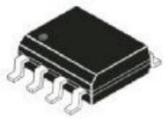
SPD61089

Http://www.sh-willsemi.com

High Voltage Ringing SLIC Protector

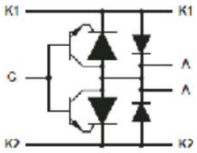
Waveshape	I_{PPSM}
10/1000us	30A



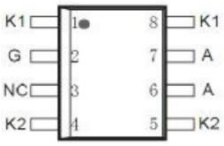
SOP-8

Descriptions

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.

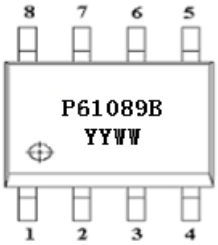


Package & Device Symbol



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



P61089B= Device Code
Y = Special Code
Y =Year
WW =Week

Marking

Features

- Dual programmable transient suppressor
- Wide battery voltage supports
- Low gate triggering current
- High holding current.
- MSL: Level 3

Applications

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

Order information

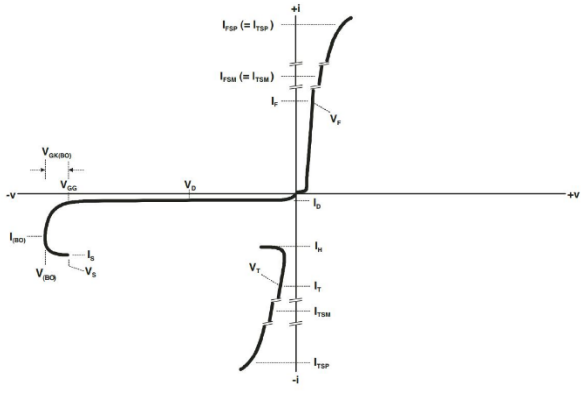
Device	Package	Shipping
SPD61089-8/TR	SOP-8L	2500/Reel&Tape

Absolute Maximum ratings

Parameter		Symbol	Value	Unit
Non-repetitive peak on-state pulse current	10/1000us （Telcordia (Bellcore) GR-1089-CORE, Issue 3）	I_{PPSM}	30	A
	5/310us （ITU-T K.20, K.21& K.45, K.44 open-circuit voltage wave shape 10/700 μs）		40	
	2/10us (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	°C
Storage temperature range		T_{STG}	-40-150	°C
Junction temperature		T_J	-40-150	°C
Maximum lead temperature for soldering during 10s		T_L	260	°C
Junction to free air thermal resistance		RBJA	120	°C /W

