

F01 Series 1A TRIACs

FEATURES

- Glass Passivated Junctions
- High voltage and surge capability
- Low Thermal Resistance and Durability
- Triggering in all four quadrants

APPLICATIONS

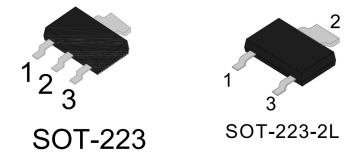
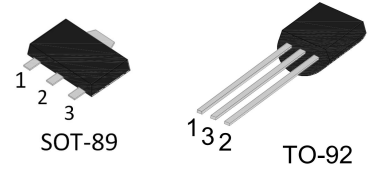
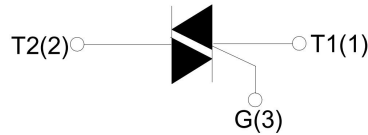
- Heating regulation
- In-duction motor starting circuits
- Phase control operation in light dimmers
- Motor speed controllers

Parameters Summary

VD/VR:600/800V

IT(RMS):1A

IGT:3mA



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}	600/800	V
Repetitive peak reverse voltage (T =25°C)		V _{RRM}	600/800	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	SOT-89/SOT-223/SOT-223-2L (TC=70°C)	I _{T(RMS)}	1	A
	TO-92 (TC=51°C)			
Non repetitive surge peak on-state current (180° conduction angle, F=50Hz)		I _{TSM}	12	A
I ² t value for fusing (tp=10ms)		I ² t	0.72	A ² S
Critical rate of rise of on-state current (I =2×IGT, tr ≤ 100 ns)		di/dt	20	A/μS
Peak gate current		I _{GM}	1	A
Average gate power dissipation		P _{G(AV)}	0.5	W

Thermal Resistances				
Symbol	Parameter		Value	Unit
Rth(j-c)	Junction to case (AC)	TO-92	60	°C/W
		SOT-89	30	
		SOT-223	30	
		SOT-223-2L	30	

ELECTRICAL CHARACTERISTICS (T=25°C unless otherwise specified)					
Symbol	Test Condition	Quadrant		Value	Unit
				03	
I_{GT}	$V_D=12V$	I-II-III	MAX	3	mA
		IV		7	V
V_{GT}		ALL	MAX	1.3	
V_{GD}	$V_D=V_{DRM}$ $T_j=125^\circ C$	ALL	MIN	0.2	V
I_L	$I_G=1.2I_{GT}$	I -III	MAX	5	mA
		II -IV		15	
I_H	$I_T=200mA$		MAX	5	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ C$		MIN	20	V/ μs

STATIC CHARACTERISTICS				
Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=1.4A$ $t_p=380\mu s$	$T_j=25^\circ C$	1.5	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	5	μA
I_{RRM}		$T_j=125^\circ C$	5	mA

