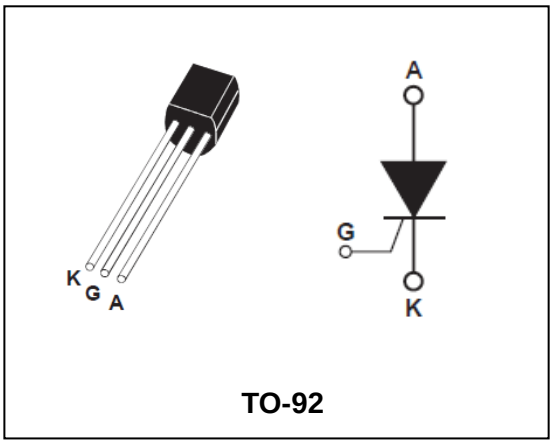
400V, 0.8A Sensitive Gate SCRs

Features

- Repetitive Peak Off-State Voltage : 400V
- R.M.S On-State Current : $I_{T(RMS)}$=0.8A
- Low On-state Voltage : V_{TM}=1.2V(Typ.)



TO-92

General Description

PNPN devices designed for high volume, line-powered consumer applications such as relay and lamp drivers, small motor controls, gate drivers for larger thyristors, and sensing and detection circuits. Supplied in an inexpensive plastic TO-92 package which is readily adaptable for use in automatic insertion equipment.

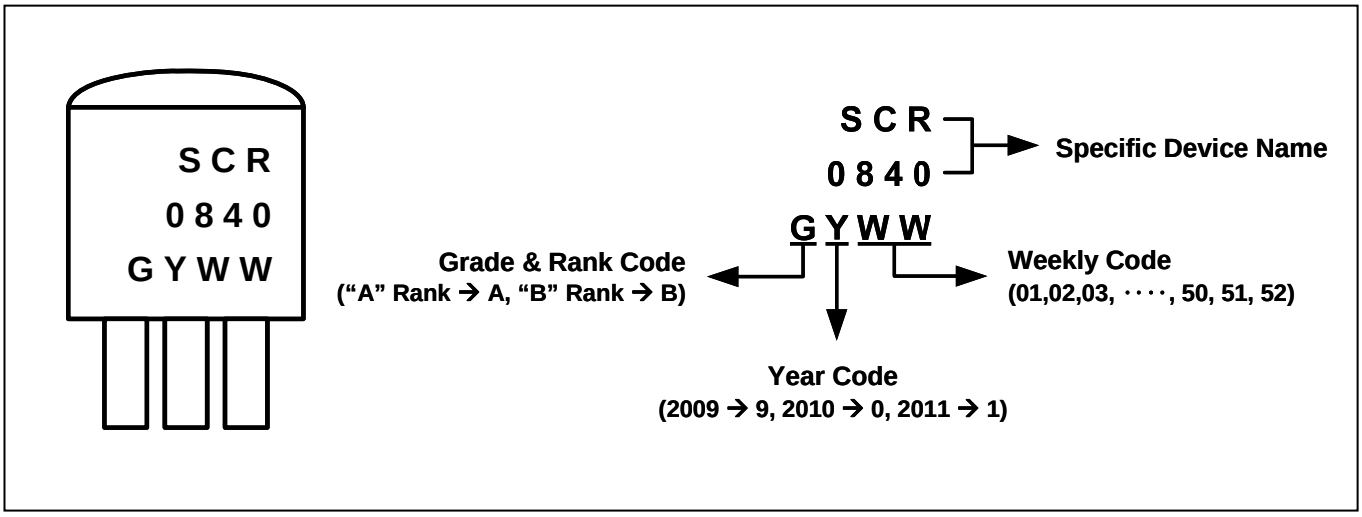
Product Characteristics

$I_{T(RMS)}$	0.8A
V_{DRM}	400V
V_{TM}	1.2V

Ordering Information

Device	Marking Code	Package	Packaging
SCR0840	SCR0840	TO-92	Ammo Tape

Marking Information



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

Symbol	Parameter	Ratings	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	400	V
$I_{T(RMS)}$	R.M.S On-State Current (180° conduction angles)	0.8	A
$I_{T(AV)}$	Average On-State Current (Half Sine Wave : T_C=74°C)	0.5	A
I_{TSM}	Surge On-State Current (1/2 Cycle, 60Hz, Peak, Non Repetitive)	10	A
I^2t	Circuit Fusing Considerations (t=8.3mS)	0.415	A^2_S
P_{GM}	Forward Peak Gate Power Dissipation (Ta=25°C)	0.1	W
$P_{G(AV)}$	Forward Average Gate Power Dissipation (Ta=25°C, t=8.3mS)	0.10	W
V_{RGM}	Reverse Peak Gate Voltage	5	V
I_{FGM}	Forward Peak Gate Current	1	A
T_{STG}	Storage Temperature Range	-40~125	°C
T_j	Operating Junction Temperature	-40~125	°C

