

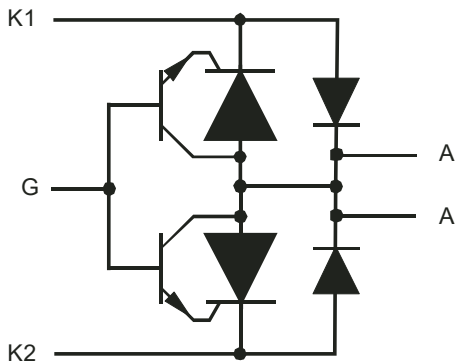
## Description

The AT61089 is a thyristor protector designed to protect Subscriber Line Interface Circuit (SLIC) against transients induced by 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

- High Holding Current
- Low Gate Triggering Current
- Wide Battery Voltage Support

## Device Schematic



## Mechanical Characteristics

- Package: SO-8
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Terminal Connections: See Diagram Below
- Marking Information: See Below

## Applications

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

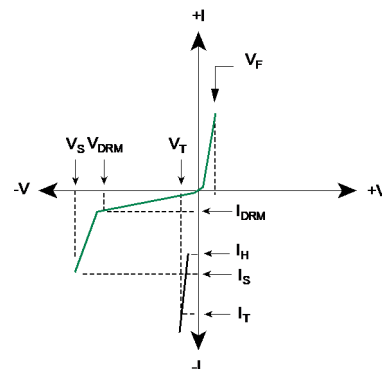
## Ordering Information

Part Number	Packaging	Reel Size
AT61089	2500/Tape & Reel	13 inch

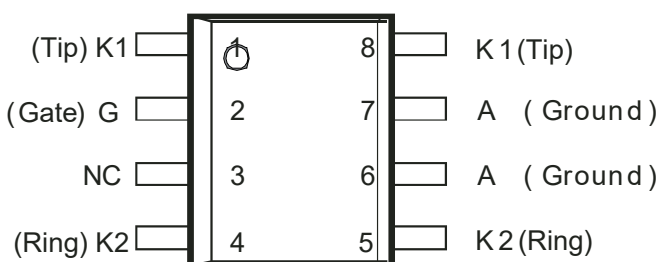
## Marking Information



## I-V Characteristics



## PIN Schematic



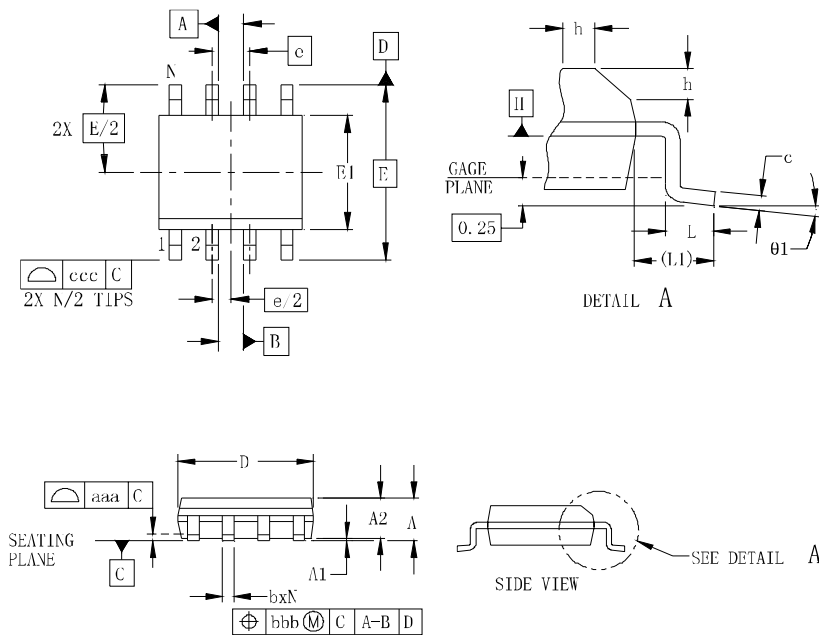
**Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
Junction temperature	$T_J$	-40 to +150	$^\circ\text{C}$
Storage temperature range	$T_{\text{stg}}$	-40 to +150	$^\circ\text{C}$
Repetitive peak off-state voltage, $V_{GK} = 0$	$V_{\text{DRM}}$	-170	V
Repetitive peak gate-cathode voltage, $V_{KA} = 0$	$V_{\text{GKRM}}$	-167	V
Non-repetitive peak on-state pulse current	$I_{\text{PP}}$	120	A
2/10 $\mu\text{s}$		50	
10/700 $\mu\text{s}$		40	
Non repetitive surge peak on-state current (sinusoidal) 60Hz	$I_{\text{TSM}}$		A
0.1 s		6.5	
1 s		4.5	
5 s		2.4	
30 s		1.3	
900 s	0.72		

