

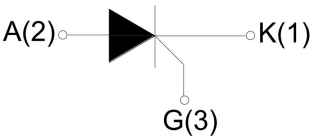
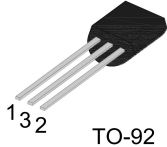
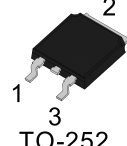
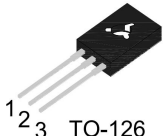

## S0202 2A SCRs

### 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):2A IGT :200μA	
	 TO-92  TO-252  TO-126  SOT-223



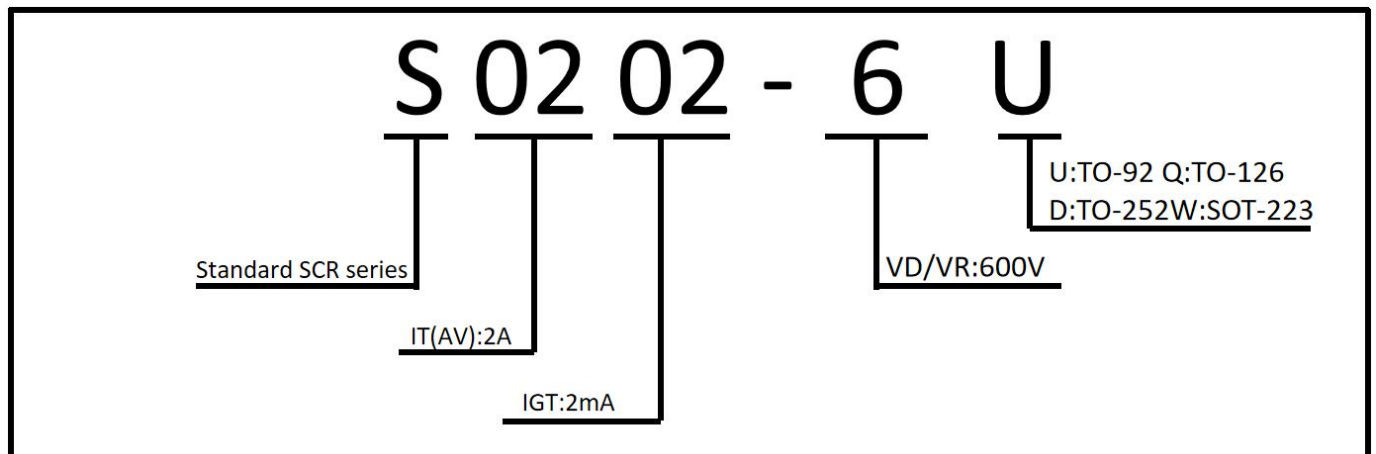
ABSOLUTE MAXIMUM RATINGS			
Parameter	Symbol	Value	Unit
Storage junction temperature range	Tstg	-40 ~150	°C
Operating junction temperature range	Tj	-40~125	°C
Repetitive peak off-state voltage (T =25°C)	V <sub>DRM</sub>	600	V
Repetitive peak reverse voltage (T =25°C)	V <sub>RRM</sub>	600	V
Non repetitive surge peak Off-state voltage	V <sub>DSM</sub>	V <sub>DRM</sub> +100	V
Non repetitive peak reverse voltage	V <sub>RSM</sub>	V <sub>RRM</sub> +100	V
RMS on-state current (T =85°C)	I <sub>T(RMS)</sub>	2.0	A
Non repetitive surge peak on-state current(180° conduction angle, F=50Hz)	I <sub>TSM</sub>	20	A
Average on-state current (180° conduction angle)	I <sub>T(AV)</sub>	1.25	A
I <sup>2</sup> t value for fusing (tp=10ms)	I <sup>2</sup> t	2.0	A <sup>2</sup> S
Critical rate of rise of on-state current(I =2×IGT, tr ≤ 100 ns)	dI/dt	50	A/μS
Peak gate current	I <sub>GM</sub>	1.0	A
Average gate power dissipation	P <sub>G(AV)</sub>	0.1	W

Thermal Resistances				
Symbol	Parameter	Value	Unit	
Rth(j-c)	junction to case (DC)	TO-92	150	°C/W
		TO-126	100	
		TO-92	60	
		TO-126	10	

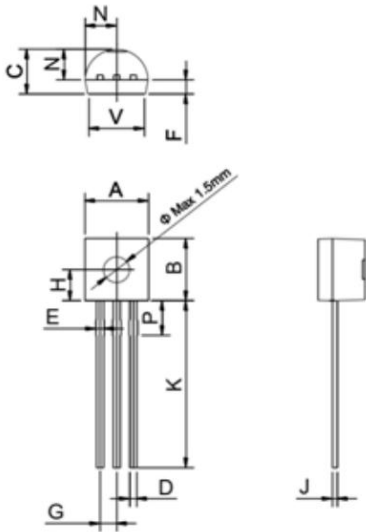
ELECTRICAL CHARACTERISTICS (T=25°C unless otherwise specified)				
Symbol	Test Condition		Value	Unit
$I_{GT}$	$V = 12V$ $R = 140\Omega$	MAX.	200	$\mu A$
$V_{GT}$		MAX.	1.0	V
$V_{GD}$	$V_D = V_{DRM}$ $T_j = 125^\circ C$ $R = 1K\Omega$	MIN.	0.2	V
$I_L$	$I_G = 1.2I_{GT}$	MAX.	6	mA
$I_H$	$I_T = 50mA$	MAX.	5	mA
$dV/dt$	$V_D = 2/3V_{DRM}$ Gate Open $T_j = 125^\circ C$	MIN.	15	V/ $\mu s$

