

## Features

- Dual Voltage-Tracking Protectors
- Wide negative pressure range:  $V_{MGL} = -167\text{ V max}$
- Low dynamic switching voltages:  $V_{FP}$  and  $V_{DGL}$
- Low gate triggering current:  $I_{GT} = 5\text{ mA max}$
- Peak pulse current:  $I_{PP} = 50\text{ A (10/700}\mu\text{s)}$
- Holding current:  $I_H \geq 150\text{ mA}$

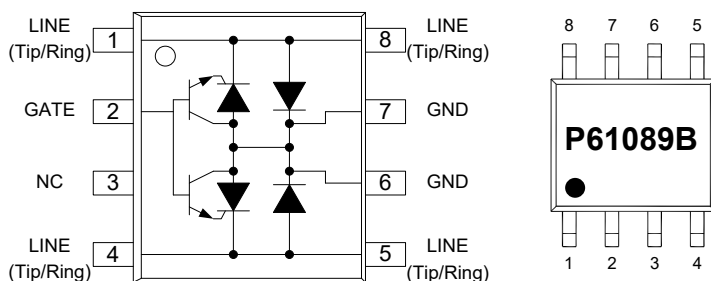
## Applications

P61089B is designed to protect communication equipment such as SPC exchanger from damaging overvoltage transients in the second level

## Mechanical Date

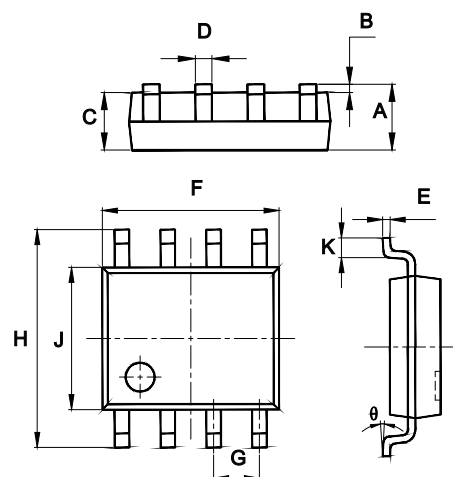
- Package: SOP-8  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102

## Internal Structure and Marking Code



# Dual Programmable Thyristor Transient Voltage Suppressor

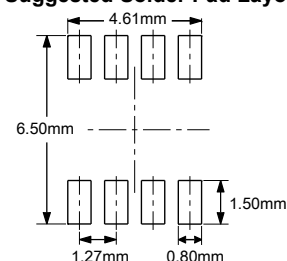
## SOP-8



### DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.053	0.069	1.35	1.75	
B	0.004	0.010	0.10	0.25	
C	0.053	0.061	1.35	1.55	
D	0.013	0.020	0.33	0.51	
E	0.007	0.010	0.17	0.25	
F	0.185	0.200	4.70	5.10	
G	0.050		1.270		TYP.
H	0.228	0.244	5.80	6.20	
J	0.150	0.157	3.80	4.00	
K	0.016	0.050	0.40	1.27	
θ	0°	8°	0°	8°	

### Suggested Solder Pad Layout



### Testing Standards

Type	Vave sharp		ITSP
ITU-T K.20/21 and K.45	Voltage	10/700μs	50A
	Current	5/310μs	

### Maximum Ratings

Parameter	Symbol	Value	Unit
Non-repetitive peak pulse voltage <sup>(Note 1)</sup>	$V_{PP}$	2000	V
Non-repetitive peak pulse current <sup>(Note 2)</sup>	$I_{PP}$	50	A
Non repetitive surge peak on-state current (60 Hz sinusoidal)	$t_p = 500ms$	6.5	A
	$t = 1s$	4.6	
Maximum voltage (Line to GND)	$V_{MLG}$	-170	V
Maximum voltage (Gate to Line)	$V_{MGL}$	-167	V
Storage temperature range	$T_{stg}$	-55~150	°C
Junction temperature	$T_j$	150	°C
Maximum temperature for soldering during 10s	$T_L$	260	°C

