

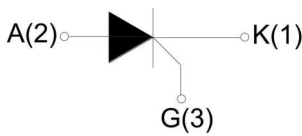
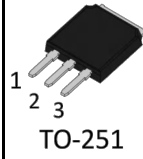
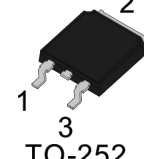
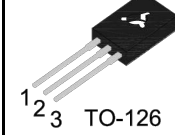
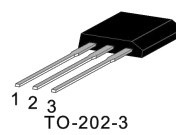
S0402 4A SCRs

FEATURES

- Sensitive gate
- Direct triggering from low power drivers and logic ICs
- Surface mountable package

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

Parameters Summary	
VD/VR:600V IT(RMS):4A IGT :200μA	
	 TO-251  TO-252  TO-126  TO-202-3



ABSOLUTE MAXIMUM RATINGS			
Parameter	Symbol	Value	Unit
Storage junction temperature range	Tstg	-40 ~150	°C
Operating junction temperature range	Tj	-40~125	°C
Repetitive peak off-state voltage (T =25°C)	V _{DRM}	600	V
Repetitive peak reverse voltage (T =25°C)	V _{RRM}	600	V
Non repetitive surge peak Off-state voltage	V _{DSM}	V _{DRM} +100	V
Non repetitive peak reverse voltage	V _{RSM}	V _{RRM} +100	V
RMS on-state current (T =60°C)	I _{T(RMS)}	4.0	A
Non repetitive surge peak on-state current(180° conduction angle, F=50Hz)	I _{TSM}	30	A
Average on-state current (180° conduction angle)	I _{T(AV)}	2.5	A
I ² t value for fusing (tp=10ms)	I ² t	4.5	A ² S
Critical rate of rise of on-state current(I =2×IGT, tr ≤ 100 ns)	dI/dt	50	A/μS
Peak gate current	I _{GM}	1.2	A
Average gate power dissipation	P _{G(AV)}	0.2	W

Thermal Resistances				
Symbol	Parameter	Value	Unit	
Rth(j-t)	Junction to tab (DC)	TO-251	6.5	°C/W
		TO-252	6.5	
		TO-126	7.2	
		TO-202-3	15	

ELECTRICAL CHARACTERISTICS (T=25°C unless otherwise specified)				
Symbol	Test Condition		Value	Unit
I_{GT}	$V = 12V R = 140\Omega$	MAX.	200	μA
V_{GT}		MAX.	0.8	V
V_{GD}	$V_D = V_{DRM} T_j = 125^\circ C R = 1K\Omega$	MIN.	0.1	V
I_L	$I_G = 1.2I_{GT}$	MAX.	6	mA
I_H	$I_T = 50mA$	MAX.	5	mA
dV/dt	$V_D = 2/3V_{DRM}$ Gate Open $T_j = 125^\circ C$	MIN.	10	V/ μs

STATIC CHARACTERISTICS				
Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM} = 8.0A t_p = 380\mu s$	$T_j = 25^\circ C$	1.65	V
I_{DRM}	$V_D = V_{DRM} V_R = V_{RRM}$	$T_j = 25^\circ C$	5	μA
I_{RRM}		$T_j = 125^\circ C$	1	mA

