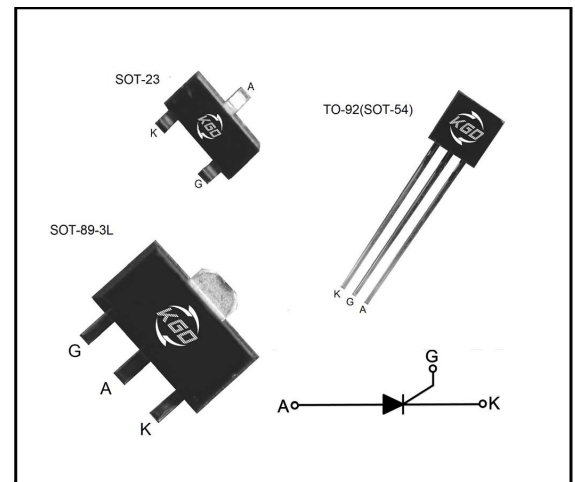


**Description:**

Highly sensitive triggering levels, the BT169D Series SCRs is suitable for all applications, where the available gate current is limited, such as capacitive discharge ignitions, motor control in kitchen aids, overvoltage crowbar protection in low power supplies...

**Features:**

Blocking voltage to 600V  
 On-state RMS current to 0.8A  
 Non-repetitive peak on-state current to 9A

**Absolute Maximum Ratings**


Symbol	Parameter	Conditions	Value	Unit
$V_{DRM}$	Repetitive peak off-state voltage	$T_J=25^\circ\text{C}$	600	V
$V_{RRM}$	Repetitive peak Reverse voltage	$T_J=25^\circ\text{C}$	600	V
$I_{T(RMS)}$	RMS on-state current (180° conduction half sine wave)	$T_c=77^\circ\text{C}$	0.8	A
$I_{T(av)}$	Average on-state current (180° conduction half sine wave)	$T_c=77^\circ\text{C}$	0.5	A
$I_{TSM}$	Non-repetitive surge peak On-state current( $T_J=25^\circ\text{C}$ )	$t_p=10\text{ms}$	9	A
		$t_p=8.3\text{ms}$	10	
$I^2t$	$I^2t$ Value for fusing	$t_p=10\text{ms}$	0.415	$\text{A}^2\text{S}$
$I_{GM}$	Peak gate current	$t_p=20\mu\text{s}, T_J=110^\circ\text{C}$	0.2	A
$P_{G(AV)}$	Average gate power dissipation		0.1	W
$T_{STG}$	Storage temperature		-40 150	$^\circ\text{C}$
$T_J$	Junction temperature		-40 110	$^\circ\text{C}$

**● Electrical Characteristics**

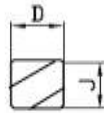
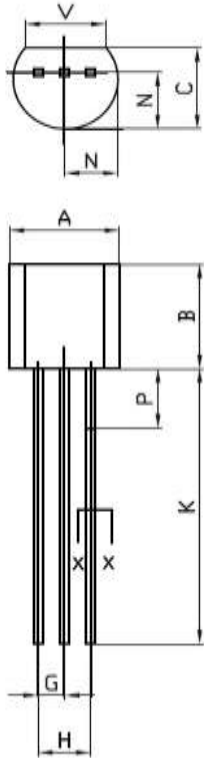
Symbol	Conditions	Value			Unit
		MIN	TYP	MAX	
$I_{GT}$	$V_D=6V, R_L=100\Omega$	/	40	200	$\mu A$
$V_{GT}$		/	0.6	0.8	V
$V_{GD}$	$V_D=V_{DRM}, R_L=3.3K\Omega, R_{GK}=1K\Omega, T_J=110^\circ C$	0.2	/	/	V
$I_L$	$I_G=1mA, R_{GK}=1K\Omega$	/	/	6	mA
$I_H$	$I_T=50mA, R_{GK}=1K\Omega$	/	/	5	mA
$dv/dt$	$V_{DM}=67\%V_{DRM}, R_{GK}=1K\Omega, T_J=110^\circ C$	10	/	/	$V/\mu s$

**● Electrical Characteristics**

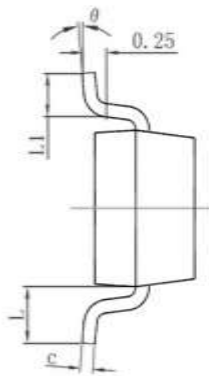
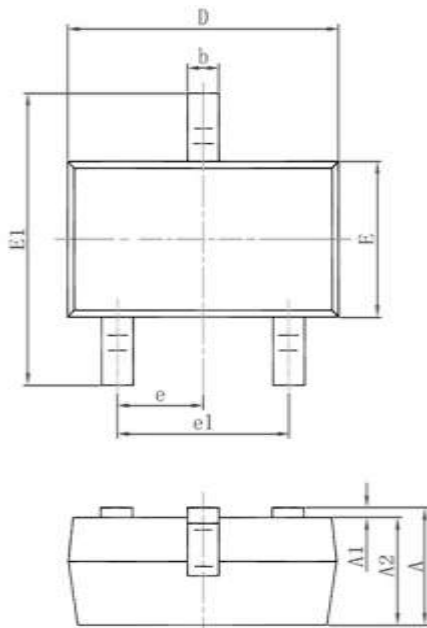
Symbol	Parameter	Numerical	Unit
$V_{TM}$	$I_T=1A, t_p=380\mu s$ $T_J=25^\circ C$	1.3	V
$I_{DRM}$	$V_D=V_{DRM}, V_R=V_{RRM}$ $T_J=25^\circ C$	5	$\mu A$
$I_{RRM}$	$T_J=125^\circ C$	0.1	mA

**● Thermal Characteristics**

Symbol	Parameter	Numerical(MAX)	Unit
$R_{th(j-c)}$	Junction to case	TO-92	75
		SOT-23/SOT-89-3L	15
$R_{th(j-a)}$	Junction to ambient	TO-92	200
		SOT-23/SOT-89-3L	400
$T_L$	Lead Solder Temperature(<1/16" from case, 10 secs max)	260	$^\circ C$

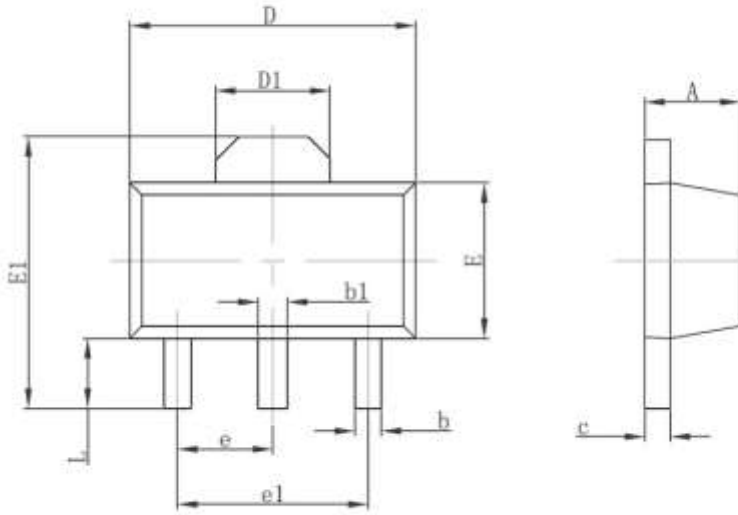
**Package Outline Dimensions**
**TO-92 (SOT-54)**

**SECTION  
X-X**

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.45	5.2	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
G	1.15	1.39	0.045	0.055
H	2.42	2.66	0.095	0.105
J	0.39	0.50	0.015	0.020
K	12.70	-	0.500	-
N	2.04	2.66	0.080	0.105
P	-	2.54	-	0.100
V	3.43	-	0.135	-

**SOT-23**


Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950		0.037	
e1	1.800	2.000	0.071	0.079
L	0.550		0.022	
L1	0.300	0.500	0.012	0.020
theta	0°	8°	0°	8°

# SOT-89-3L

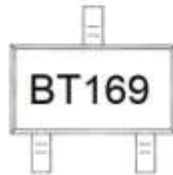


Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.188 TYP.	
L	0.900	1.200	0.035	0.047

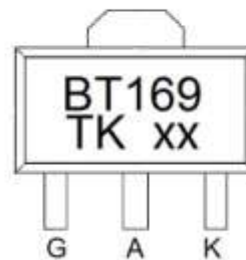
- **Marking**



TO-92



SOT-23



SOT-89-3L

FIG.1: Maximum power dissipation versus RMS on-state current(full cycle)

