Programmable Overvoltage Protector

G170B

General 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 V_{BAT} through the gate.

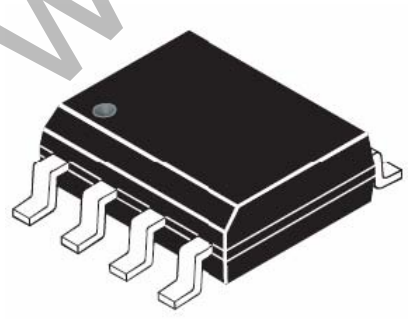
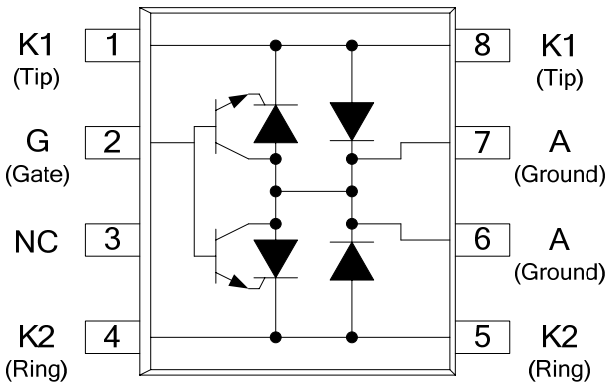
This component presents a very low gate triggering current and minimizes overvoltage stress on the SLIC.

Features

- Dual programmable transient suppressor
- Wide battery voltage supports
- Low gate triggering current
- High holding current
- ESD Immunity(HBM): JESD22 Class 3B, ≥8KV
- MLS: Level 1-unlimited
- Marking: G170B

Applications

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

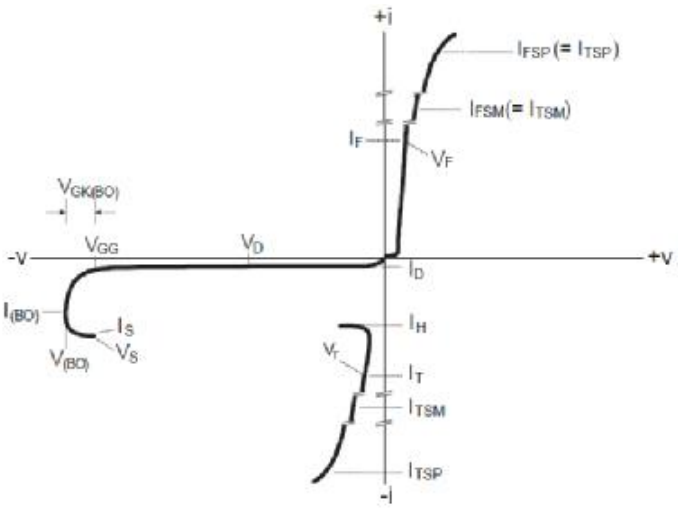
Package	Device Symbol
 SOP-8	

Absolute Maximum Ratings (T_A=25℃)