Thermal Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$R_{th(J-C)}$	Thermal Resistance	Junction to Case	-	-	1.3	°C/W
$R_{th(J-A)}$	Thermal Resistance	Junction to Ambient	-	60	-	°C/W

*$R_{th\ (J-A)}$: t= 10sec

Electrical Characteristics (Ta=25℃)

Symbol		Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{GT}	A	Gate Trigger Current(1)	V_{AK}=7V, R_L=100Ω	-	-	200	μA
	B			15	-	30	
V_{GT}		Gate Trigger Voltage(1)	V_{AK}=7V, R_L=100Ω, Ta=25°C V_{AK}=7V, R_L=100Ω, Ta=-40°C	-	-	0.8 1.2	V V
V_{GD}		Non Trigger Gate Voltage	V_{AK}=12V, R_L=100Ω, Ta=125°C	0.2	-	-	V
I_H		Holding Current	V_{AK}=12V, Gate open, Initiating current=50mA Ta=25°C Ta=-40°C	-	2	 5 10	 mA mA
I_{DRM}		Repetitive Peak Off-Stage Current	V_{AK}=V_{DRM} or V_{RRM}, T_C=25°C V_{AK}=V_{DRM} or V_{RRM}, T_C=125°C	-	-	10 200	μA μA
V_{TM}		Peak On-Stage Voltage(2)	I_{TM}=1A, Peak	-	1.2	1.7	V

