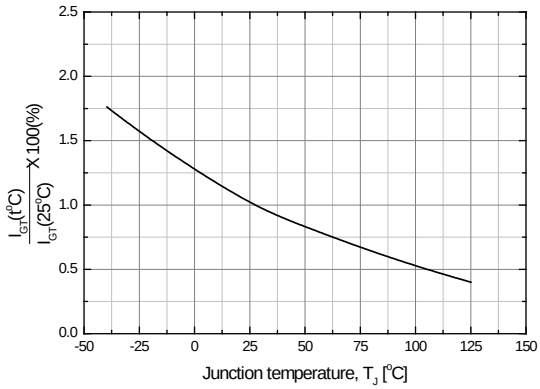


Fig 5. Gate trigger current vs. junction temperature

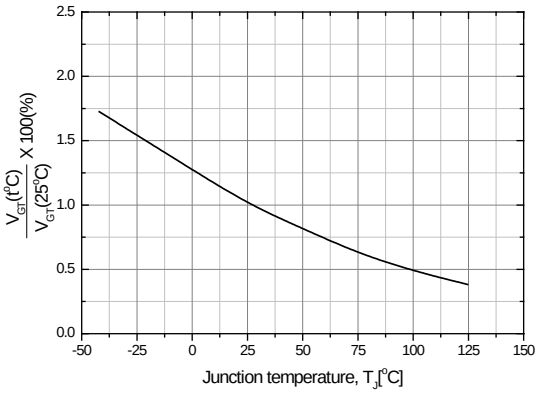


Fig 6. Gate trigger voltage vs. junction temperature

Typical Characteristics

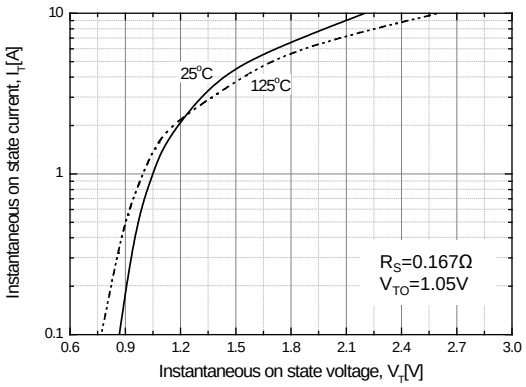


Fig 7. Instantaneous on state current vs. Instantaneous on state voltage

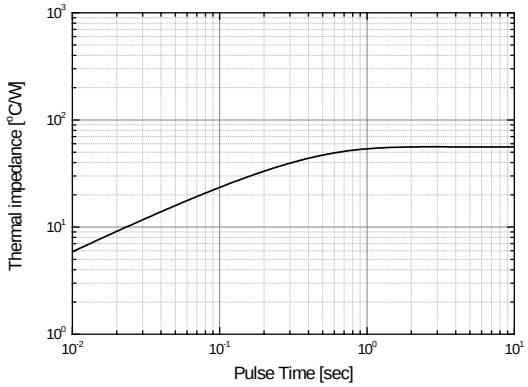
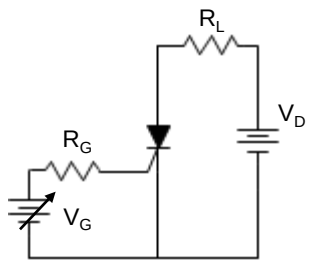