Ordering Information Scheme

F 01 03 - 8 U

F:4Q

IT(RMS):1A

03:IGT≤3mA

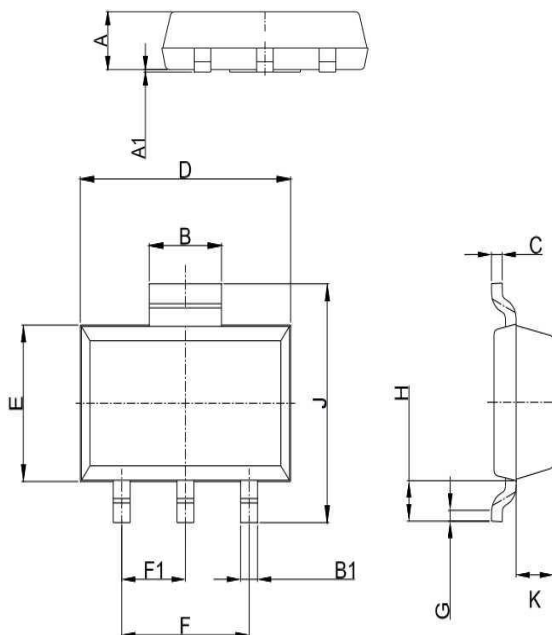
E:SOT-89 U:TO-92

W:SOT-223 V:SOT-223-2L

6:VD/VR≥600V

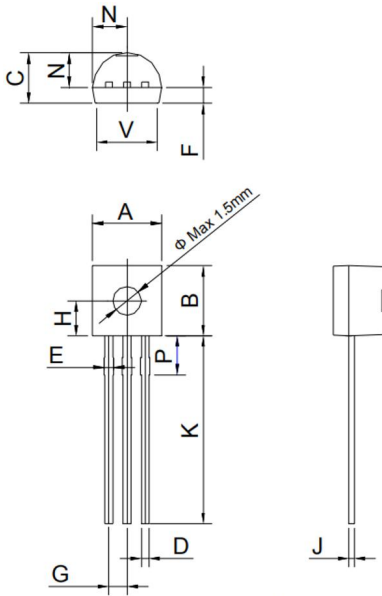
8:VD/VR≥800V

SOT-89 Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.3	1.4	1.5	0.051	0.055	0.059
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	1.6	1.7	1.8	0.063	0.067	0.071
B1	0.3	0.4	0.5	0.012	0.016	0.020
C	0.22	0.254	0.32	0.009	0.010	0.013
D	4.75	4.95	5.15	0.187	0.195	0.203
E	2.75	2.95	3.15	0.108	0.116	0.124
F		3.0			0.118	
F1		1.5			0.059	
G	0.2	0.3	0.4	0.008	0.012	0.016
H	0.58	0.78	0.98	0.023	0.031	0.039
J	4.3	4.5	4.7	0.169	0.177	0.185
K		0.88			0.035	

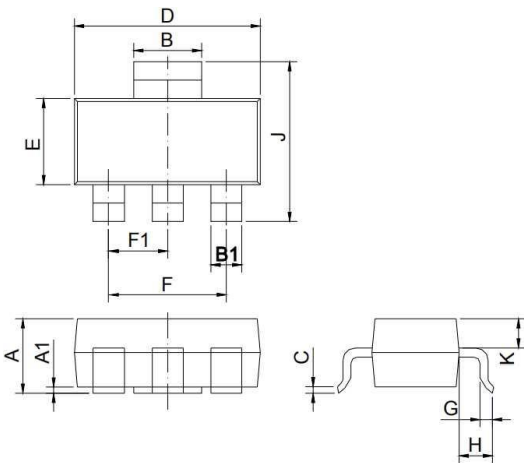
TO-92 Package Mechanical Data



TO-92

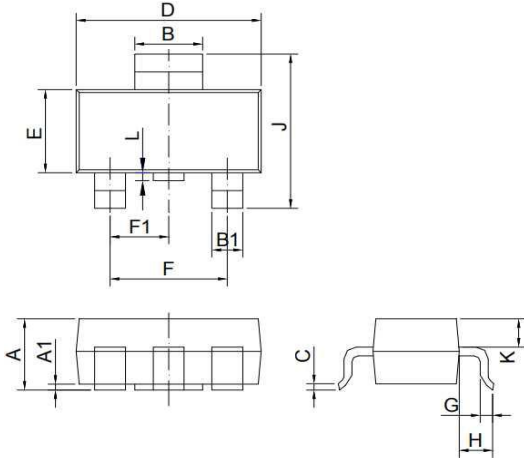
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.45		5.20	0.175		0.205
B	4.32		5.33	0.170		0.210
C	3.18		4.19	0.125		0.165
D	0.254		0.506	0.016		0.021
E	0.30		0.70	0.024		0.031
F	.	1.30	.	.	0.051	-
G	.	1.27	.	.	0.050	-
H	.	2.30	.	.	0.091	-
J	0.30		0.50	0.011		0.020
K	12.70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

SOT-223 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	

SOT-223-2L 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	
L	0	0.1	0.2	0	0.004	0.008

