

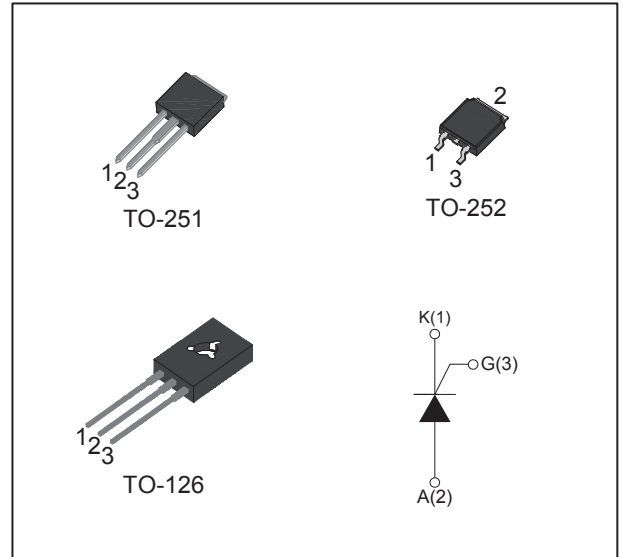
4A Sensitive gate SCRs

Features

- Sensitive gate
- Direct triggering from low power drivers and logic ICs
- Surface mountable package
- Pb-free
- RoHS compliant
- SMD device halogen free

Applications

- Ground Fault Circuit Interrupters (GFCI)
- General purpose switching and phase control
- Ignition circuits, CDI for 2- and 3-wheelers
- Motor control - e.g. small kitchen appliances



Main Features

Symbol	Value	Unit
$I_{T(RMS)}$	4	A
V_{DRM} / V_{RRM}	600	V

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{STG}	-40 to 150	°C
Operating junction temperature range	T_J	-40 to 125	°C
Repetitive peak off-state voltage ($T_J = 25^\circ\text{C}$)	V_{DRM}	600	V
Repetitive peak reverse voltage ($T_J = 25^\circ\text{C}$)	V_{RRM}	600	V
RMS on-state current	TO-251 ($T_C=90^\circ\text{C}$)	$I_{T(RMS)}$	4
	TO-252 ($T_C=90^\circ\text{C}$)		
	TO-126 ($T_C=85^\circ\text{C}$)		
Non repetitive surge peak on-state current (180° conduction angle, $F = 50\text{Hz}$, $t_p = 10\text{ms}$, half full cycle)	I_{TSM}	30	A
I^2t value for fusing ($t_p = 10\text{ms}$)	I^2t	4.5	A^2s
Critical rate of rise of on-state current ($I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ns}$)	dI/dt	50	$\text{A}/\mu\text{s}$
Peak gate current	I_{GM}	1.2	A
Average gate power dissipation	$P_{G(AV)}$	0.2	W

Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Test Condition		Value	Unit
I_{GT}	$V_D = 12\text{V}, R_L = 100\Omega$	MAX	200	μA
V_{GT}	$V_D = 12\text{V}, R_L = 100\Omega$	MAX	0.8	V
V_{GD}	$V_D = V_{DRM}, T_J = 125^\circ\text{C}$	MIN	0.1	V
I_L	$I_G = 1.2 \times I_{GT}$	MAX	6	mA
I_H	$V_{AK} = 12\text{V}, I_{GK} = 100\text{mA}$	MAX	5	mA
dV/dt	$V_D = 67\% V_{DRM}, \text{Gate open}, T_J = 125^\circ\text{C}$	MIN	10	V/ μs

Static Characteristics

Symbol	Test Condition		Value	Unit
V_{TM}	$I_{TM} = 8\text{A}, t_P = 380\mu\text{s}$	$T_J = 25^\circ\text{C}$ MAX	1.65	V
I_{DRM} I_{RRM}	$V_D = V_{DRM}, V_R = V_{RRM}$	$T_J = 25^\circ\text{C}$ MAX	5	μA
		$T_J = 125^\circ\text{C}$ MAX	1	mA

Thermal Resistances

Symbol	Parameter		Value	Unit
$R_{\theta JC}$	Junction to case(AC)	TO-251	6.5	$^\circ\text{C/W}$
		TO-252	6.5	
		TO-126	7.2	

Ordering Information

Ordering Type	Marking	Package	Quantity	Delivery Mode
CS0420-600H	CS0420-600H	TO-251	80	Tube
CS0420-600DP	CS0420-600DP	TO-252	3,000	13" diameter reel
CS0420-600D	S0420-6	TO-126	50	Tube