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

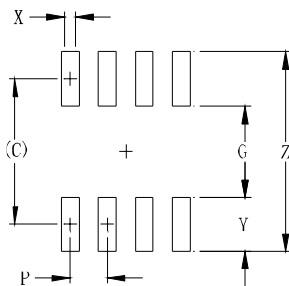
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage	$V_F$			3	V	$I_F = 5\text{A}$ , $t_w = 200\mu\text{s}$
Off-State Current	$I_D$			-5	$\mu\text{A}$	$V_D = -170\text{V}$ , $V_{GK} = 0$ , $T_J = 25^\circ\text{C}$
				-5		$V_D = -170\text{V}$ , $V_{GK} = 0$ , $T_J = 85^\circ\text{C}$
Breakover Voltage	$V_{(BO)}$			-112	V	$2/10\ \mu\text{s}$ , $I_{TM} = 100\text{A}$ , $R_s = 50\Omega$ , $di/dt = -80\text{A}/\mu\text{s}$ , $V_{GG} = -100\text{V}$
Holding Current	$I_H$	-150			mA	$I_T = -1\text{A}$ , $di/dt = 1\text{A}/\text{ms}$ , $V_{GG} = -100\text{V}$
Gate Reverse Current	$I_{GKS}$			-5	$\mu\text{A}$	$V_{GG} = V_{GK} = V_{GKRM}$ , $V_{KA} = 0$ , $T_J = 25^\circ\text{C}$
				-50		$V_{GG} = V_{GK} = V_{GKRM}$ , $V_{KA} = 0$ , $T_J = 85^\circ\text{C}$
Gate Trigger Current	$I_{GT}$			5	mA	$I_T = 3\text{A}$ , $tp(g) \geq 20\mu\text{s}$ , $V_{GG} = -100\text{V}$
Gate Trigger Voltage	$V_{GT}$			2.5	V	$I_T = 3\text{A}$ , $tp(g) \geq 20\mu\text{s}$ , $V_{GG} = -100\text{V}$
Cathode-Anode Off-State Capacitance	$C_{KA}$			110	pF	$f = 1\text{MHz}$ , $V_d = 1\text{V}$ , $I_G = 0$ , $V_D = -3\text{V}$
Cathode-Anode Off-State Capacitance	$C_{KA}$			55	pF	$f = 1\text{MHz}$ , $V_d = 1\text{V}$ , $I_G = 0$ , $V_D = -48\text{V}$

### SO-8 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.35		1.75	0.053		0.069
A1	0.10		0.25	0.004		0.010
A2	1.25		1.65	0.049		0.065
b	0.31		0.51	0.012		0.020
c	0.17		0.25	0.007		0.010
D	4.80	4.90	5.00	0.189	0.193	0.197
E1	3.80	3.90	4.00	0.150	0.154	0.157
E	6.00 BSC			0.236 BSC		
e	1.27 BSC			0.050 BSC		
h	0.25		0.50	0.010		0.020
L	0.40	0.72	1.04	0.016	0.028	0.041
L1	(1.04)			(0.041)		
N	8			8		
$\theta 1$	0°		8°	0°		8°
aaa	0.10			0.004		
bbb	0.25			0.010		
ccc	0.20			0.008		

### Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	(5.20)	0.205
G	3.00	0.118
P	1.27	0.050
X	0.60	0.024
Y	2.20	0.087
Z	7.40	0.291

### Contact Information

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