STATIC CHARACTERISTICS				
Symbol	Parameter		Value(MAX. )	Unit
$V_{TM}$	$I_{TM} = 4.0A$ $t_p = 380\mu s$	$T_j = 25^\circ C$	2.0	V
$I_{DRM}$	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$T_j = 25^\circ C$	5	$\mu A$
$I_{RRM}$		$T_j = 125^\circ C$	0.2	mA

### Ordering Information Scheme

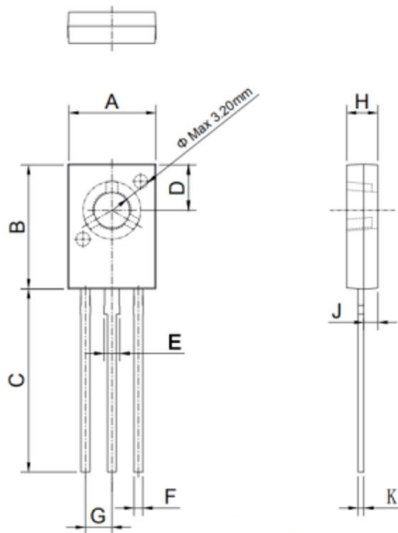


### TO-92 Package Mechanical Data



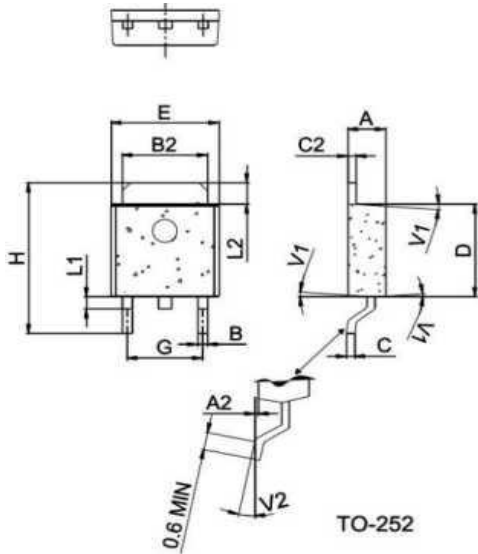
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.45		5.20	0.175		0.205
B	4.32		5.33	0.170		0.210
C	3.18		4.19	0.125		0.165
D	0.254		0.506	0.016		0.021
E	0.30		0.70	0.024		0.031
F	.	1.30	.	.	0.051	-
G	.	1.27	.	.	0.050	-
H	.	2.30	.	.	0.091	-
J	0.30		0.50	0.011	0.1	0.020
K	12.70		15.0	0.500		0.591
N	2.04		2.66	0.080	0.148	0.105
P	1.86		2.06	0.073		0.081
V	2.65		4.50	.		0.169

### TO-126 Package Mechanical Data



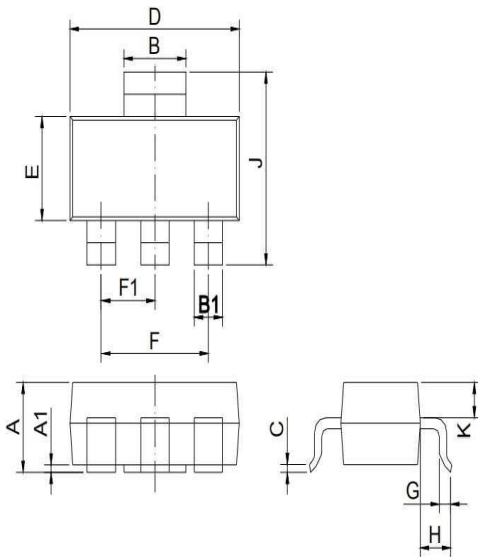
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.43		8.23	0.292		0.324
B	10.07		11.27	0.396		0.443
C	15.4		17.4	0.606		0.685
D	0.80		4.20	0.149		0.165
E	1.17		1.47	0.046		0.058
F	0.48		0.88	0.018		0.034
G		2.29			0.090	
H	2.50		2.90	0.098		0.114
J	1.10		1.50	0.043		0.059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

### TO-252 Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.50		4.90	0.177		0.193
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.47		0.65	0.019		0.026
C2	2.50		3.10	0.096		0.108
C3	2.40		2.80	0.102		0.118
D	8.60		8.90	0.346		0.366
E	9.80		10.4	0.386		0.410
F	6.70		7.50	0.252		0.268
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.63			0.143	
L2	1.14		1.70	0.045		0.067
L3		3.30			0.130	
V1		45°			45°	