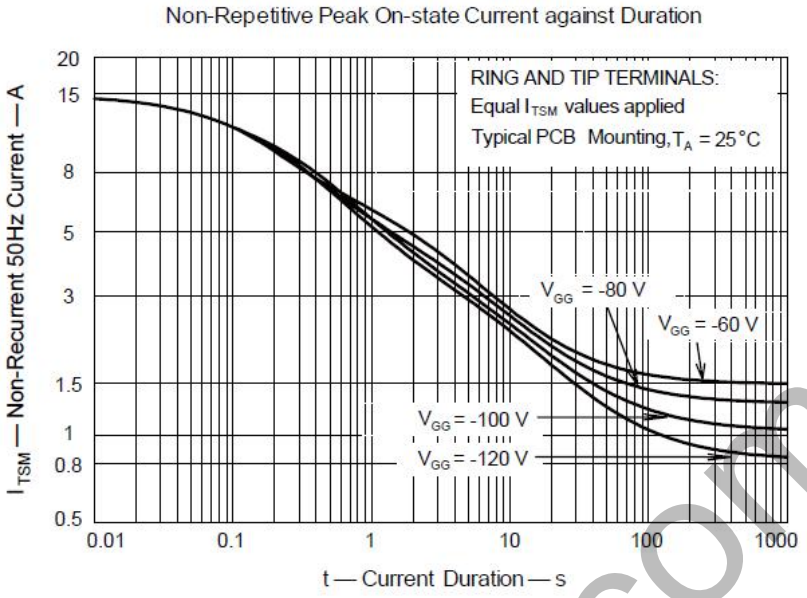
Parameter	Symbol	Value	Unit
Non-repetitive peak on-state current 10/1000μs 5/310μs 2/10μs	I_{PP}	 30 40 120	A
Non-repetitive peak on-state current (sinusoidal) 60Hz 0.5s 1s 5s 30s 900s	I_{TSM}	 6.5 4.5 2.4 1.3 0.72	A
Maximum voltage Line/Ground	V_{DRM}	-170	V
Maximum voltage Gate/Line	V_{GKRM}	-167	V
Operating free-air temperature range	T_A	-40 to +85	℃
Storage temperature range	T_{STG}	-40 to +150	℃
Junction temperature range	T_J	-40 to +150	℃
Maximum lead temperature for soldering during 10s	T_L	260	℃
Junction to free air thermal resistance	$R_{\theta JA}$	120	℃/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}

