S0402 4A SCRs

FEATURES

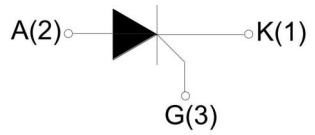
- Sensitive gate
- Direct triggering from low power drivers and logic ICs
- Surface mountable package

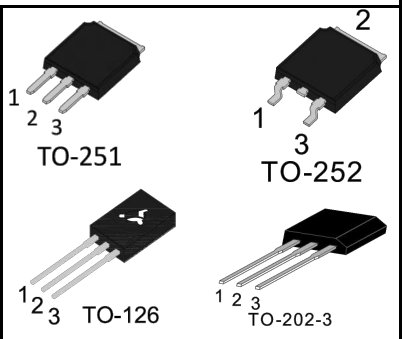
APPLICATIONS

- 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





SMD Device Halogen Free

Pb-free

RoHS COMPLIANT

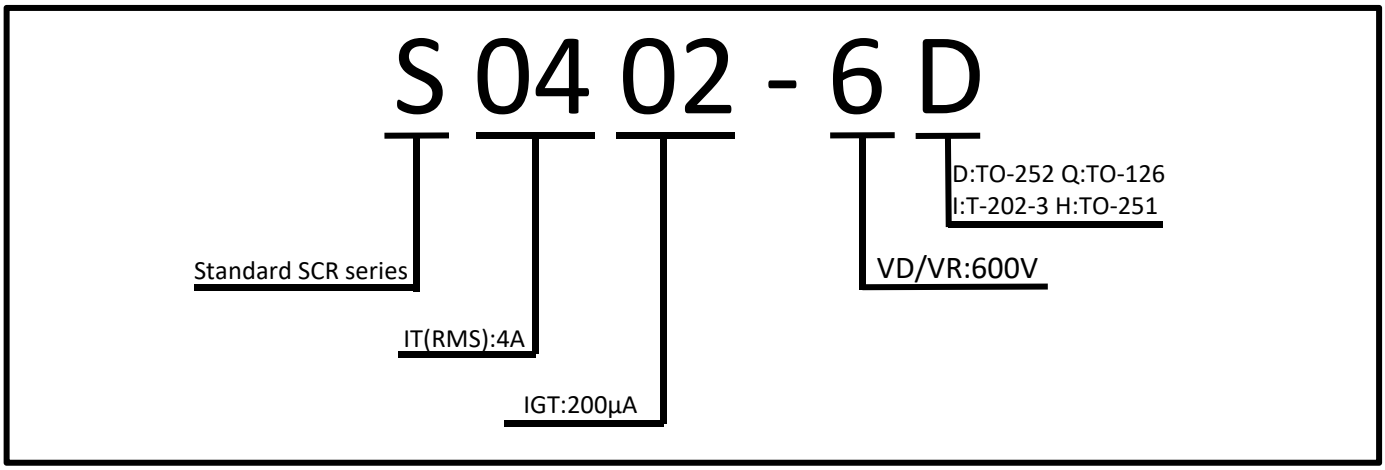
ABSOLUTE MAXIMUM RATINGS			
Parameter	**Symbol**	**Value**	**Unit**
Storage junction temperature range	Tstg	-40 ~150	℃
Operating junction temperature range	Tj	-40~125	℃
Repetitive peak off-state voltage (T =25℃)	V_{DRM}	600	V
Repetitive peak reverse voltage (T =25℃)	V_{RRM}	600	V
Non repetitive surge 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℃)	$I_{T(RMS)}$	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^2t value for fusing (tp=10ms)	I^2t	4. 5	A^2S
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	℃/W
		TO-252	6. 5	
		TO-126	7. 2	
		TO-202-3	15	

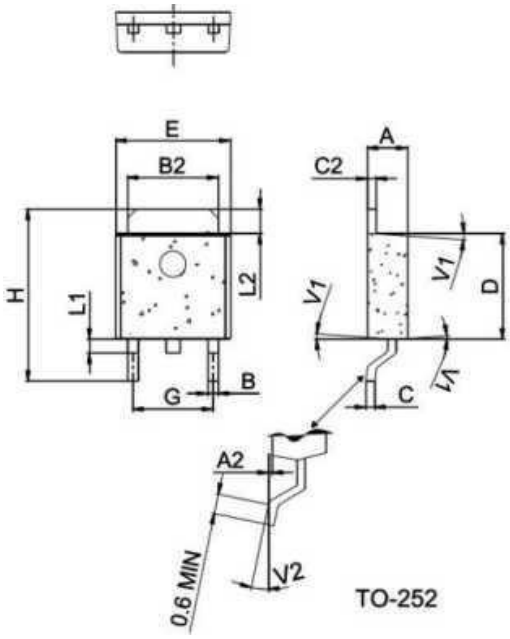
ELECTRICAL CHARACTERISTICS (T=25℃unless otherwise specified)				
Symbol	**Test Condition**		**Value**	**Unit**
I_{GT}	V =12V R =140Ω	MAX.	200	μA
V_{GT}		MAX.	0. 8	V
V_{GD}	V_D=V_{DRM} Tj=125℃ R=1KΩ	MIN.	0.1	V
I_L	I_G=1.2I_{GT}	MAX.	6	mA
I_H	IT=50mA	MAX.	5	mA
dV/dt	V_D=2/3V_{DRM} Gate Open Tj=125℃	MIN.	10	V/μs

