

P61089B High Voltage Ringing SLIC Protector



General Description

This device has been especially designed to protect 2 new high voltage, as well as classical SLICs, against transient overvoltages.

Positive overvoltages are clamped by 2 diodes. Negative surges are suppressed by 2 thyristors, their breakdown voltage being referenced to -VBAT through the gate.

This component presents a very low gate triggering current (IGT) in order to reduce the current consumption on printed circuit board during the firing phase.

This devices are not subject to ageing and provide a fail safe mode in short circuit for a better protection. They are used to help equipment to meet various standards such as UL1950, IEC950/CSA C22.2, UL1459 and FCC part68.

Features

- Dual line programmable transient voltage suppressor
- Wide negative firing voltage range: $V_{MGL} = -155V$
- Holding current: $I_H > 150mA$
- Marking: P61089B
- Low dynamic switching voltages: V_{FP} and V_{DGL}
- Low gate triggering current: $I_{GT} = 5mA$ max
- Halogen Free

Applications

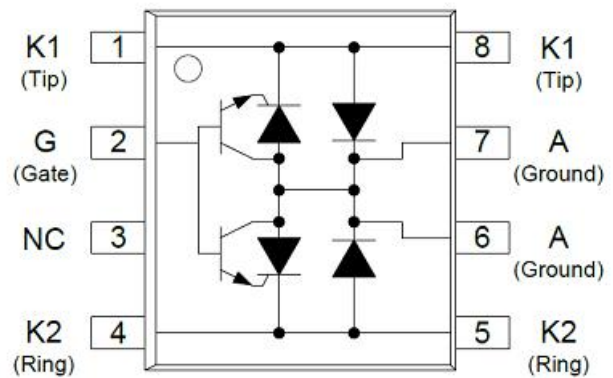
- Switch Line Card
- Access Network Line Card
- PBX
- VoIP

Package



SOP-8

Device Symbol



Absolute Maximum Ratings($T_A=25^\circ\text{C}$)



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 μs (Telcordia (Bellcore) GR-1089-CORE.Issue 2.February 1999, Section4) 5/320 μs (ITU-T K.20, K.21 & K.45, K.44 open-circuit voltage wave shape 10/700 μs) 1.2/50 μs (Telcordia (Bellcore) GR-1089-CORE.Issue 2.February 1999, Section4) 2/10 μs (Telcordia (Bellcore) GR-1089-CORE.Issue 2.February 1999, Section4)	I_{PPSM}	30 40 100 120	A
Non-repetitive peak on-state current. $V_{GG}=-75\text{V}$ 50Hz to 60Hz 0.1s 1s 5s 300s 900s	I_{TSM}	11 4.8 2.7 0.95 0.93	A
Operating free-air temperature range	T_A	-40 to +85	$^\circ\text{C}$
Operating junction temperature range	T_J	-40 to +125	$^\circ\text{C}$
Storage temperature range	T_{STG}	-40 to +150	$^\circ\text{C}$
Lead soldering temperature, 10 seconds	T_{LS}	300(Mix.)	$^\circ\text{C}$

Thermal Characteristics

Parameter	Test Conditions	Max	Unit
$R_{\theta JA}$ Junction to free air thermal temperature	$T_A=25^\circ\text{C}$, EIA/JESD51-3 PCB, EIA/JESD51-2 environment, $P_{TOT}=1.7\text{W}$	120	$^\circ\text{C}/\text{W}$

Parameter Measurement Information

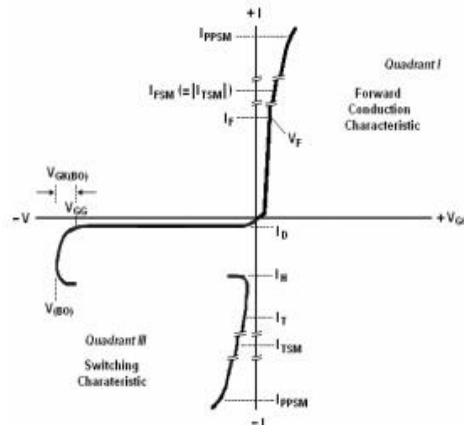


Figure 1. Voltage-Current Characteristic

Unless otherwise noted, all voltages are referenced to the anode

Electrical Characteristics, Rating at 25°C unless otherwise specified



Parameter		Test Conditions	Min.	Typ.	Max.	Unit
I_D	Off-state current	$V_D=V_{DRM}, V_{GK}=0, V_{G2} \geq +5V$ $T_J = 25^\circ C$ $T_J = 85^\circ C$			-5 -50	μA
$V_{(BO)}$	Breakover voltage	$2/10\mu s, I_{PP}=-56A, R_S=45\Omega, V_{GG}=-48V, C_G=220nF$ $1.2/50\mu s, I_{PP}=-53A, R_S=47\Omega, V_{GG}=-48V, C_G=220nF$		-57 -60		V
$V_{GK(BO)}$	Gate-cathode impulse breakover voltage	$2/10\mu s, I_{PP}=-56A, R_S=45\Omega, V_{GG}=-48V, C_G=220nF$ $1.2/50\mu s, I_{PP}=-53A, R_S=47\Omega, V_{GG}=-48V, C_G=220nF$		9 12	20	V
V_F	Forward voltage	$I_F=5A, T_W=200\mu s$			3	V
V_{FRM}	Peak forward recovery voltage	$2/10\mu s, I_{PP}=-56A, R_S=45\Omega, V_{GG}=-48V, C_G=220nF$ $1.2/50\mu s, I_{PP}=-53A, R_S=47\Omega, V_{GG}=-48V, C_G=220nF$		6 8		V
I_H	Holding current	$I_T=-1A, di/dt=1A/ms, V_{GG}=-48V$	-150			mA
I_{GKS}	Gate reverse current	$V_{GG}=V_{GK}=V_{GKRM}, V_{KA}=0$ $T_J = 25^\circ C$ $T_J = 85^\circ C$			-5 -50	μA
I_{GT}	Gate trigger current	$I_T=-3A, t_{p(g)} \geq 20\mu s, V_{GG}=-48V$			5	mA
V_{GT}	Gate-cathode trigger voltage	$I_T=-3A, t_{p(g)} \geq 20\mu s, V_{GG}=-48V$		2.5	4	V
Q_{GS}	Gate switching charge	$1.2/50\mu s, I_{PP}=-53A, R_S=47\Omega, V_{GG}=-48V, C_G=220nF$		0.1		μC
C_{KA}	Cathode-anode off- state capacitance	$F=1MHz, V_D=1V, I_G=0$ $V_D=-3V$ $V_D=-48V$			100 50	pF