(1) R_{GK} Current is not included in measurement

(2) Forward current applied for 1ms maximum duration, duty cycle ≤1%

Electrical Characteristic Curves

Fig. 1 I_{GT} - Junction Temperature

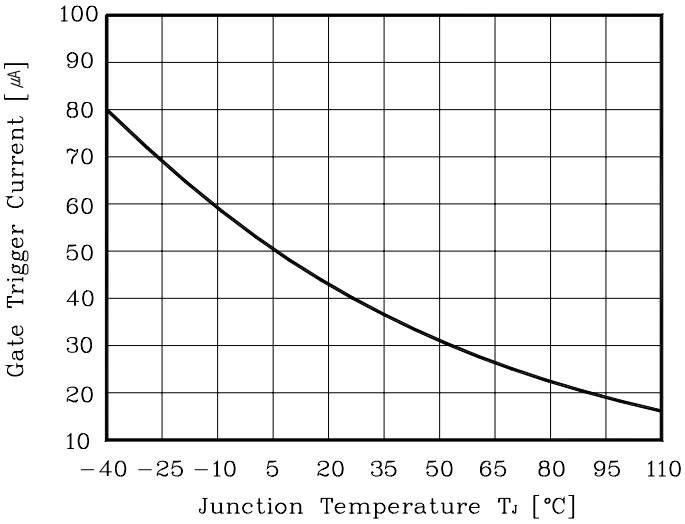


Fig. 2 V_{GT} - Junction Temperature

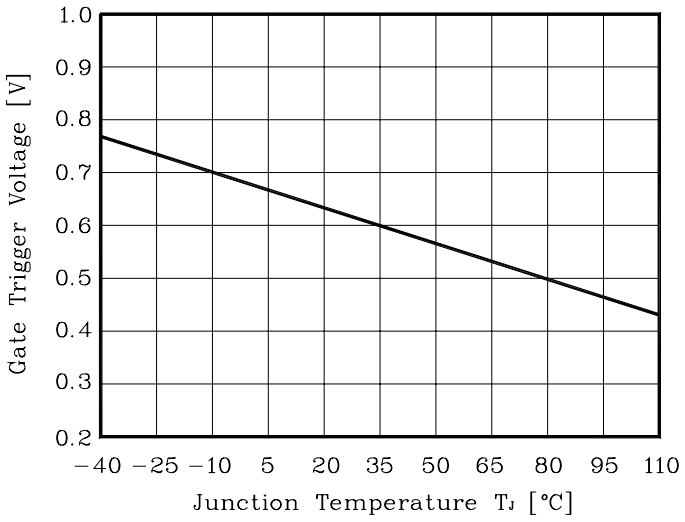


Fig. 3 I_H - Junction Temperature

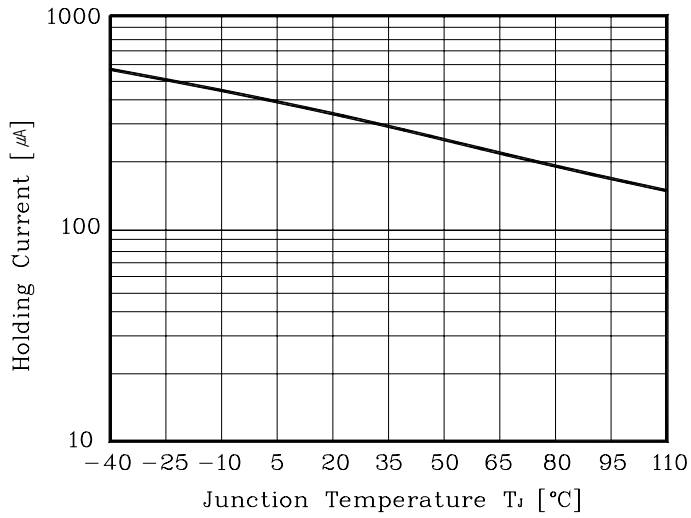


Fig. 4 I_L - Junction Temperature

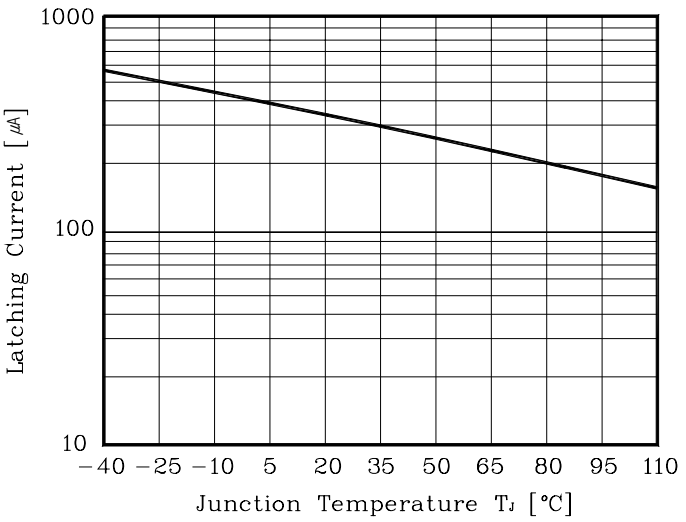


Fig. 5 Current Derating [Ref. : Case Temp.]

