

IT(RMS)		0.6A
VDRM/VRRM		600V
VTM		1.7V

FEATURES

IT(RMS): 0.6A

VGT: 0.8V

VDRM VRRM:600V

Low power gate trigger circuits

APPLICATIONS

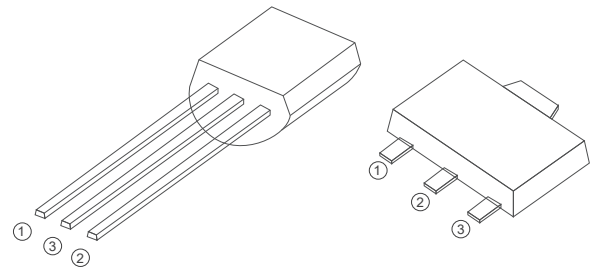
Heater Control

Motor Speed Controller

Washing machine

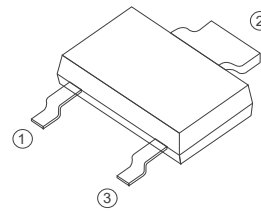
Vacuums

Solid state relay

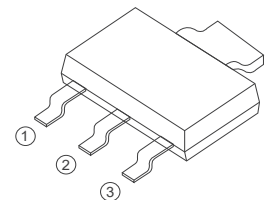


TO-92

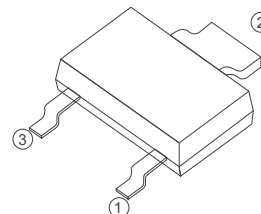
SOT-89



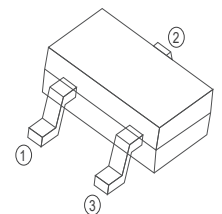
SOT-89-2L



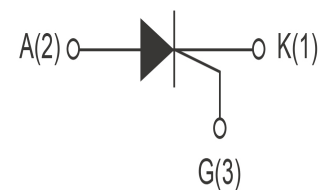
SOT-223



SOT-89-2L



SOT-23



Absolute Maximum Ratings ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Conditions	Ratings	Unit
VDRM VRRM	Repetitive Peak Off-State Voltage	BT169	600	V
IT(AV)	Average On-state Current		0.6	A
IT(RMS)	R.M.S On-State Current		0.8	A
ITSM	Surge On-State Current	F=50Hz $T_p=10\text{ms}$	10	A
I^2t	I^2t for fusing	$T_p=10\text{ms}$	0.4	A^2s
PG(AV)	Average Gate Power Dissipation	$T_j=125^{\circ}\text{C}$	0.1	W
PGM	Peak Gate Power Dissipation	$t_p=20\mu\text{s}$ $T_j=125^{\circ}\text{C}$	0.5	W
T_j	Operating Junction Temperature		$\sim 40\sim 110$	$^{\circ}\text{C}$
TSTG	Storage Temperature		$\sim 40\sim 150$	$^{\circ}\text{C}$

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

Symbol	Parameter	Test Conditions	Value	Unit
IDRM	Repetitive Peak Off-State Current	$T_c=25^{\circ}\text{C}$	≤ 5	μA
		$T_c=110^{\circ}\text{C}$	≤ 100	μA
IRRM	Repetitive Peak Reverse Current	$T_c=25^{\circ}\text{C}$	≤ 5	μA
		$T_c=110^{\circ}\text{C}$	≤ 100	μA
VTM	Forward "on" voltage	$I_T=1.2\text{A}$ $t_p=380\mu\text{s}$	≤ 1.7	V
VGD	Gate non-trigger voltage	$V_D=V_{DRM}$, $T_j=110^{\circ}\text{C}$, $R_{GK}=1\text{k}\Omega$, $R_L=3.3\text{k}\Omega$	≥ 0.1	V
VGT	Gate trigger voltage	$V_D=12\text{V}$, $I_T=0.1\text{A}$	≤ 0.8	V
IH	Holding current	$I_T=50\text{mA}$	≤ 4	mA
IL	Latching current	$I_G=1.2 I_{GT}$	≤ 6	mA
IGT	Gate trigger current	$V_D=12\text{V}$, $I_T=0.1\text{A}$	≤ 200	μA
dv/dt	Critical-rate of rise of commutation voltage	$T_j=110^{\circ}\text{C}$, $V_D=2/3 V_{DRM}$, $R_{GK}=1\text{k}\Omega$	≥ 10	V/ μs

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case	TO-92/ SOT-23	75	$^{\circ}\text{C/W}$
		SOT-89	45	
		SOT-223	31	