Ordering Information Scheme

CS 04 20 - 600 H

SCR series

CS = Sensitive gate SCRs

$I_{T(RMS)}$

04 = 4A

I_{GT} Sensitivity

20 = 200 μ A

V_{DRM} / V_{RRM}

600 = 600V

Package type

H = TO-251

DP = TO-252

D = TO-126

Ratings and Characteristics Curves

Fig.1 - RMS on-state current versus case temperature

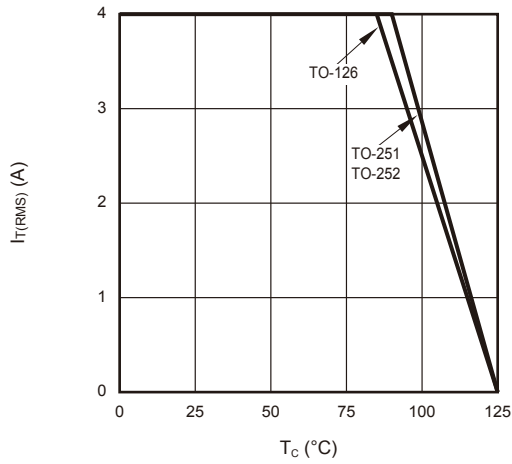


Fig.2 - Surge peak on-state current versus number of cycles

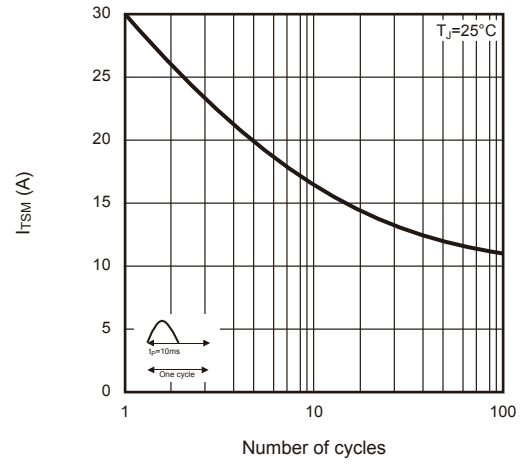


Fig.3 - On-state characteristics (maximum values)

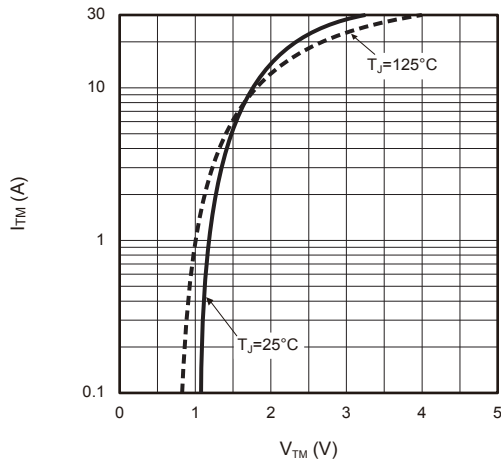


Fig.4 - Maximum power dissipation versus RMS on-state current

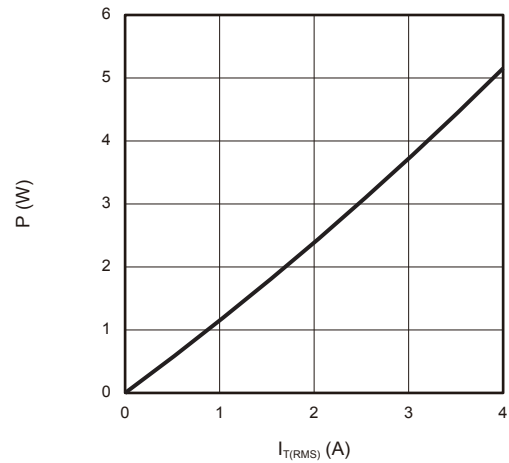
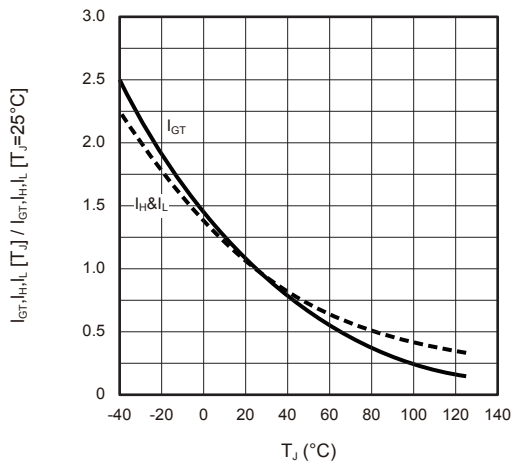
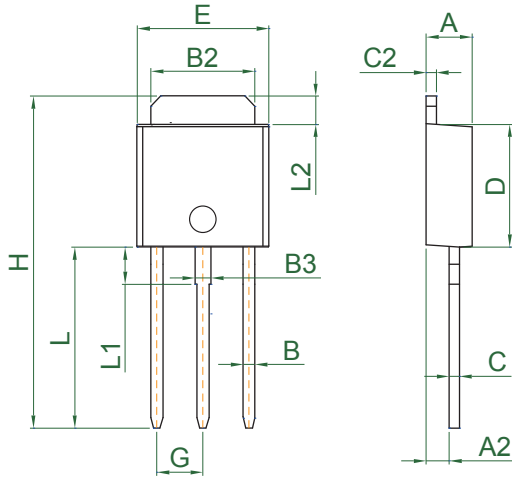