### SOT-23 Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.5	1.6	1.8	0.059	0.063	0.071
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	2.9	3.0	3.1	0.114	0.118	0.122
B1	0.6	0.7	0.8	0.024	0.028	0.031
C	0.22	0.26	0.32	0.009	0.010	0.013
D	6.3	6.5	6.7	0.248	0.256	0.264
E	3.3	3.5	3.7	0.130	0.138	0.146
F		4.6			0.181	
F1		2.3			0.091	
G	0.7	0.9	1.1	0.028	0.035	0.043
H	1.5	1.75	2	0.059	0.069	0.079
J	6.7	7.0	7.3	0.264	0.276	0.287
K		0.9			0.035	

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

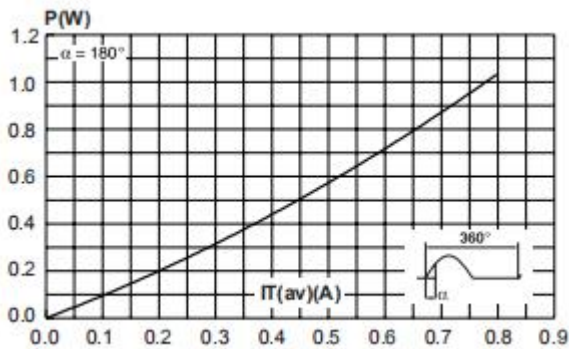


FIG.2: on-state current versus case temperature

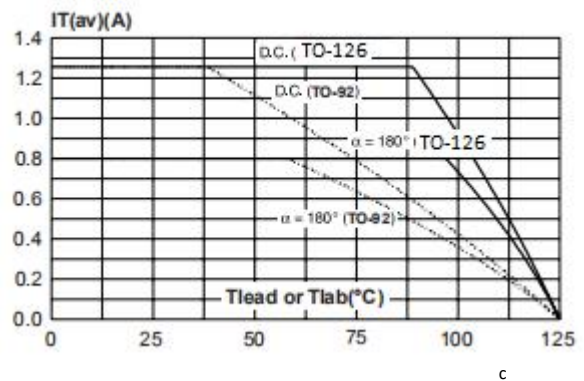


FIG.3: Surge peak on-state current versus number of cycles

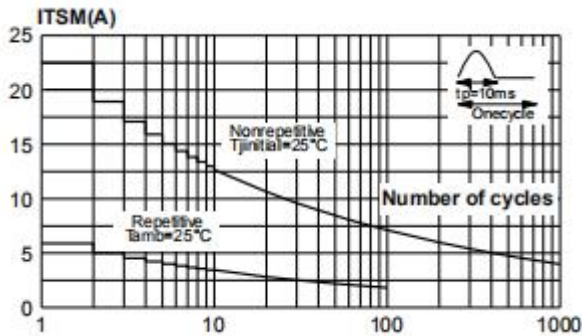


FIG.4: On-state characteristics (maximum values)

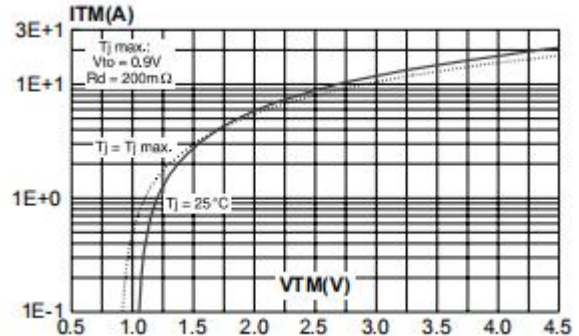


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I_2 t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )

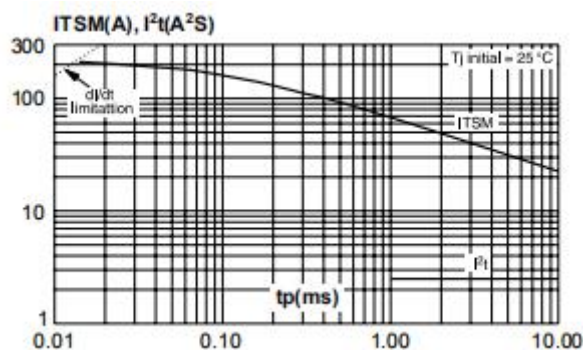
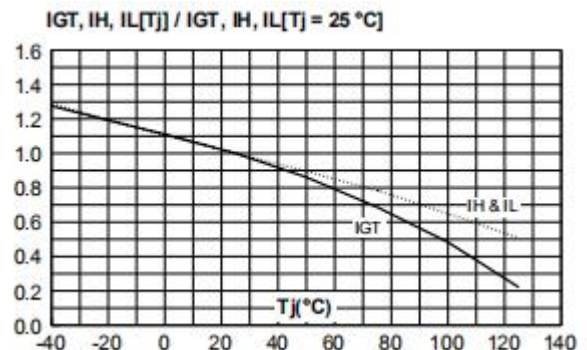


FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature



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