FIG1

Maximum power dissipation versus RMS on-state current

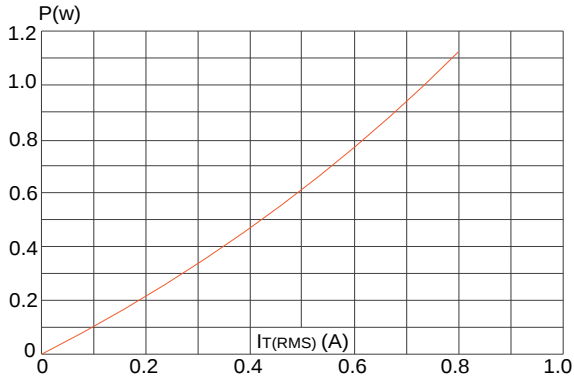


FIG2

RMS on-state current versus case temperature

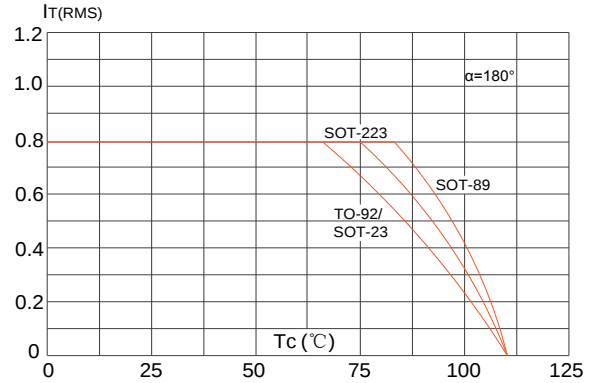


FIG3

Surge peak on-state current versus number of cycles

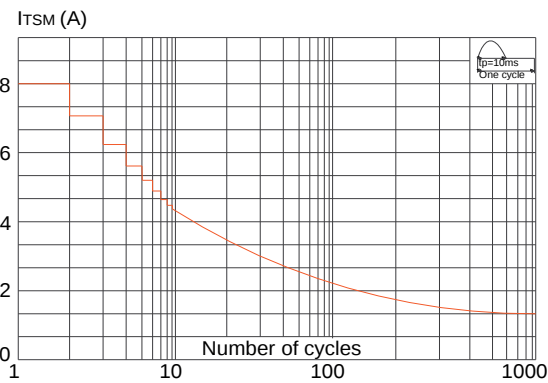


FIG4

On-state characteristics (maximum values)

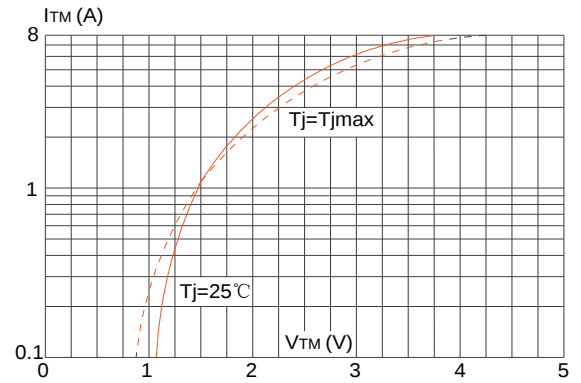


FIG5

Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t ($dI/dt < 100A/\mu s$)

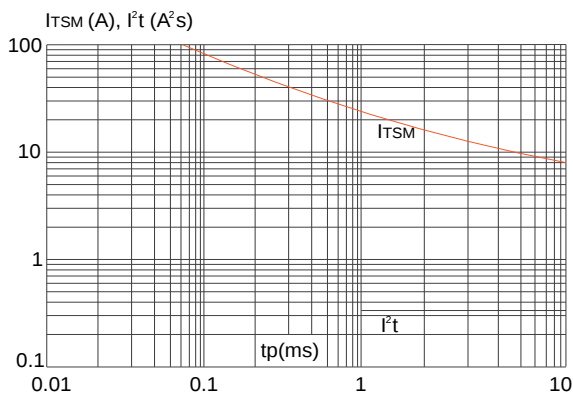
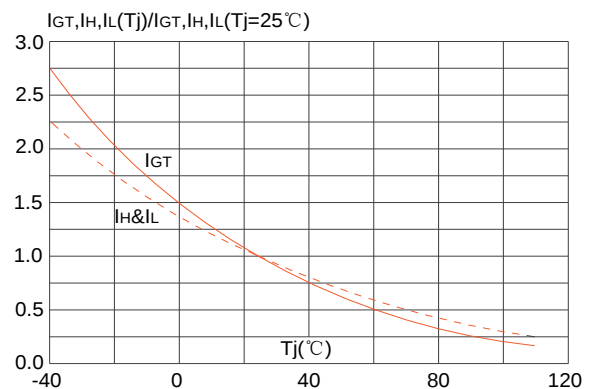
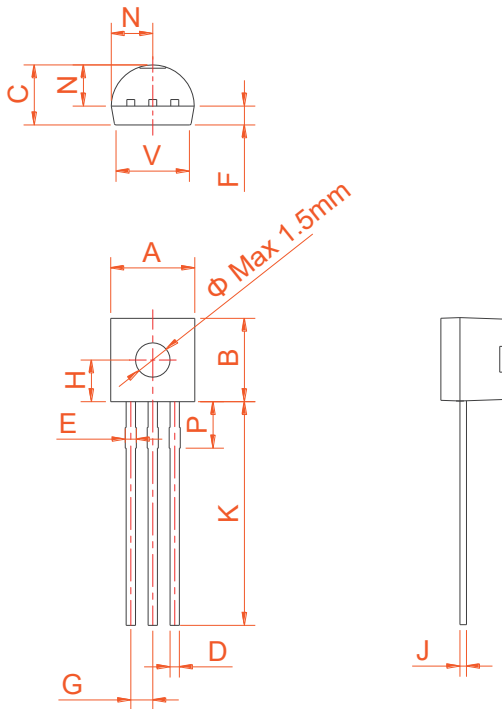