Ordering Information Scheme

S 04 02 - 6 D

Standard SCR series

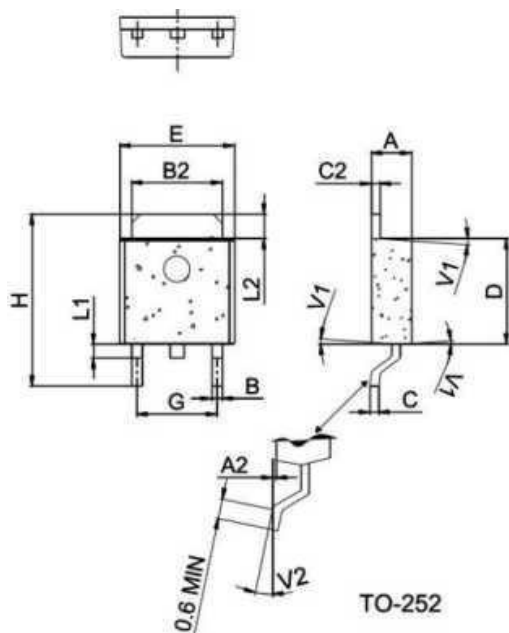
IT(RMS):4A

IGT:200 μ A

D:TO-252 Q:TO-126
I:T-202-3 H:TO-251

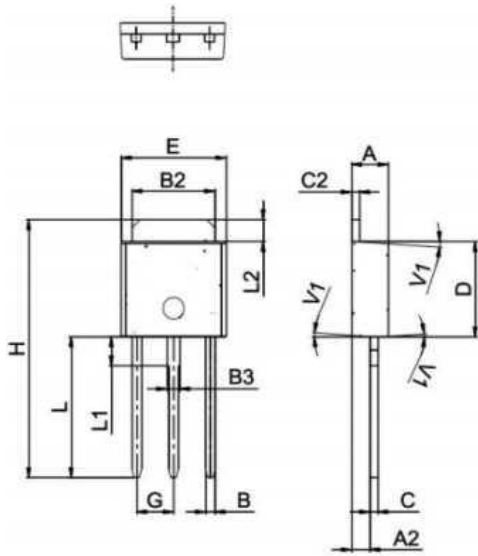
VD/VR:600V

TO-252 Package Mechanical Data



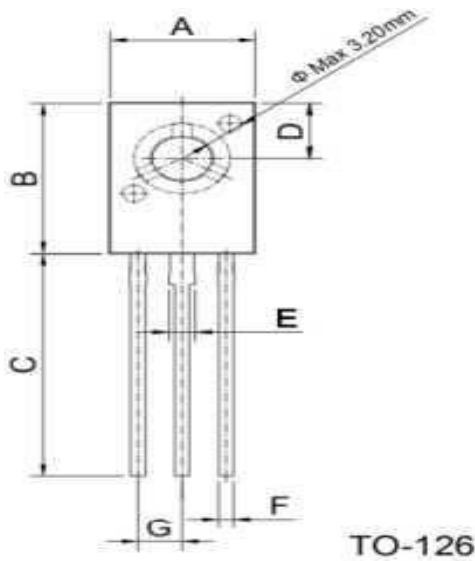
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.62	0.018		0.024
C2	0.71		0.99	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G	4.40		4.70	0.173		0.185
H	9.35		10.60	0.368		0.417
L1	1.30		1.70	0.051		0.067
L2	1.37		1.50	0.054		0.059
V1		4				
V2	0		8	0		8

TO-251 Package Mechanical Data



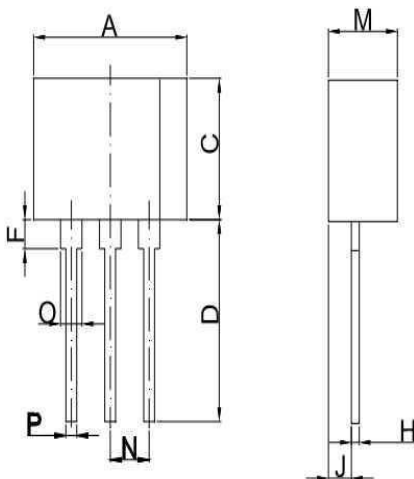
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ-	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.90		1.50	0.035		0.059
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
B3	0.76		0.85	0.030		0.033
C	0.45		0.62	0.018		0.024
C2	0.66		0.94	0.025		0.037
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G		2.30				
H	15.25		15.65	0.600		0.616
L	7.8		8.8	0.307		0.346
L1	1.50		1.90	0.059		0.075
L2	1.10		1.50	0.043		0.059
V1		4			4	

TO-126 Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ-	Max.	Min.	Typ.	Max.
A	7.43		8.23	0.292		0.324
B	10.07		11.27	0.396		0.443
C	15.4		17.4	0.606		0.685
D	0.80		4.20	0.149		0.165
E	1.17		1.47	0.046		0.058
F	0.48		0.88	0.018		0.034
G		2.29			0.090	
H	2.50		2.90	0.098		0.114
J	1.10		1.50	0.043		0.059
K	0.45		0.60	0.018		0.024

TO-202-3 Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ-	Max.	Min.	Typ.	Max.
A	9.30		9.90	0.366		0.390
C	7.0		7.6	0.276		0.299
D	10.5		11.5	0.413		0.453
F	1.50		2.50	0.059		0.098
H	0.45		0.55	0.018		0.022
J	1.50		1.90	0.059		0.075
M	4.40		4.70	0.173		0.185
N		2.54			0.100	0.059
O	1.20		1.50	0.047		0.059
P	0.60		0.80	0.024		0.031

