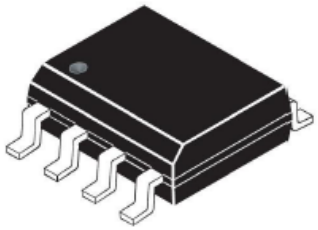
High Voltage Ringing SLIC Protector

Waveshape	I_{PPSM}
10/700us	150A
10/1000us	100A



SOP-8

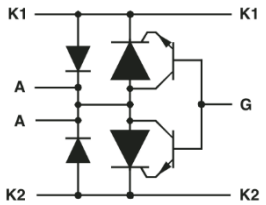
Description

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.

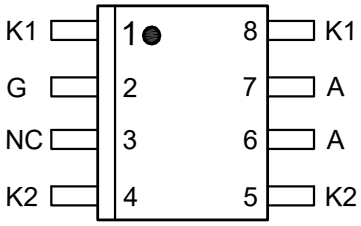
Features

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

Dimensions and Pin Configuration



Circuit and Pin Schematic



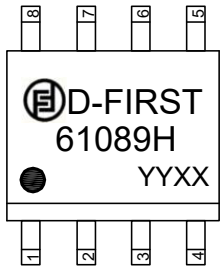
Pin Configuration(Top View)

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

Applications

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

Marking Information



61089H= Device Marking Code
YYXX= Date Code
Dot denotes Pin1

Ordering Information

Part Number	Marking	Packaging	Reel Size
SPD61089H	61089H	3000/Tape & Reel	13 inch

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter			Symbol	Value	Unit
Storage temperature range			T_{STG}	-40 to +150	℃
Operating junction temperature			T_J	-40 to +150	℃
Operating free-air temperature range			T_A	-40 to +85	℃
Non-repetitive peak on-state pulse current					
10/1000μs	(Telcordia (Bellcore) GR-1089-CORE,Issue 2, February)		I_{TSP}	100	A
5/310μs	(ITU-T K.20/21& K.45/44 open-circuit voltage 10/700μs)			150	
Non-repetitive peak pulse voltage		10/700μs	V_{PP}	6000	V
		1.2/50μs		1000	
Non repetitive surge peak on-state current (sinusoidal) 60Hz (Note 2)900s			I_{TSM}	2.6	A
Maximum voltage LINE/GROUND			V_{DRM}	-170	V
Maximum voltage GATE/LINE			V_{GKRM}	-167	V

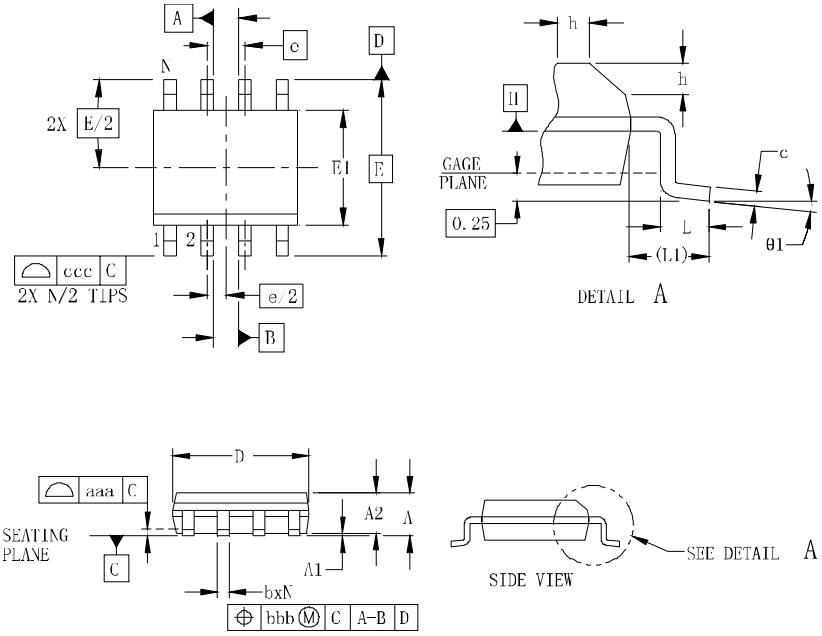
Note1：5/310μs means current wave, and its rise time is 5μs, fall time is 310μs.
10/700μs means voltage wave, and its rise time is 10μs, fall time is 700μs.

Note2：Initially the protector must be in thermal equilibrium with T_J=25°C. EIA/JESD51-2 environment and EIA/JESD51-7 high effective thermal conductivity test board (multi-layer) connected with 0.6 mm printed wiring track widths

Electrical Characteristics (T_A=25°C unless otherwise specified)

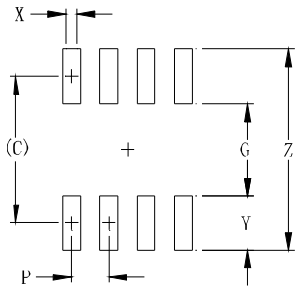
Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Parameters related to the diode						
V_F	Forward voltage	I_F=5A, t_W=200μs	-	-	3	V
V_{FRM}	Peak forward recovery voltage	2/10μs, I_F=200A, V_{GG}=-100V	-	-	10	V
Parameters related to the protection thyristor						
I_{DRM}	Off-state current	V_{DRM}=-170V, V_{GK}=0V	-	-	-5	μA
V_{BO}	Breakover voltage	2/10μs, I_F=200A, V_{GG}=-100V	-	-	-112	V
I_H	Holding current	I_T=-1A, di/dt=1A/ms, V_{GG}=-100V	-150	-	-	mA
I_{GKS}	Gate reverse current	V_{GG}=V_{GK}=-167V, V_{KA}=0,T_J=25℃	-	-	-5	μA
I_{GT}	Gate trigger current	I_T=-3A, t_P(g)≥20μs, V_{GG}=-100V	-	-	5	mA
V_{GT}	Gate trigger voltage	I_T=-3A, t_P(g)≥20μs, V_{GG}=-100V	-	-	2.5	V
C_{AK}	Anode-cathode off-state capacitance	f=1MHz,V_D=1V,I_G=0A，V_D=-3V	-	-	170	pF

SOP-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		
θ1	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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