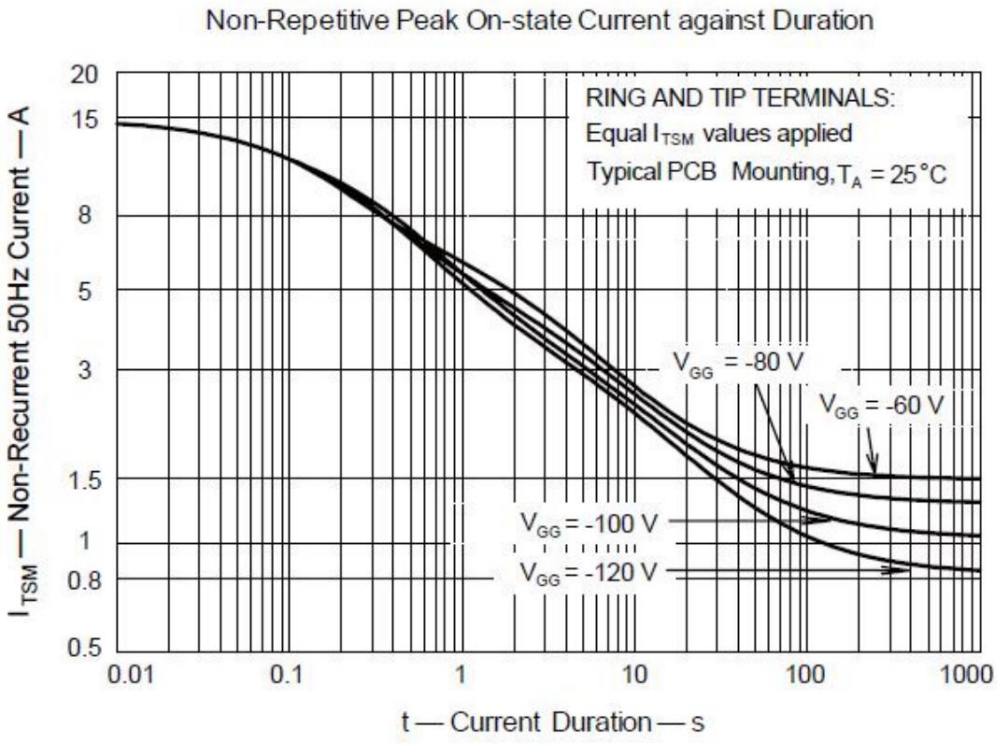
Parameter Measurement Information

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



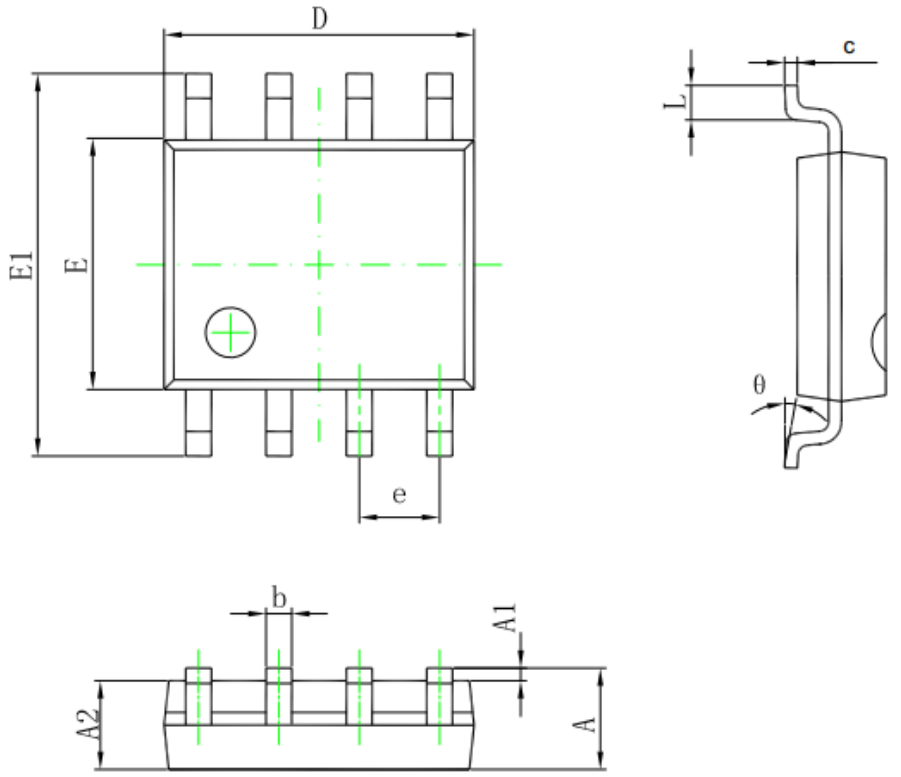
Electronics Characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	I_F=5A, t_W=200us			3	V
Impulse peak forward recovery voltage	V_{FRM}	2/10us, I_F=100A, R_S=50Ω, di/dt=80A/us			10	V
Off-state current	I_D	V_D= -170V, V_{GK}=0, T_J = 25 °C			-5	uA
		V_D= -170V, V_{GK}=0, T_J = 85 °C				
Impulse breakover voltage	$V_{(BO)}$	2/10us, I_{TM}=100A, R_S=50Ω di/dt=-80A/us, 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 °C			-5	uA
		V_{GG}=V_{GK}= -167V, V_{KA}=0, T_J = 85 °C				
Gate trigger current	I_{GT}	I_T=3A, $t_{p(g)}$≥20us, V_{GG}=-100V			5	mA
Gate trigger voltage	V_{GT}	I_T=3A, $t_{p(g)}$≥20us, V_{GG}=-100V			2.5	V
Anode-cathode offstate 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	



