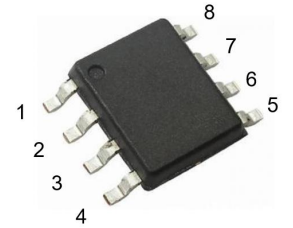


Descriptions

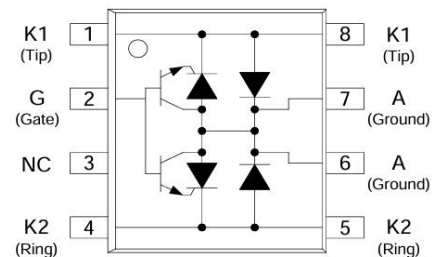
This device has been especially designed to protect 2 new high voltage, as well as classical SLICs, against transient over-voltages. Positive over-voltages are clamped by 2 diodes. Negative surges are suppressed by 2 thyristors, their breakdown voltage being referenced to -VBAT through the gate. This component presents a very low gate triggering current in order to reduce the current consumption on printed circuit board the firing phase. This devices are not subject to aging and provide a fail safe mode in short circuit for a better protection.



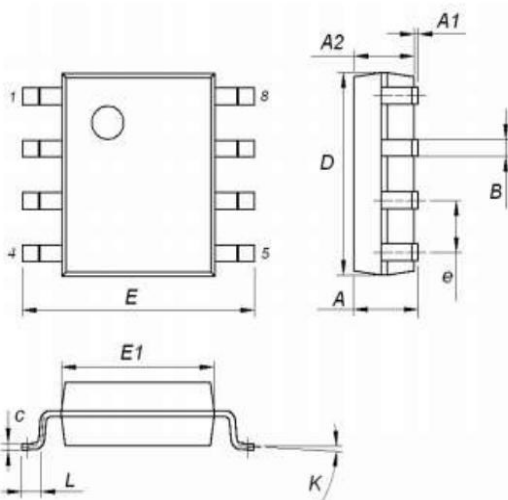
Features

- ◆ Dual line programmable transient voltage suppressor
- ◆ Wide negative pressure range: $V_{MGL} = -167V_{MAX}$
- ◆ Low dynamic switching voltage: V_{FP} and V_{DGL}
- ◆ Low gate triggering current: $I_{GT} = 7mA$ Max
- ◆ Peak Pulse Current: $I_{PP} = 50A(10/700\mu s)$
- ◆ Typical High Holding current (typical): 150mA

Schematic



Dimensions(SOP-8)



Symbol	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.750	0.053	0.069
B	0.330	0.510	0.013	0.020
C	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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

parameter	Symbol	Value	Unit
Peak pulse voltage/current	V_{PP}/I_{PP}	2000	V
		50	A
Non repetitive peak pulse current($F=60\text{Hz}$)	I_{TSM}	6.5	A
		4.6	A
Maximum gate current (half sinusoid $t_P=10\text{ms}$)	I_{GSM}	2	A
Line-ground maximum voltage	V_{MLG}	-170	V
Gate-line maximum voltage	V_{MGL}	-167	V
Storage temperature range	T_{stg}	-55~150	$^{\circ}\text{C}$
Maximum temperature	T_j	150	$^{\circ}\text{C}$
Maximum sustainable temperature of solder in 10 seconds	T_L	260	$^{\circ}\text{C}$

Electrical Parameters($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Definition	Min	Typ	Max	Unit
V_F	Forward voltage	$I_F=5\text{A}$, $t_P=500\mu\text{s}$			3	V
V_{FP}	Line-ground peak voltage	10/700 μs 1.5kV $R_P=10\Omega$			5	V
I_{GT}	Gate trigger current	$V_{GND}/\text{LINE}=-100\text{V}$	0.1		7	mA
I_H	Holding current	$V_{GATE}=-100\text{V}$		150		mA
V_{GT}	Gate-cathode trigger voltage	Same to I_{GT}			2.5	V
I_{RG}	Gate-line reverse leakage current	$V_{RG}=-170\text{V}$			5	μA
		$T_C=25^{\circ}\text{C}$ $T_C=70^{\circ}\text{C}$			50	
V_{DGL}	Gate-Line dynamic switching voltage	$V_{GATE}=-100\text{V(TIP.3)}$ 10/700 μs 1.5kV $R_P=10\Omega$			10	V
I_{RM}	Line-ground reverse leakage current	$V_{GATE}/\text{LINE}=-1\text{V}$, $V_{RM}=-167\text{V}$			5	μA
		$T_C=25^{\circ}\text{C}$ $T_C=70^{\circ}\text{C}$			50	
C	Line-ground off state capacitance	$F=150\text{KHz}$			100	pF
		$V_R=-3\text{V}$ $V_R=-48\text{V}$			50	

Characteristics Curves($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Figure 1. V-I Characteristics