Fig.5 - Relative variations of gate trigger current, holding current and latching current versus junction temperature



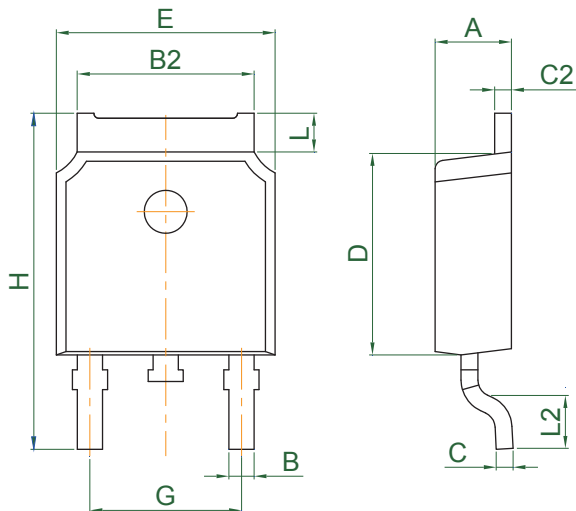
Package Outline Dimensions

TO-251



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2	-	2.4	.087	-	.095
A2	0.9	-	1.5	.035	-	.059
B	0.5	-	0.7	.020	-	.028
B2	5.1	-	5.4	.201	-	.213
B3	0.7	-	1.0	.028	-	.039
C	0.45	-	0.62	.018	-	.024
C2	0.66	-	0.94	.026	-	.037
D	6.0	-	6.2	.236	-	.244
E	6.4	-	6.7	.252	-	.264
G	2.2	-	2.4	.087	-	.095
H	15.25	-	15.65	.600	-	.616
L	7.8	-	8.8	.307	-	.346
L1	1.5	-	1.9	.059	-	.075
L2	1.1	-	1.55	.043	-	.061

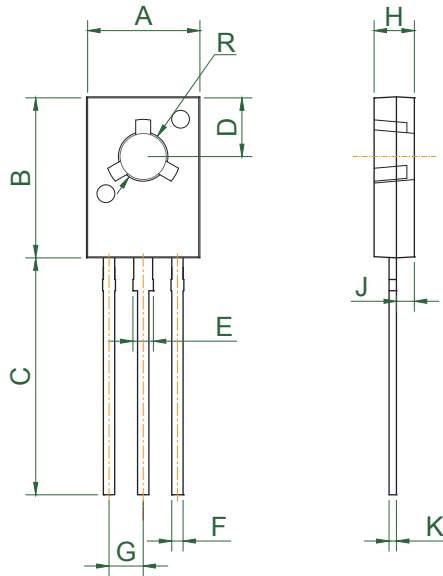
TO-252



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.1	-	2.5	.083	-	.098
B	0.55	-	0.96	.022	-	.038
B2	4.98	-	5.58	.196	-	.220
C	0.4	-	0.62	.016	-	.024
C2	0.37	-	0.99	.015	-	.039
D	5.8	-	6.4	.228	-	.252
E	6.3	-	6.9	.248	-	.272
G	4.4	-	4.7	.173	-	.185
H	9.35	-	10.7	.368	-	.421
L	1.09	-	1.5	.043	-	.059
L2	1.35	-	2.2	.053	-	.087

Package Outline Dimensions

TO-126



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.4	-	8.15	.291	-	.321
B	10.6	-	11.2	.417	-	.441
C	15.3	-	16.3	.602	-	.642
D	3.6	-	4.1	.142	-	.161
E	1.17	-	1.47	.046	-	.058
F	0.66	-	0.86	.026	-	.034
G	2.15	-	2.45	.085	-	.097
H	2.5	-	2.9	.098	-	.114
J	1.1	-	1.5	.043	-	.059
K	0.45	-	0.6	.018	-	.024
R	3.0	-	3.5	.118	-	.138