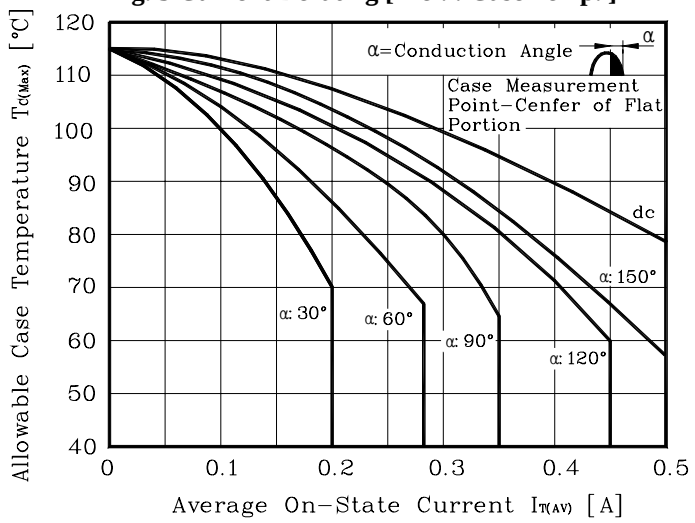
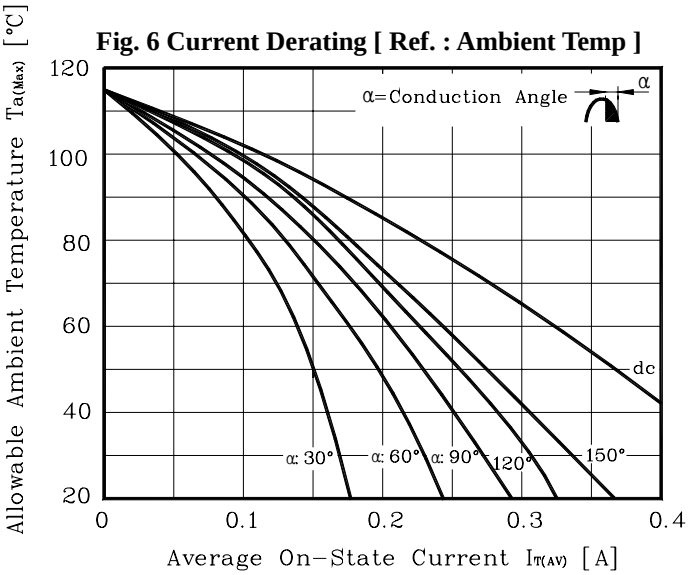
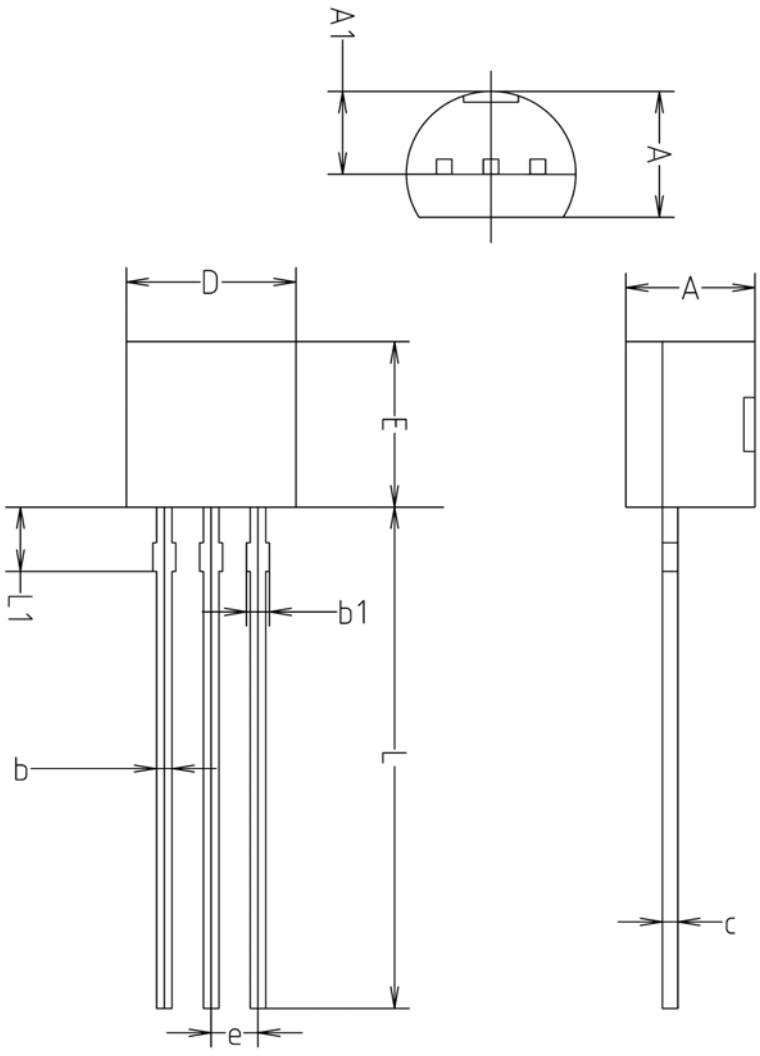


Fig. 6 Current Derating [Ref. : Ambient Temp]



Package Outline Dimension



SYMBOL	MILLMETERS(mm)		
	MINIMUM	NOMINAL	MAXIMUM
A	3.40	3.50	3.66
A1	2.46	2.51	2.59
b	0.39	0.44	0.53
b1	0.39	–	0.63
c	0.35	0.42	0.47
D	4.48	4.60	4.70
E	4.48	4.60	4.70
e	1.17	1.27	1.37
L	13.70	14.00	14.77
L1	1.55	1.70	2.15

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