

High Voltage Ringing SLIC Protector

TISP61089B

Description

This device is especially designed to protect Subscriber Line Interface Circuit (SLIC) against transient overvoltage. Positive overloads are clipped with 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 and minimizes overvoltage stress on the SLIC.

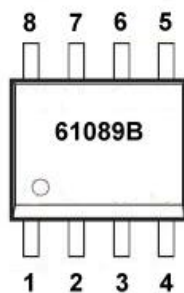
Features

- ◆ Dual line programmable transient voltage suppressor.
- ◆ Wide battery voltage supports.
- ◆ Low gate triggering current.
- ◆ High holding current.
- ◆ ESD Immunity(HBM): JESD22 Class 3B, ≥8KV.
- ◆ MLS: Lever 1 — unlimited.

Applications

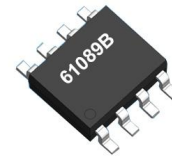
- ◆ Switch Line Card
- ◆ Access Network Line Card
- ◆ PBX
- ◆ VoIP

Marking

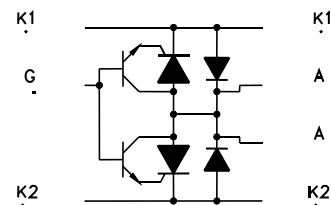


61089B = Device Code

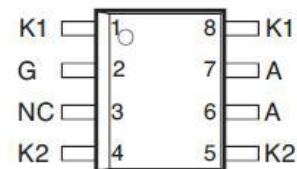
SOP-8L



Functional Diagram



Pin configuration (Top view)



Pin #	Pin Name	Description
1,4,5,8	K1,K2	Connect to subscriber lines (Tip/Ring)
2	G	Connect to battery (Reference Voltage)
6,7	A	Connect ground
3	NC	Not connected

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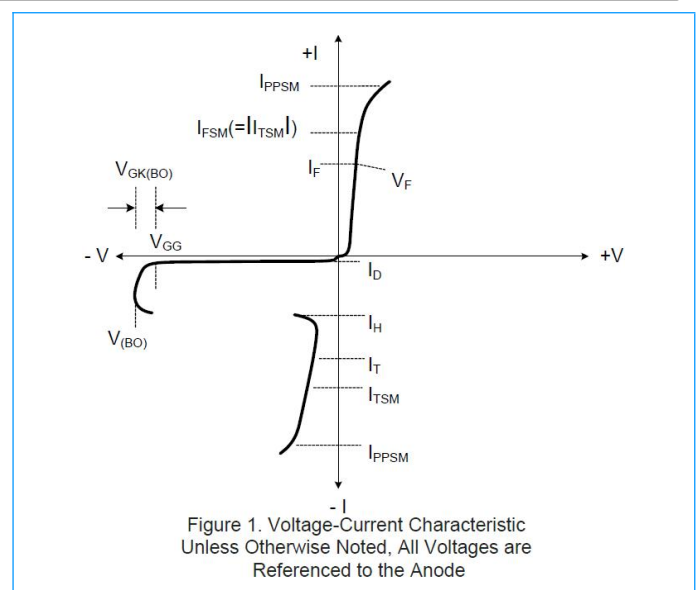
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Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Non-repetitive peak on-state pulse current	10/1000 μ s (Telcordia (Bellcore) GR-1089-CORE, Issue 3)	I_{PPSM}	30	A
	5/310 μ s (ITU-T K.20, K.21& K.45, K.44 open-circuit voltage wave shape 10/700 μ s)		40	
	2/10 μ s (Telcordia (Bellcore) GR-1089-CORE, Issue 3)		120	
Non repetitive peak on-state current (sinusoidal) 60Hz	0.1s	I_{TSM}	6.5	A
	1s		4.5	
	5s		2.4	
	30s		1.3	
	900s		0.72	
Repetitive peak off-state voltage, $V_{GK}=0$		V_{DRM}	-170	V
Repetitive peak gate-cathode voltage, $V_{KA}=0$		V_{GKRM}	-167	V
Operating free-air temperature range		T_A	-40~+85	$^{\circ}$ C
Storage temperature range		T_{STG}	-40~+150	$^{\circ}$ C
Junction temperature		T_J	-40~+150	$^{\circ}$ C
Maximum lead temperature for soldering during 10s		T_L	260	$^{\circ}$ C
Junction to free air thermal resistance		R_{BJA}	120	$^{\circ}$ C/W