FIG.1 Maximum power dissipation versus Average on-state current

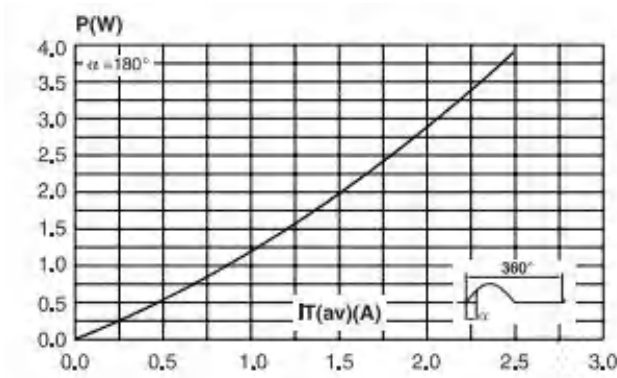


FIG.2: on-state current versus case temperature

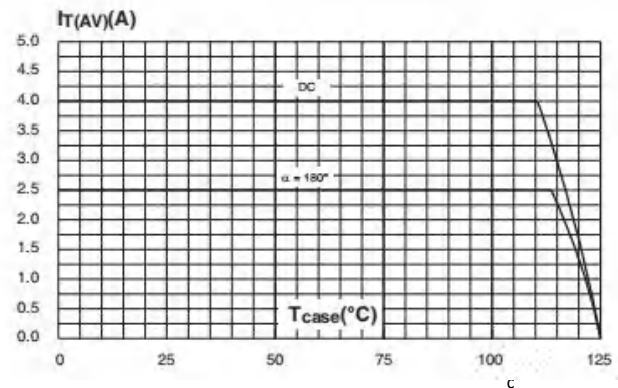


FIG.3: Surge peak on-state current versus number of cycles

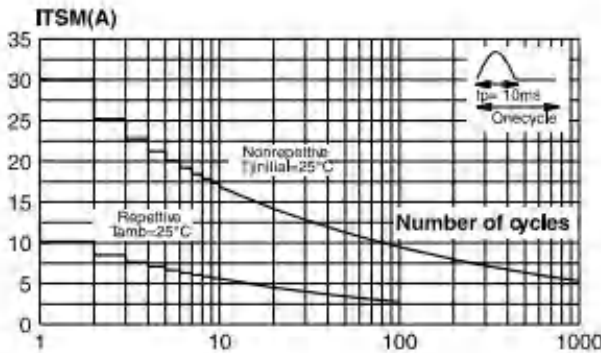


FIG.4: On-state characteristics (maximum values)

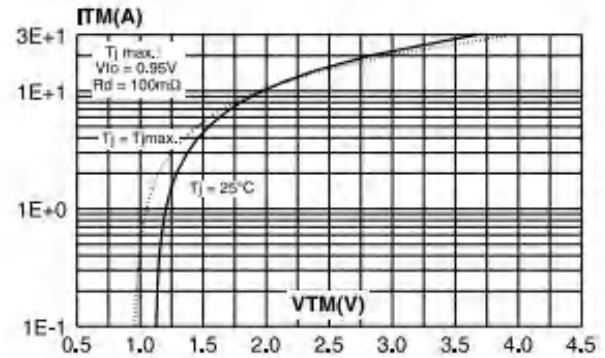


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $I_2 t$ ($di/dt < 50\text{A}/\mu\text{s}$)

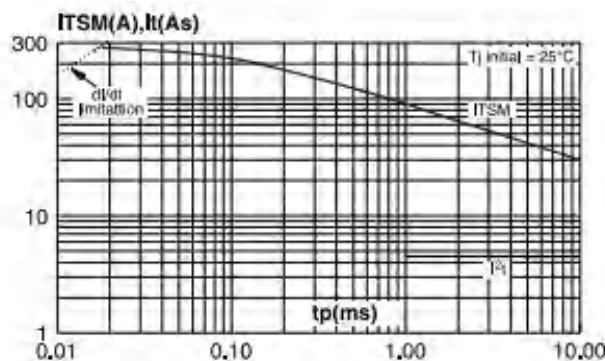
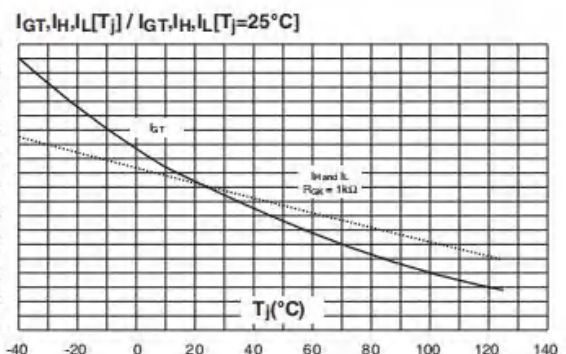


FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature



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