Fig 8. Thermal Impedance vs. pulse time

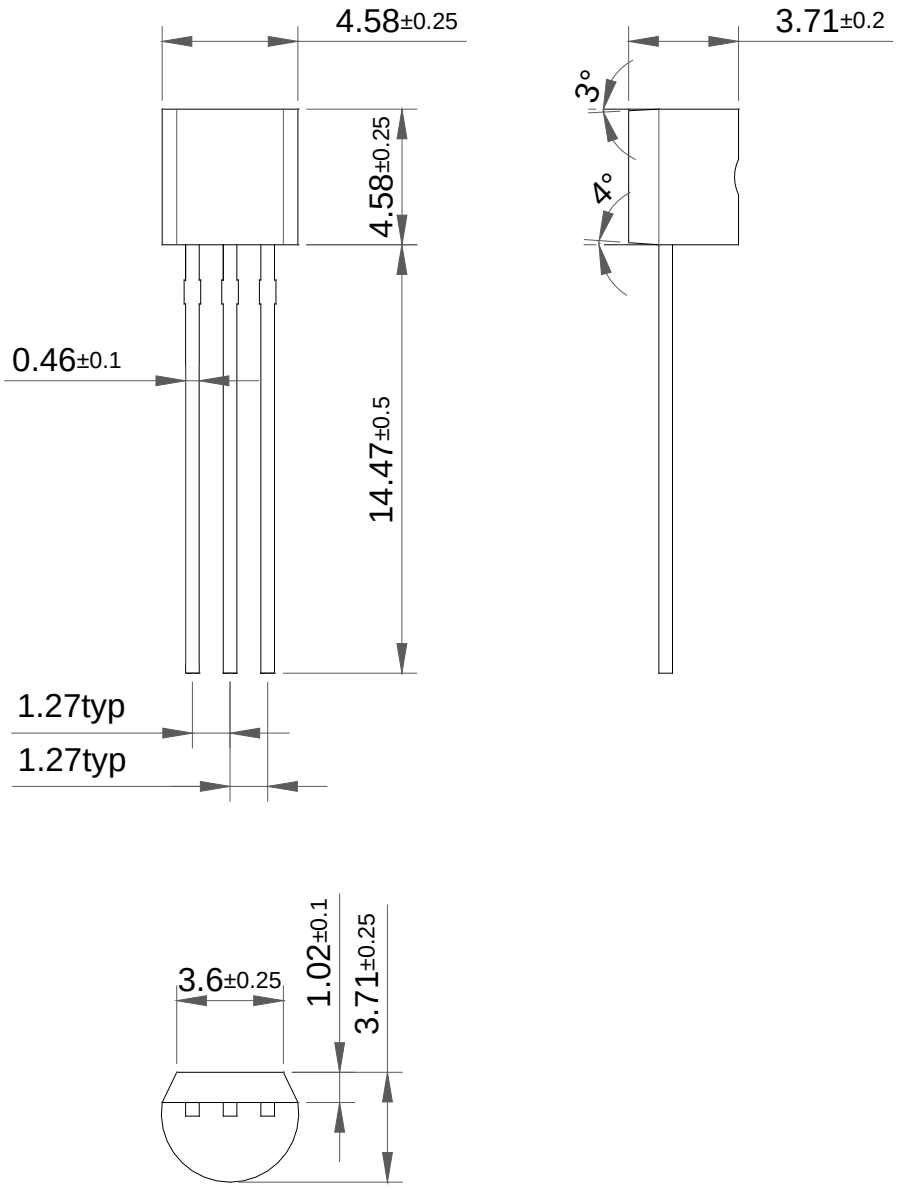
Measurement of gate trigger current



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

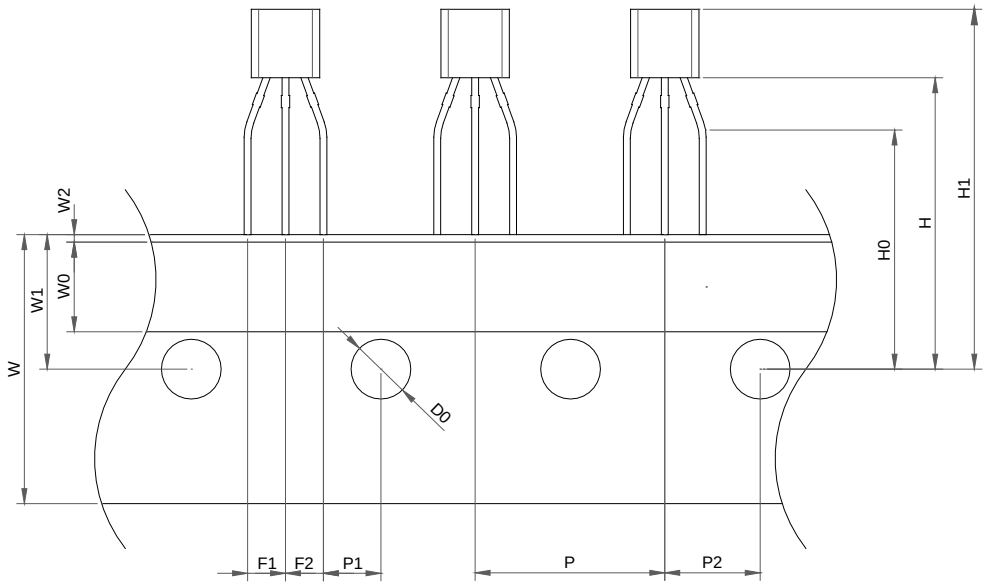
Package Dimension

TO-92 BULK



Package Dimension

TO-92 TAPING



Item	Symbol	Dimension [mm]	
		Reference	Tolerance
Component pitch	P	12.7	±0.5
Side lead to center of feed hole	P1	3.85	±0.5
Center lead to center of feed hole	P2	6.35	±0.5
Lead pitch	FI,F2	2.5	+0.2/−0.1
Carrier Tape width	W	18.0	+1.0/−0.5
Adhesive tape width	W0	6.0	±0.5
Tape feed hole location	W1	9.0	±0.5
Adhesive tape position	W2	1.0 MAX	
Center of feed hole to bottom of component	H	19.5	±1
Center of feed hole to lead form	H0	16.0	±0.5
Component height	H1	27.0 max	
Tape feed hole diameter	D0	4.0	±0.2