Parameter Measurement Information

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 impulse 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



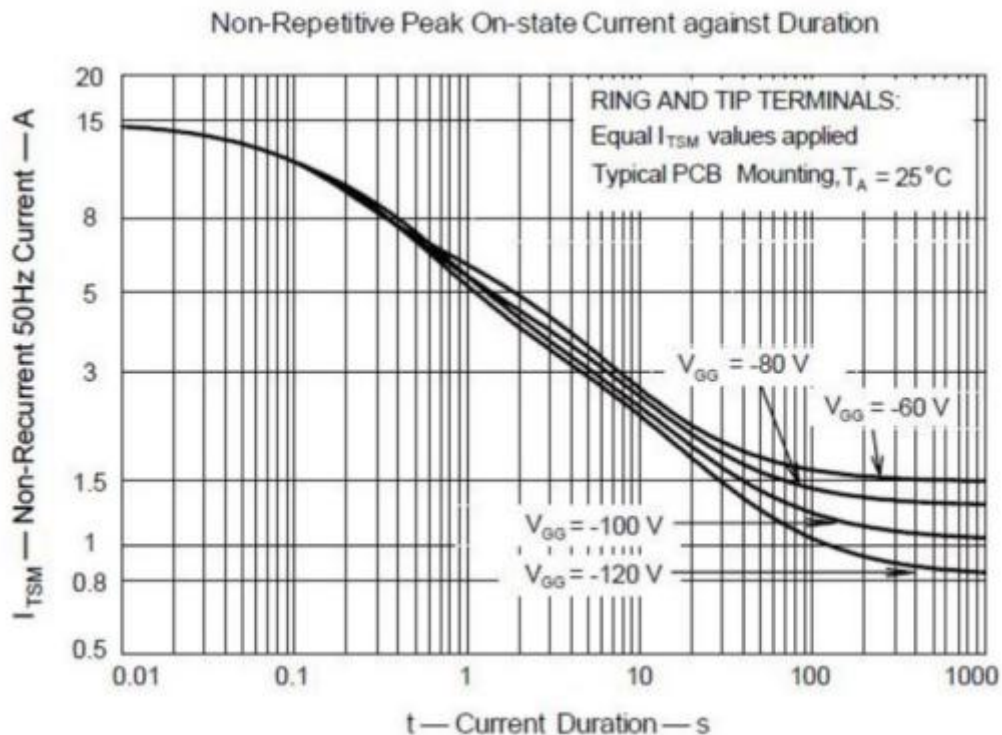
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Electronics Characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F = 5A, t_w = 200\mu s$	--	--	3	V
Impulse peak forward recovery voltage	V_{FRM}	$2/10\mu s, I_F = 100A, R_S = 50\Omega, di/dt = 80A/\mu s$	--	--	10	V
Off-state Current	I_D	$V_D = -170V, V_{GK} = 0, T_J = 25^\circ C$ $V_D = -170V, V_{GK} = 0, T_J = 85^\circ C$	--	--	-5	μA
Impulse breakover voltage	$V_{(BO)}$	$2/10\mu s, I_{TM} = 100A, R_S = 50\Omega$ $di/dt = -80A/\mu s, V_{GG} = -100V$	--	--	-112	V
Holding current	I_H	$I_T = -1A, di/dt = 1A/ms, V_{GG} = -100V$	-150	--	--	mA
Gate reverse current	I_{GAS}	$V_{GG} = V_{GK} = -167V, V_{KA} = 0, T_J = 25^\circ C$ $V_{GG} = V_{GK} = -167V, V_{KA} = 0, T_J = 85^\circ C$	--	--	-5	μA
Gate trigger current	I_{GT}	$I_T = 3A, tp(g) \geq 20\mu s, V_{GG} = -100V$	--	--	5	mA
Gate trigger voltage	V_{GT}	$I_T = 3A, tp(g) \geq 20\mu s, V_{GG} = -100V$	--	--	2.5	V
Anode-cathode off-state capacitance	C_{KA}	$f = 1MHz, V_d = 1V, I_G = 0, V_D = -3V$	--	--	110	pF
		$f = 1MHz, V_d = 1V, I_G = 0, V_D = -48V$	--	--	55	