FIG.1 Maximum power dissipation versus on-state current

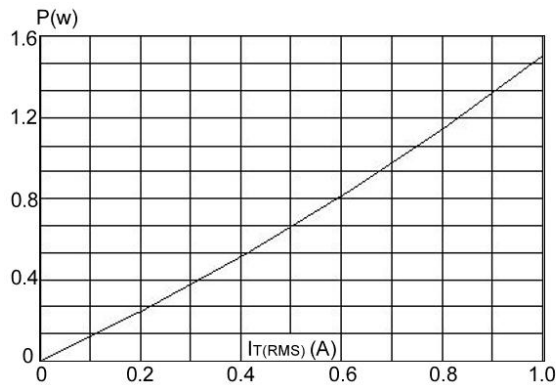


FIG.2: on-state current versus case temperature

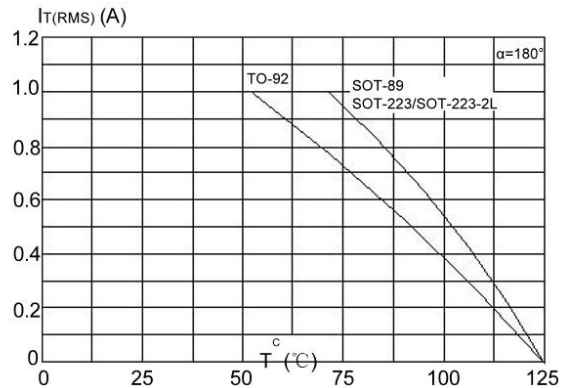


FIG.3: Surge peak on-state current versus number of cycles

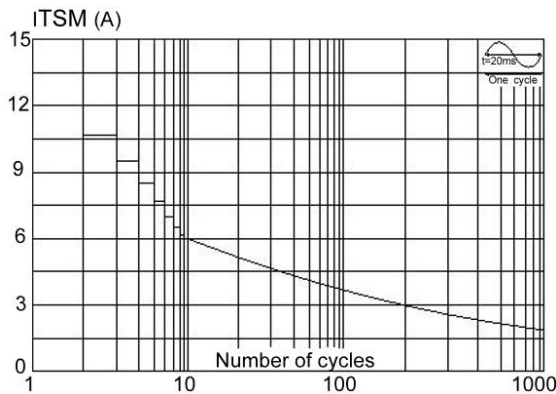


FIG.4: On-state characteristics (maximum values)

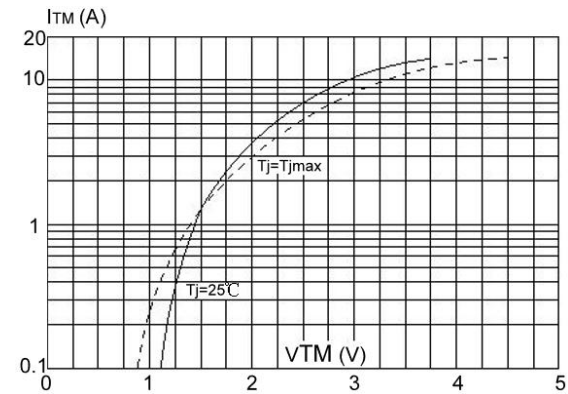


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $I_2 t$ ($di/dt < 50\text{A}/\mu\text{s}$)

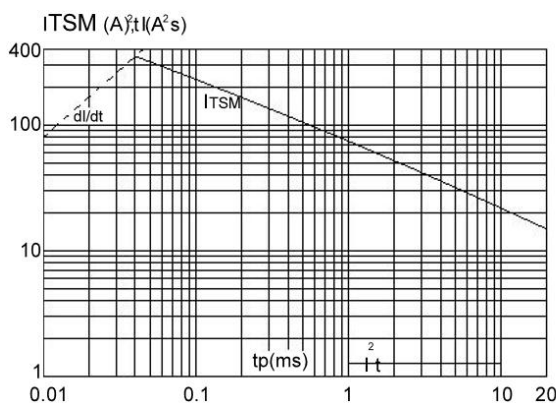


FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature