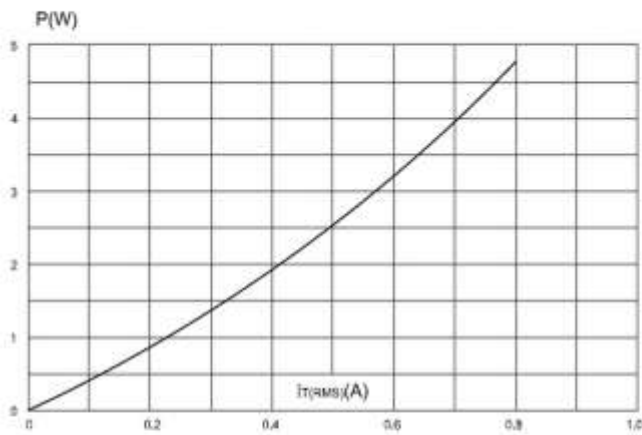


FIG.2: RMS on-state current versus case temperature(full cycle)

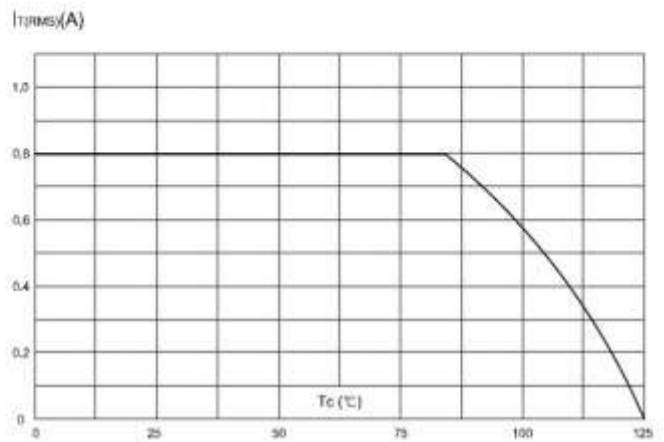


FIG.3: On-state characteristics (maximum values)

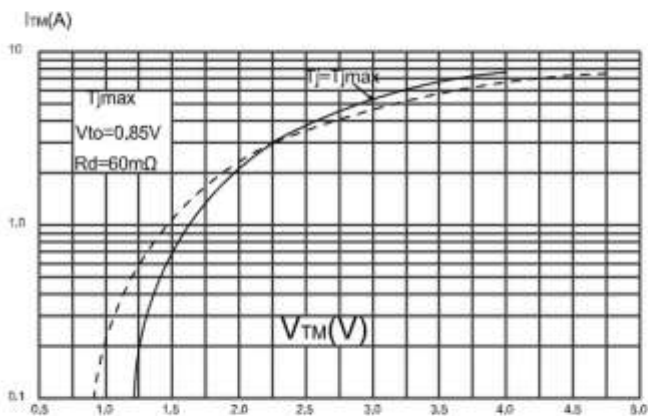


FIG.4: Surge peak on-state current versus number of cycles.

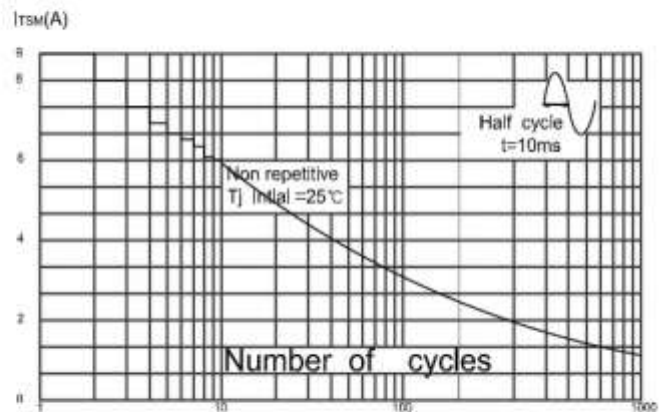


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ .

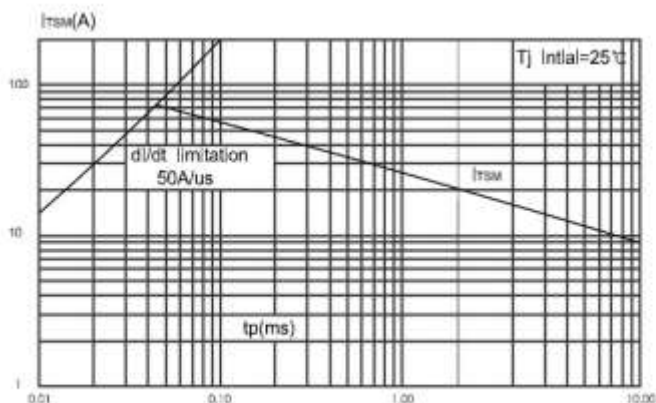


FIG.6: Relative variation of gate trigger current, holding current and latching current versus junction temperature(typical values).