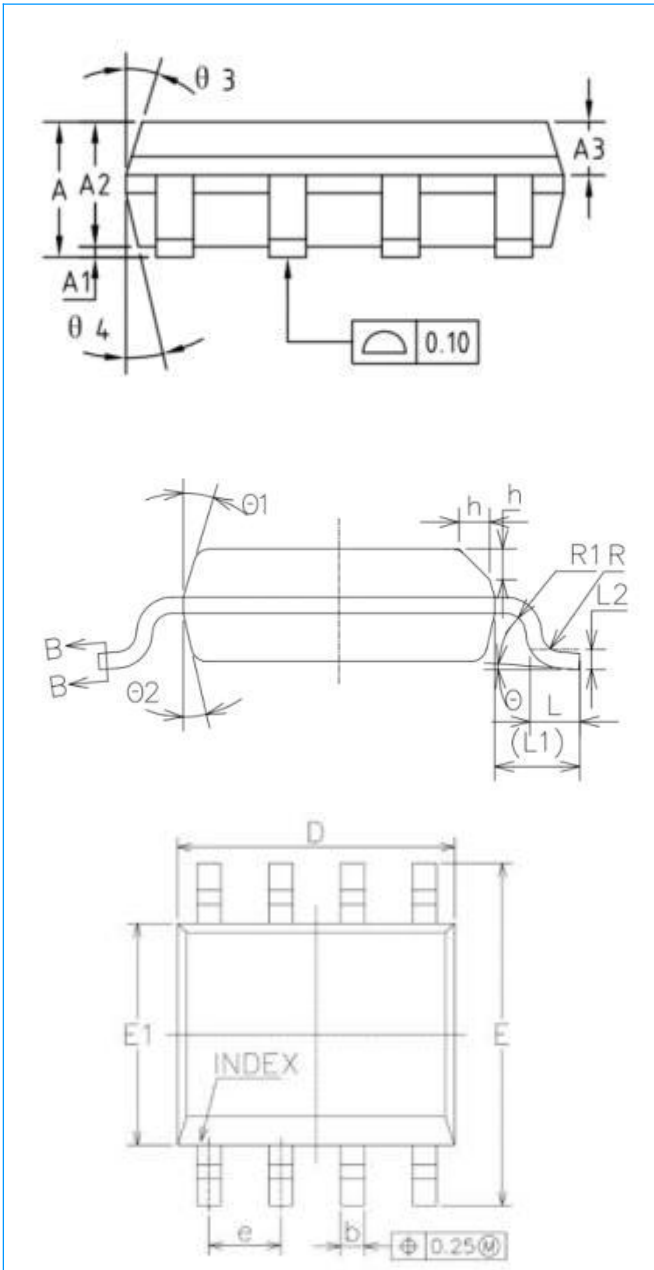
Non-Repetitive Peak On-state Current against Duration



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Package Outline Dimensions (Unit: mm)