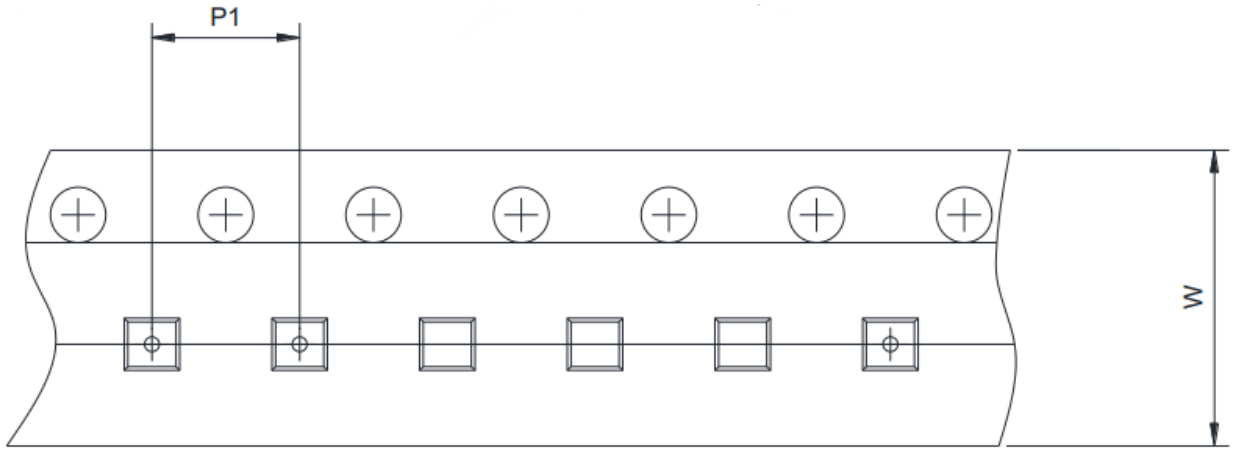
Package outline dimensions

SOP-8L

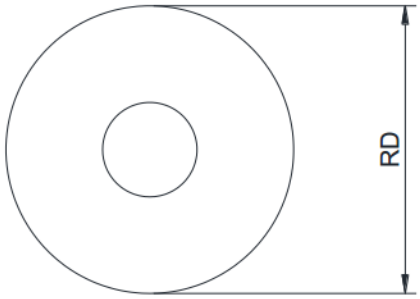


Symbol	Dimensions In Millimeters (mm)		
	Min.	Typ.	Max.
A	1.35	1.55	1.75
A1	0.05	0.15	0.25
A2	1.25	1.40	1.65
b	0.33	-	0.51
c	0.17	-	0.26
D	4.70	4.90	5.10
E	3.70	3.90	4.10
E1	5.80	6.00	6.20
e	1.27 BSC		
L	0.40	-	1.27
θ	0°	-	8°

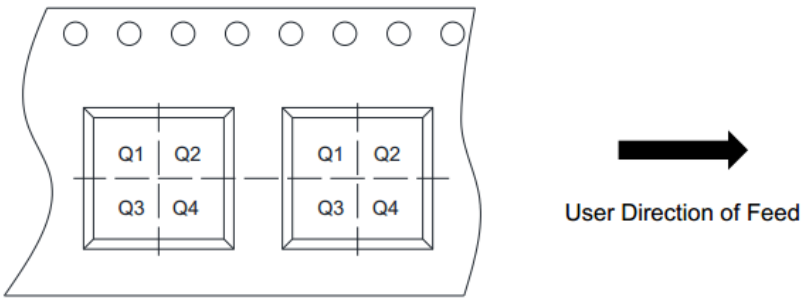
Tape Dimensions



Reel Dimensions



Quadrant Assignments For PIN1 Orientation In Tape



RD	Reel Dimension	☐ 7inch	☑ 13inch		
W	Overall width of the carrier tape	☐ 8mm	☑ 12mm		
P1	Pitch between successive cavity centers	☐ 2mm	☐ 4mm	☑ 8mm	
Pin1	Pin1 Quadrant	☑ Q1	☐ Q2	☐ Q3	☐ Q4