STATIC CHARACTERISTICS				
Symbol	**Parameter**		**Value(MAX.)**	**Unit**
V_{TM}	ITM =8.0A tp=380μs	Tj =25℃	1. 65	V
I_{DRM}	V_D=V_{DRM} V_R=V_{RRM}	Tj =25℃	5	μA
I_{RRM}		Tj =125℃	1	mA

Ordering Information Scheme

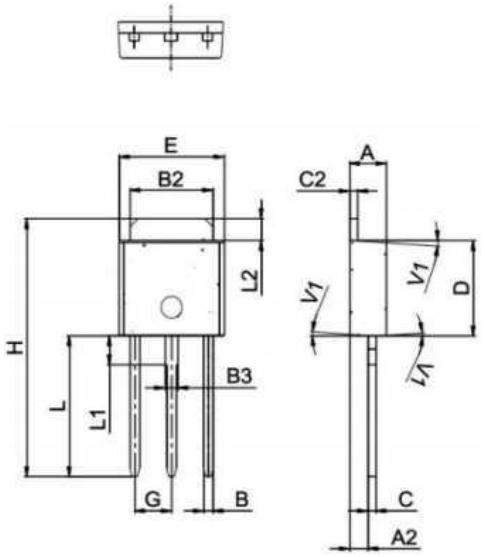


TO-252 Package Mechanical Data



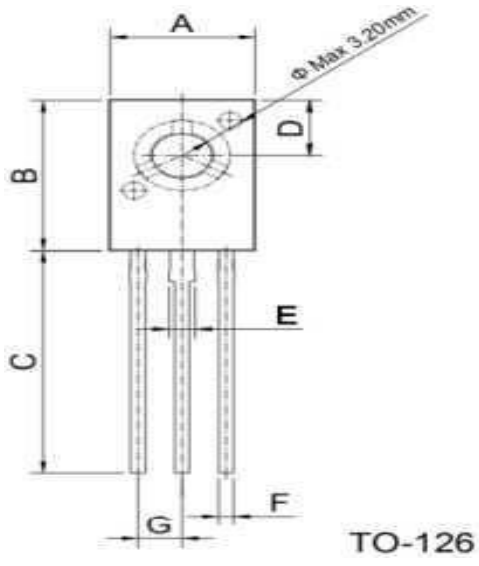
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ-	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.62	0.018		0.024
C2	0.71		0.99	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G	4.40		4.70	0.173		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



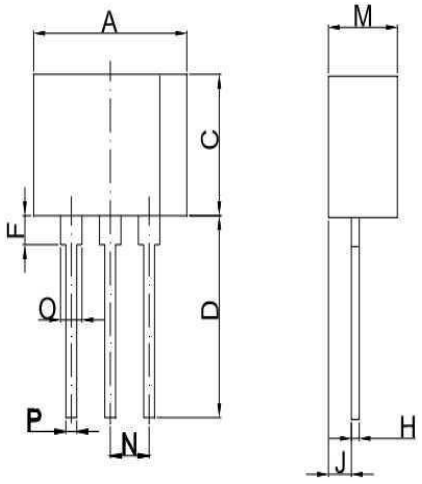
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ-	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.90		1.50	0.035		0.059
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
B3	0.76		0.85	0.030		0.033
C	0.45		0.62	0.018		0.024
C2	0.66		0.94	0.025		0.037
D	6.00		6.20	0.236		0.244
E	6.40		6.70	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