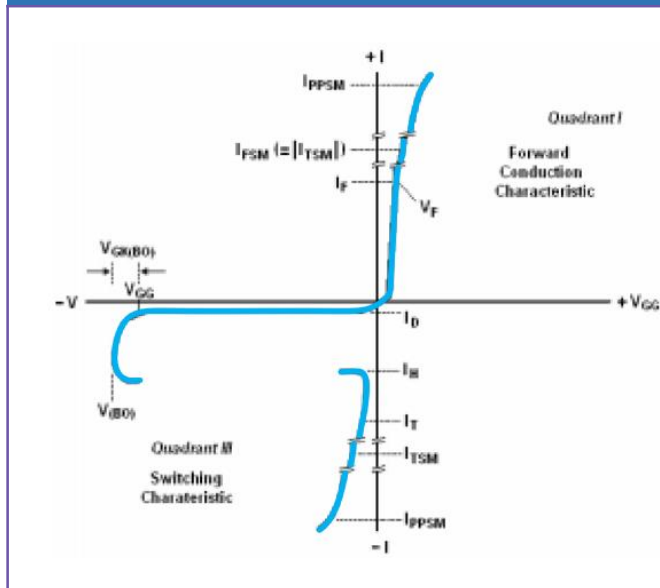
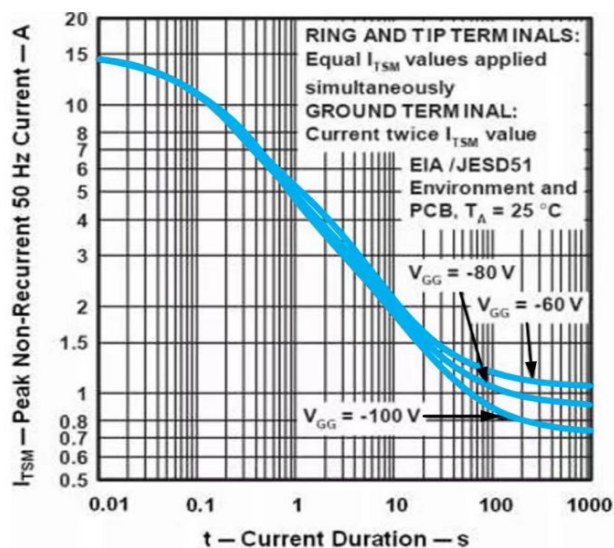
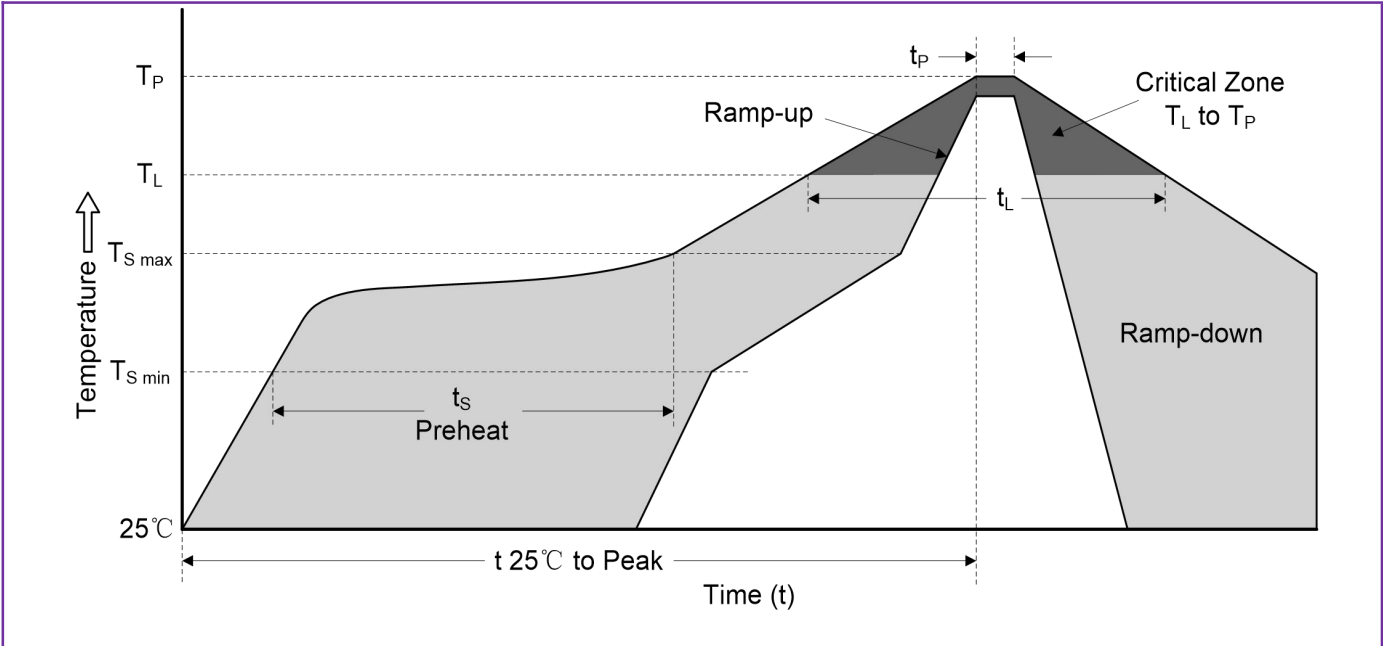


Figure 2. Non-repetitive Peak On-State Current Against Duration



Recommended Soldering Conditions



Reflow Condition		Lead-free Assembly
Pre heat	-Temperature Min (TS min)	150℃
	-Temperature Max (TS max)	200℃
	-Time (min to max) (ts)	60-180 seconds
Average ramp-up rate (TL to TP)		3℃/second max.
TS max to TL -Ramp-up Rate		3℃/second max.
Reflow	-Temperature (TL) (Liquidus)	217℃
	-Time (min to max) (ts)	60-150 seconds
Peak Temperature (TP)		260(+0/-5)℃
Time within 5℃ of actual Peak Temperature (tP)		20-40 seconds
Ramp-down Rate		6℃/second max.
Time 25℃ to Peak Temperature(TP)		8 minutes max.
Do not exceed		260℃