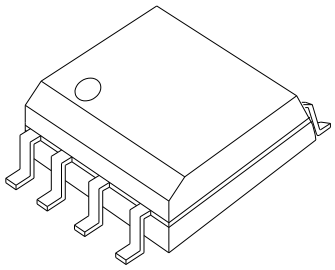
Description

The TS61089B series offers programmable SIDACtor overvoltage protection devices for SLIC applications. The Single Port Negative Battrax Series provides a programmable device that is referenced to a negative voltage souce while internal diodes provide protection from positive surge events.

Features

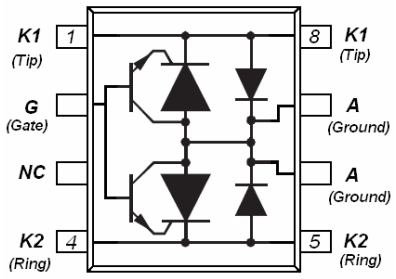
- Dual line programmable transient voltage suppressor
- Wide negative firing voltage range:
  V_{MGL} = -167V
- Low dynamic switching voltages: V_{FP} and V_{DGL}
- Low gate triggering current: I_{GT} = 5 mA max
- Peak pulse current: I_{PP} =30A (10/1000 s)
- Holding current: I_H > 150 mA
- Solid-state silicon technology
- Meets MSL 1 Requirements
- ROHS compliant



Device package type SOP-8

Main applications

- T-1/E-1, ISDN, and xDSL transmission equipment
- Telecommunications infrastructure
- PBX's and other switches
- Set-top box
- VoIP



Protection solution to meet

- TIA-968-A/TIA-968-B
- ITU K.20/21 Enhanced Level*/Basic Level
- GR 1089 Inter-building*/Intra-building
- IEC 61000-4-5
- YD/T 1082
- YD/T 993
- YD/T 950

Ordering Information

Device	Qty per Reel	Reel Size
TS61089B	3000	13 Inch

Maximum ratings (Tamb=25℃ Unless Otherwise Specified)			
Parameter	**Symbol**	**Value**	**Unit**
Repetitive peak off-state voltage, V_{GK}=0	V_{DRM}	-170	V
Repetitive peak gate-cathode voltage, V_{KA}=0	V_{GKRM}	-170	V
Non-repetitive peak on-state current 10/1000 us (Telcordia(Bellcore)Gr-1089-CORE.Issue 2.February 1999,Section4) 5/320 us (ITU-T K.20, K.21& K.45, K.44 open-circuit voltage wave shape 10/700us)	I_{PPSM}	30 50	A
Non-repetitive peak on-state current. VGG=-75V 50Hz to 60Hz 10ms 1 s	I_{TSM}	8 3.5	A
Lead Soldering Temperature	T_L	260 (10 sec.)	℃
Operating Temperature Range	T_J	-40 ~ 85	℃
Storage Temperature Range	T_{STG}	-55 ~ 150	℃
Lead Solder Temperature − Maximum (10 Second Duration)	T_L	260	℃
Junction To ambient	R θ JA	170	℃/W

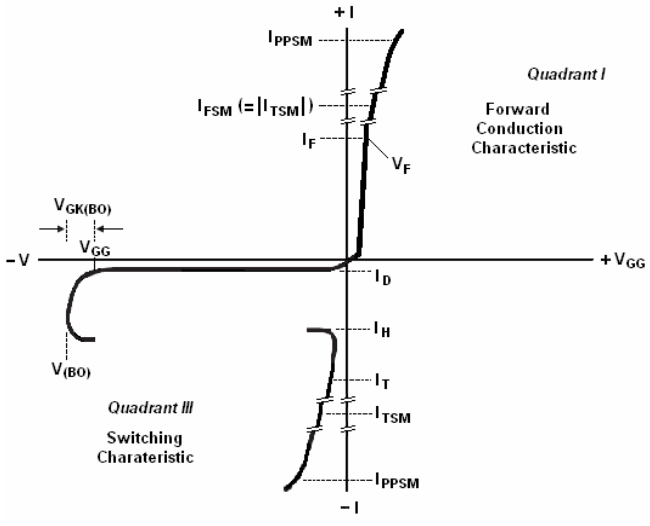
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied,damage may occur and reliability may be affected.