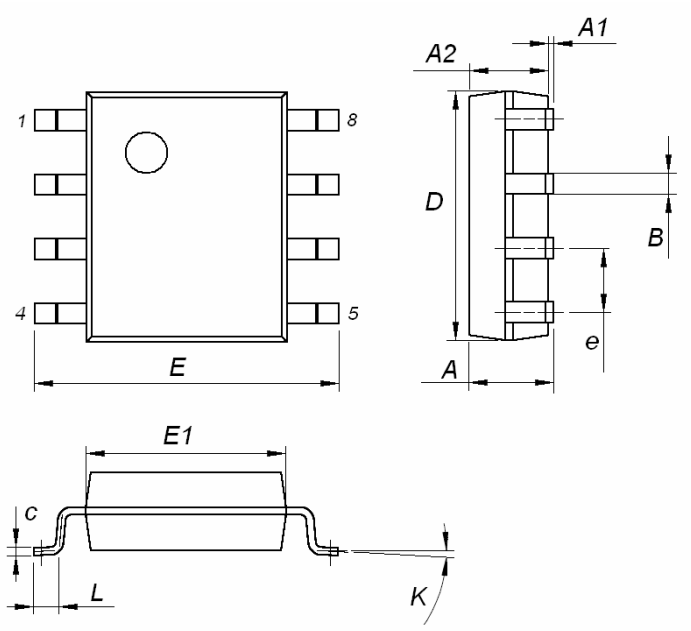


Electrical Characteristics, Rating at 25℃ unless otherwise specified



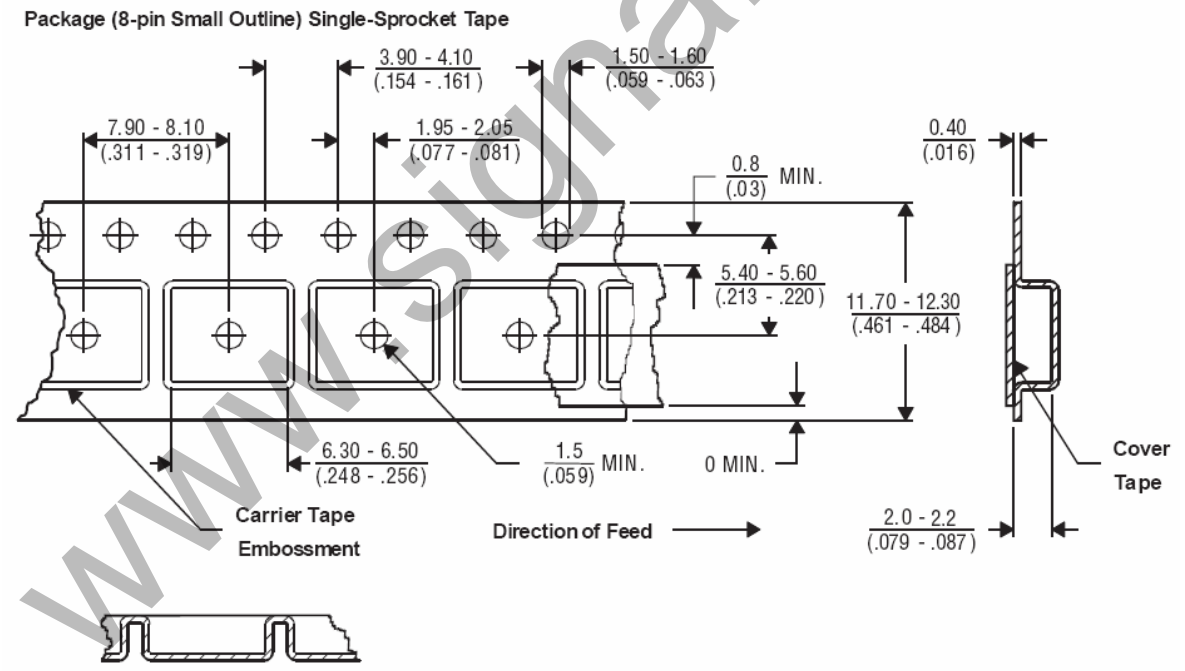
Parameter		Test Conditions	Min.	Typ.	Max.	Unit
V_F	Forward voltage	I_F =5A, t_W =200μs			3	V
V_{FRM}	Peak forward recovery voltage	2/10μs, I_F=100A, R_S=50Ω, di/dt=80A/μs			10	V
I_D	Off-state current	V_D=-170V, V_{GK}=0 T_J =25℃ V_D=-170V, V_{GK}=0 T_J =85℃			-5 -50	μA
$V_{(BO)}$	Breakover voltage	2/10μs, I_{TM}=100A, R_S=50Ω, di/dt=80A/μs, 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℃ V_{GG}=V_{GK}=-167V, V_{KA}=0 T_J =85℃			-5 -50	μA
I_{GT}	Gate trigger current	I_T=-3A, $t_{p(g)}$≥20μs, V_{GG}=-100V			5	mA
V_{GT}	Gate-cathode trigger voltage	I_T=-3A, $t_{p(g)}$≥20μs, V_{GG}=-100V		2.5	4	V
C_{KA}	Cathode-anode off- state capacitance	f=1MHz, V_d=1V, I_G=0 V_D=-3V f=1MHz, V_d=1V, I_G=0 V_D=-48V			100 50	pF

Dimensions (SOP-8)



Symbol	Dimension (mm)		
	Min.	Typ.	Max.
A	-	-	1.75
A1	0.10	-	0.25
A2	1.35	1.55	1.75
B	0.35	0.42	0.49
C	0.19	-	0.25
D	4.80	4.90	5.00
E	5.80	6.00	6.20
E1	3.80	3.95	4.00
e	-	1.27	-
L	0.40	-	0.90
K	0°	-	8°

Tape Package Information



DIMENSIONS ARE: MILLIMETERS (INCHES)

NOTES: A. Taped devices are supplied on a reel of the following dimensions:

Reel diameter:	330 +0.0/-4.0 (12.99 +0.0/-.157)
Reel hub diameter:	100 ±2.0 (3.937 ±.079)
Reel axial hole:	13.0 ±0.2 (.512 ±.008)

B. 2500 devices are on a reel.