Note: 1、10/700μs means voltage wave, and its rise time is 10μs, fail time is 700μs;  
2、5/310μs means current wave, and its rise time is 5μs, fail time is 310μs。

### Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Symbol	Parameter
$V_F$	Line-ground voltage
$V_{FP}$	Line-ground peak voltage
$I_{GT}$	Gate trigger current
$I_H$	Holding current
$V_{GT}$	Gate-cathode trigger voltage
$I_{RG}$	Gate-line reverse leakage current
$V_{DGL}$	Gate-line dynamic switching voltage
$I_R$	Line-ground reverse leakage current
$V_{GATE}$	Gate-ground voltage
C	Line-ground off state capacitance

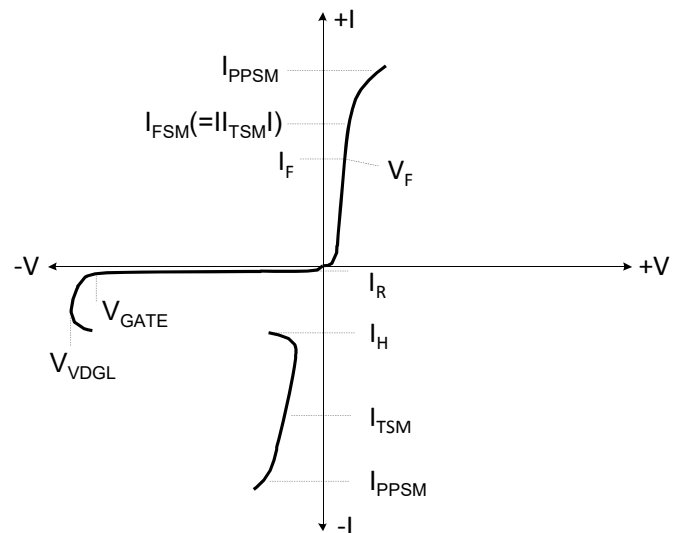


Figure 1. Voltage-Current Characteristic  
Unless Otherwise Noted, All Voltages are Referenced to the Anode

**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Line-ground diode parameters</b>						
Forward voltage	$V_F$	$I_F=5A$ , $T_P=500\mu s$			3	V
Peak forward voltage <sup>(1)</sup>	$V_{FP}$	10/700 $\mu s$ , 1.5kV, $R_P=10\Omega$			5	V
<b>Thyristor parameters</b>						
Gate trigger current	$I_{GT}$	$V_{GND-LINE}=-100V$	0.1		5	mA
Holding current <sup>(1)</sup>	$I_H$	$V_{GATE}=-100V$	150			mA
Gate trigger voltage	$V_{GT}$	$V_{GND-LINE}=-100V$			2.5	V
Gate-Line Reverse leakage current	$I_{RG}$	$T_C=25^\circ C$ $V_{RG}=-170V$			5	$\mu A$
		$T_C=70^\circ C$ $V_{RG}=-170V$			50	
Gate-Line Dynamic switching voltage <sup>(2)</sup>	$V_{DGL}$	$V_{GATE}=-100V$ 10/700 $\mu s$ , 1.5kV, $R_P=10\Omega$			10	V
<b>Thyristor and diode parameters</b>						
Line-GND Reverse leakage current	$I_R$	$T_C=25^\circ C$ $V_{GATE/LINE}=-1V$ $V_{RM}=-167V$			5	$\mu A$
		$T_C=70^\circ C$ $V_{GATE/LINE}=-1V$ $V_{RM}=-167V$			50	
Line-GND off state capacitance	C	$V_R=-3V$ , F=150KHz			100	pF
		$V_R=-48V$ , F=150KHz			50	

Note: 1、 $R_P$  is the protective resistance mounted on the card.  
 2、Don't make record if fluctuation time is less than 50ns.

## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 4Kpcs/Reel

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