**Other voltages may be available upon request.*

1. Nonrepetitive current pulse, per Figure 1.

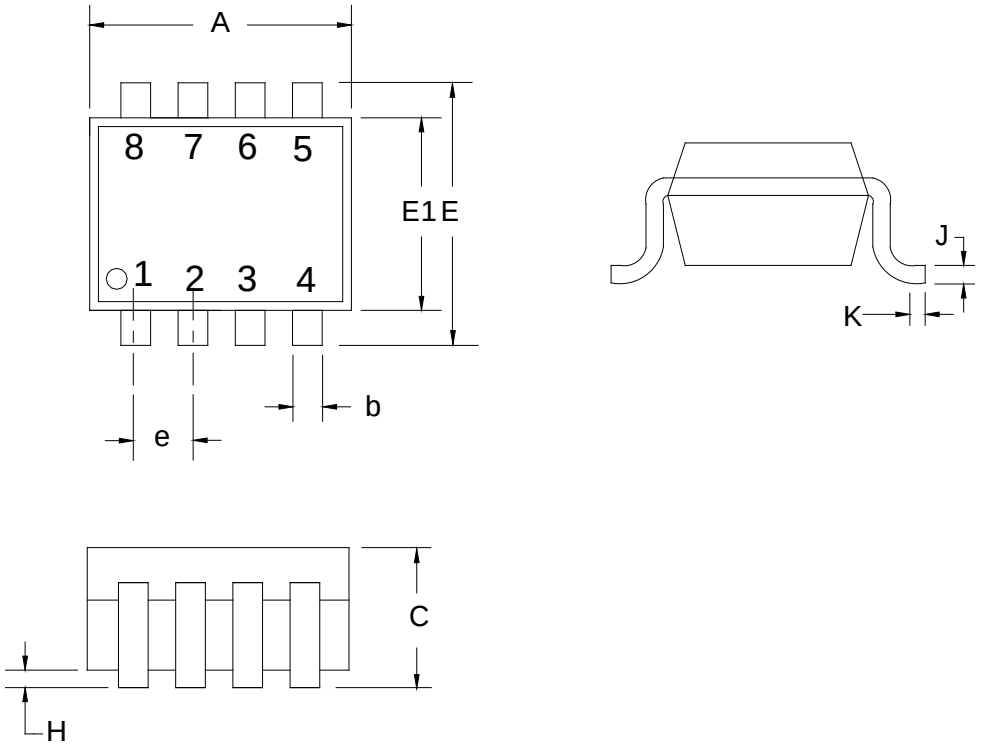
Electrical characteristics (Tamb=25℃ Unless Otherwise Specified)						
Symbol	**Parameter**	**Conditions**	**Min.**	**Typ.**	**Max.**	**Units**
I_D	Off-state current	V_D=VDRM, V_{GK}=0 T_J=25 ℃			-5	μA
		T_J=85 ℃			-50	μA
$V_{(BO)}$	Breakover voltage	2/10us,I_{PP}=-56A,R_S=45Ω,V_{GG}=-48V,C_G=220nF		-57		V
		2/10us,I_{PP}=-100A,R_S=50Ω,V_{GG}=-48V,C_G=220nF		-60		
		1.2/50us,I_{PP}=-53A,R_S=47Ω,V_{GG}=-48V,C_G=220nF		-60		
		1.2/50us,I_{PP}=-96A,R_S=52Ω,V_{GG}=-48V,C_G=220nF		-64		
$V_{GK(BO)}$	Gate-cathode impulse Breakover voltage	2/10us,I_{PP}=-56A,R_S=45Ω,V_{GG}=-48V,C_G=220nF		9		V
		2/10us,I_{PP}=-100A,R_S=50Ω,V_{GG}=-48V,C_G=220nF		12		
		1.2/50us,I_{PP}=-53A,R_S=47Ω,V_{GG}=-48V,C_G=220nF		12		
		1.2/50us,I_{PP}=-96A,R_S=52Ω,V_{GG}=-48V,C_G=220nF		16		
V_F	Forward voltage	I_F = 5 A, T_W = 200 us			3	V
V_{FRM}	Peak forward recovery voltage	2/10us,I_{PP}=-56A,R_S=45Ω,V_{GG}=-48V,C_G=220nF		6		V
		2/10us, I_{PP} =-100A, R_S =50Ω,V_{GG}=-48V,C_G=220nF		8		
		1.2/50us, I_{PP} =-53A, R_S=47Ω,V_{GG}=-48V,C_G=220nF		8		
		1.2/50us, I_{PP} =-96A, R_S=52Ω,V_{GG}=-48V,C_G=220nF		12		
I_H	Holding current	I_T = -1 A, di/dt = 1A/ms, V_{GG} =-48 V	-150			mA
I_{GKS}	Gate reverse current	V_{GG} = V_{GK} = V_{GKRM}, V_{KA} = 0 T_J=25 ℃			-5	μA
		T_J=85 ℃			-50	μA
I_{GT}	Gate trigger current	I_T = -3 A, $t_{p(g)}$ ≥ 20 us, V_{GG} = -48V			5	mA
V_{GT}	Gate-cathode trigger voltage	I_T = -3 A, $t_{p(g)}$ ≥ 20 us, V_{GG} = -48V			2.5	V
Q_{GS}	Gate switching charge	1.2/50us,I_{PP}=-53A,R_S=47Ω,V_{GG}=-48V, C_G=220nF		0.1		uC
C_{KA}	Cathode-anode off-State capacitance	F=1 MHz, V_d=1V, I_G=0 V_D= -3 V			100	pF
		V_D=-48 V			50	pF