Symbol	Min.	Typ.	Max.
A	1.35	1.55	1.70
A1	0	0.10	0.15
A2	1.25	1.40	1.65
A3	0.50	0.60	0.70
b	0.38	--	0.51
b1	0.37	0.42	0.47
c	0.17	--	0.25
c1	0.17	0.20	0.23
D	4.80	4.90	5.00
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e	1.27BSC		
L	0.45	0.60	0.80
L1	1.04REF		
L2	0.25BSC		
R	0.07	--	--
R1	0.07	--	--
h	0.30	0.40	0.50
θ	0°	--	8°
θ1	15°	17°	19°
θ2	11°	13°	15°
θ3	15°	17°	19°
θ4	11°	13°	15°

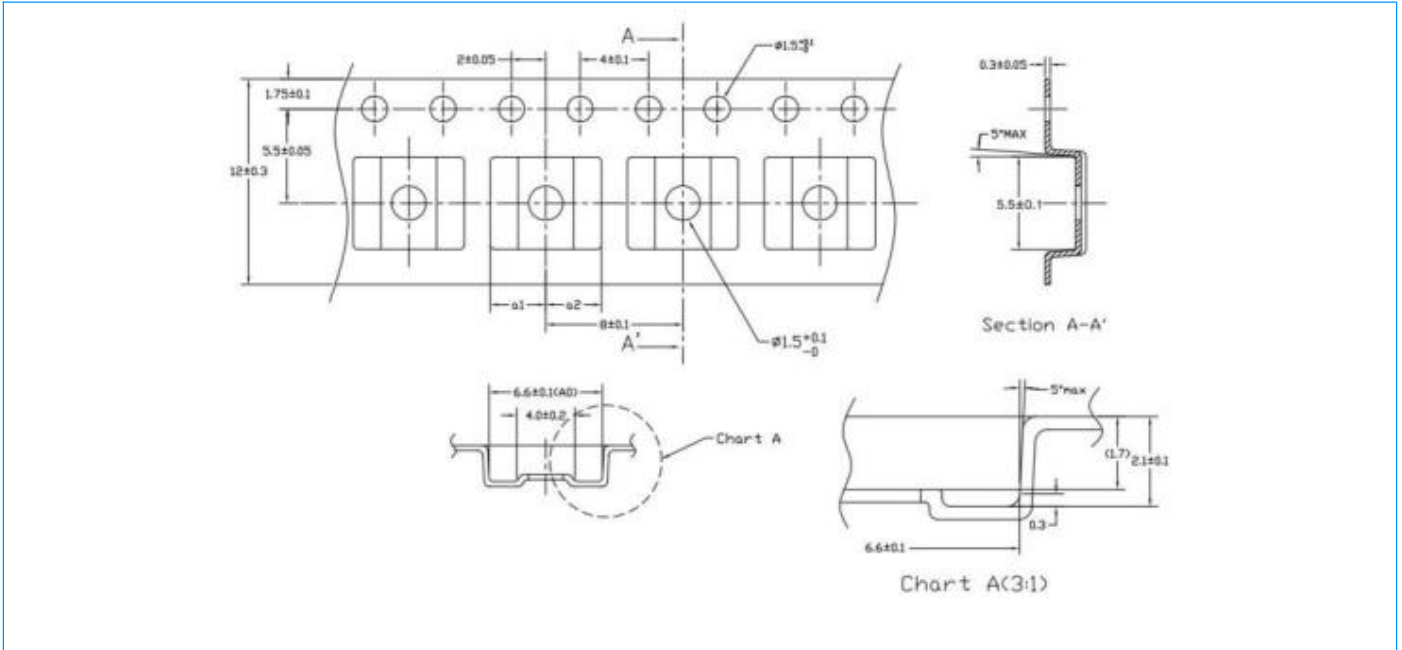
Order Information

Device	Package	Shipping
TISP61089B	SOP-8L	3000 PCS/Reel&Tape

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Tape Dimensions (Unit: mm)



Reel Dimensions (Unit: mm)