Typical Characteristics

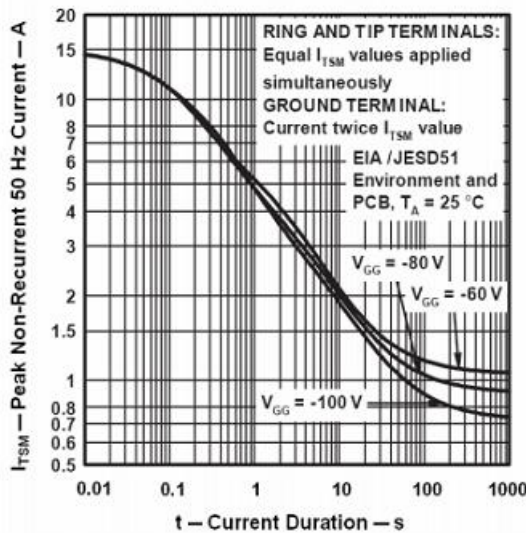
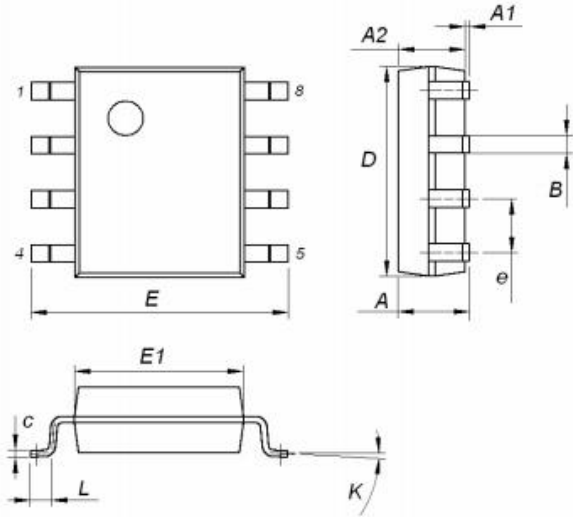


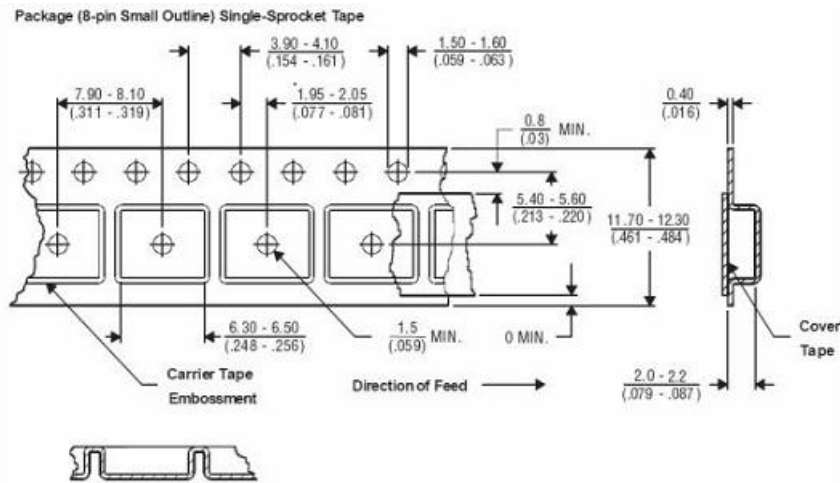
Figure 2. Non-repetitive Peak On-State Current Against Duration

Dimensions (SOP-8)



Symbol	Dimension (mm)		
	Min	Typ	Max
A			1.75
A1	0.1		0.25
A2	1.35	1.55	1.75
B	0.35	0.42	0.49
C	0.19		0.25
D	4.8	4.9	5.0
E	5.8	6.0	6.2
E1	3.8	3.95	4.0
e		1.27	
L	0.4		0.9
K	0°		8°

Tape Package Information



DIMENSIONS ARE: MILLIMETERS (INCHES)

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

Reel diameter:	$\frac{330 \pm 0.0/-4.0}{(12.99 \pm 0.0/-1.57)}$
Reel hub diameter:	$\frac{100 \pm 2.0}{(3.937 \pm 0.079)}$
Reel axial hole:	$\frac{13.0 \pm 0.2}{(.512 \pm 0.008)}$

B. 2500 devices are on a reel.

Package	Description	Packing Quantity	Delivery Time
P61089B	SOP-8 Reel Pack	2500 PCS	in stock / 4days Produce / 12days