Symbol	**Parameter**
I_D	Off-state current
I_H	Holding current
$V_{(BO)}$	Breakover voltage
V_F	Forward voltage
V_{FRM}	Peak forward recovery voltage
$V_{GK(BO)}$	Gate-cathode impluse breakover voltage
I_{GKS}	Gate reverse current
I_{GT}	Gate trigger current
V_{GT}	Gate-cathode trigger voltage
C_{KA}	Cathode-anode off-state capacitance



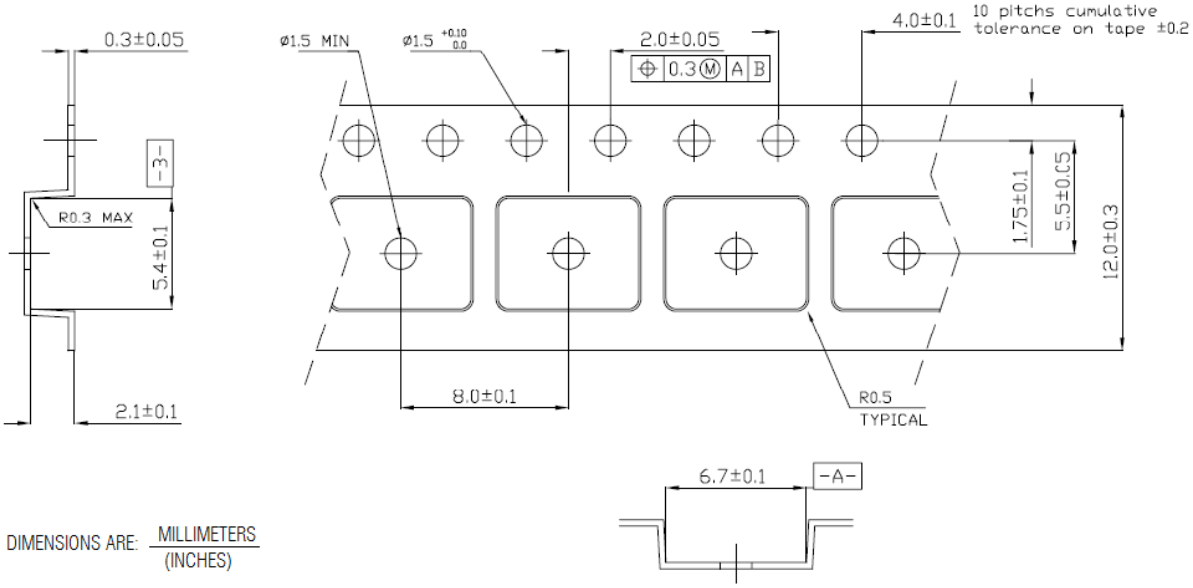
Package information

SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.80	5.00	0.189	0.197
E	6.00(BSC)		0.236(BSC)	
E1	3.80	4.00	0.150	0.157
b	0.35	0.49	0.014	0.019
C	1.35	1.79	0.054	0.068
J	0.18	0.25	0.007	0.009
e	1.27(BSC)		0.05(BSC)	
K	0.40	1.25	0.016	0.049
H	0.10	0.25	0.004	0.008

Tape and Reel Specification



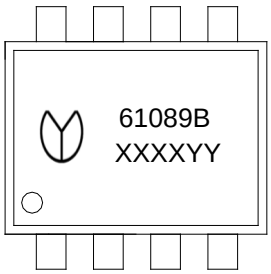
NOTES: A. Taped devices are supplied on a reel of the following dimensions:

Reel diameter: $\frac{328\pm1.0}{16.8\pm0.5}$ mm

Reel hub diameter: $\frac{100\pm1.0}{12.8\pm0.5}$ mm

B. 2500 devices are on a reel.

Marking Codes



Note:

(1) "61089B" is part number,fixed.

(2) "XXXX" is the last 4 characters of the wafer's Lot No.,
"YY" is the internal code.