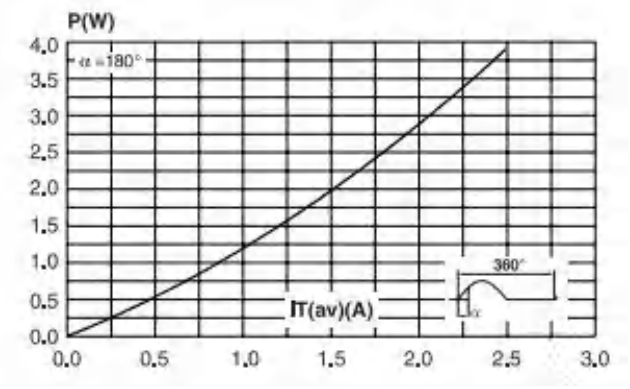


FIG.2: on-state current versus case temperature

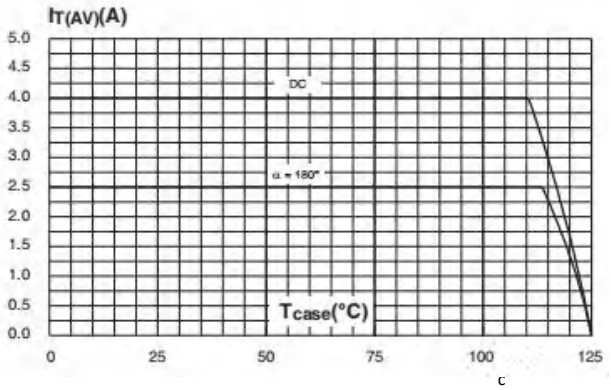


FIG.3: Surge peak on-state current versus number of cycles

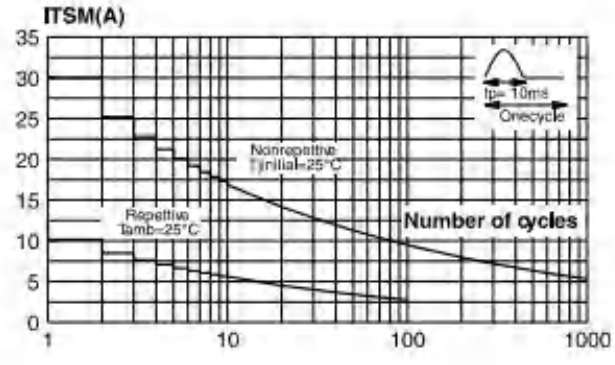


FIG.4: On-state characteristics (maximum values)

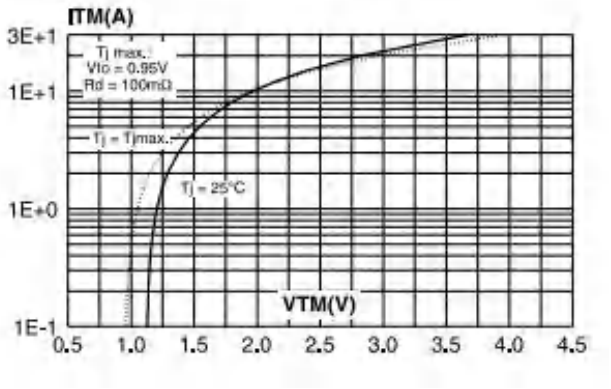


FIG.5: Non-repetitive surge peak on-state currentfor a sinusoidal pulse with width tp<10ms, and corresponding value of I2 t (dI/dt < 50A/µs)

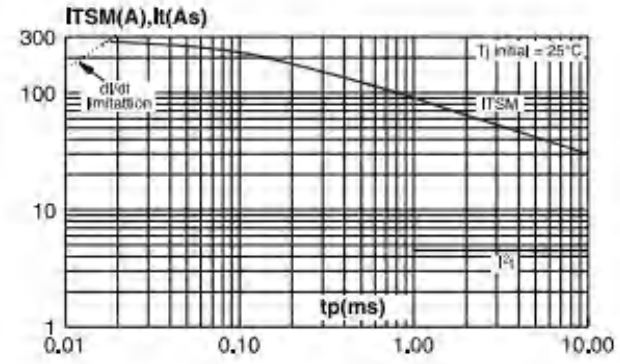
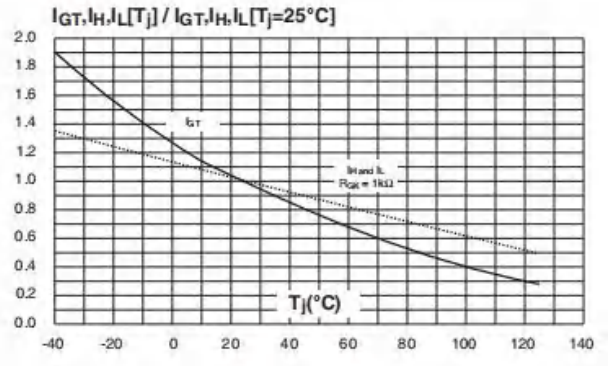


FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature



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