FIG6

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

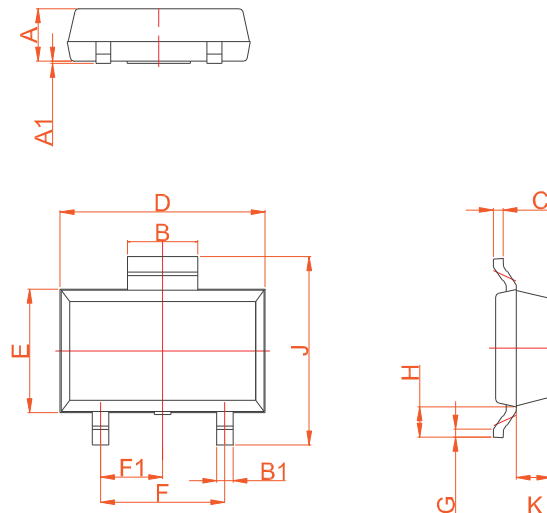


PACKAGE MECHANICAL DATA


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	0.407		0.533	0.016		0.021
E	0.60		0.80	0.024		0.031
F	-	1.1	-	-	0.043	-
G	-	1.27	-	-	0.050	-
H	-	2.30	-	-	0.091	-
J	0.36		0.50	0.014		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	-		4.3	-		0.169

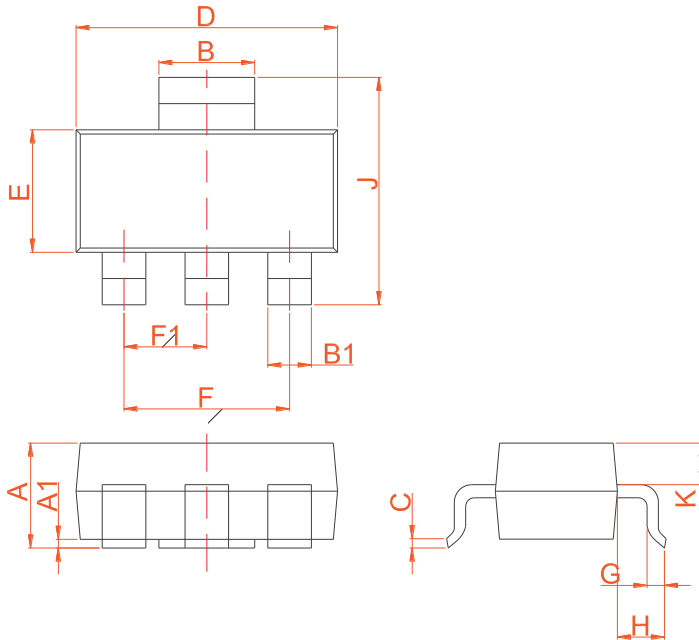
TO-92

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	



SOT-89-2L

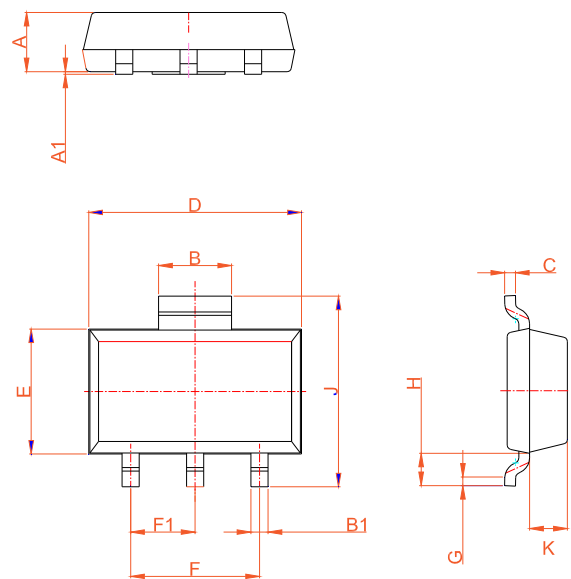
PACKAGE MECHANICAL DATA



SOT-223

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	0.06	0.10	0	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	0.059	0.069	0.079
J	6.7	7.0	7.3	0.264	0.276	0.287
K	0.8	0.9	1.0	0.031	0.035	0.039

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	



SOT-89