TS61089

Dual Programmable Transient Voltage Suppressor

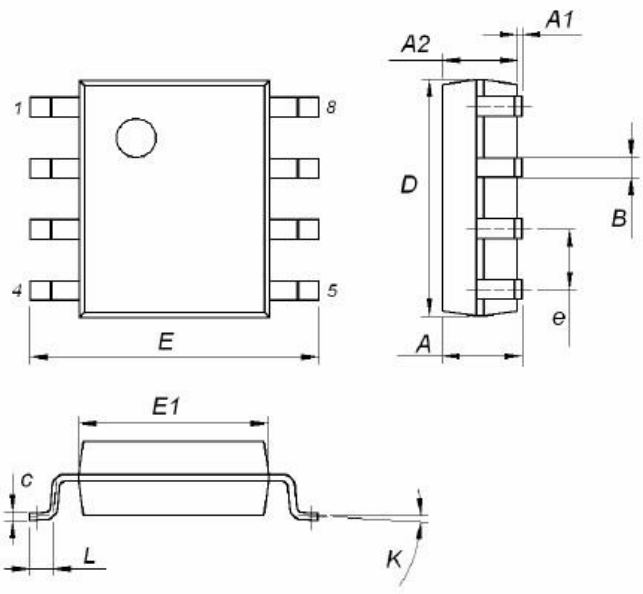
Description

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 (IGT) in order to reduce the current consumption on printed circuit board during the firing phase.



DIM	Millimeters		
	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°

Features

- Dual line programmable transient voltage suppressor
- Wide negative firing voltage range:

VMGL = -75V (S61089)

VMGL = -100V (S61089A)

VMGL = -155V (S61089B)

- Low dynamic switching voltages: VFP and VDGL
- Low gate triggering current: IGT = 5 mA max
- Peak pulse current: IPP = 30 A (10/1000 s)
- Holding current: IH > 150 mA
- RoHS compliant package

Benefits

This devices are not subject to ageing and provide a fail safe mode in short circuit for a better protection. Trisils are used to help equipment to meet various standards such as UL1950, IEC950 / CSA C22.2, UL1459 and FCC part68.

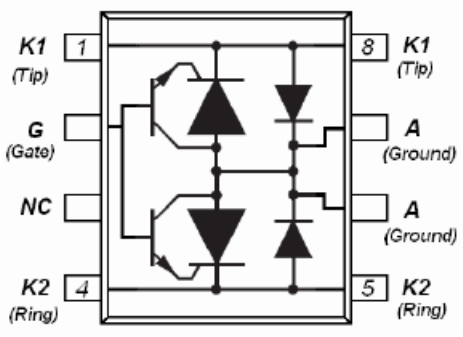
Mechanical Data

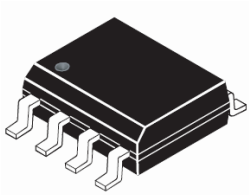
Case : SOP-8 Molded Plastic

Packing & Order Information

3,000/Reel

Graphic symbol





RoHS
COMPLIANT

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MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
VDRM	Repetitive peak off-state votage, VGK=0 TS61089 TS61089A TS61089B	 -90 -120 -170	V
VGKRM	Repetitive peak gate-cathode voltage, VKA=0 TS61089 TS61089A TS61089B	 -85 -120 -170	V
IPPSM	Non-repetitive peak on-state current 10/1000 us (Telcordia(Bellcore)Gr-1089-CORE.Issue 2.February 1999,Section4) 5/320 us (ITU-T K.20, K.21&K.45, K.44 open-circuit voltage wave shape 10/700us) 1.2/50 us (Telcordia(Bellcore)Gr-1089-CORE.Issue 2.February 1999,Section4) 2/10 us (Telcordia(Bellcore)Gr-1089-CORE.Issue 2.February 1999,Section4)	 30 40 100 120	A
ITSM	Non-repetitive peak on-state current. VGG=-75V 50Hz to 60Hz 0.1 s 1 s 5 s 300 s 900 s	 11 4.8 2.7 0.95 0.93	A
TA	Operating free-air temperature range	-40 to+85	˚C
TJ	Operating Junction Temperature Range	-40 to+150	˚C
TSTG	Storage Temperature Range	-40 to+150	˚C

Themal Characteristics

Symbol	Parameter	Value	Unit
RθJA	Junction To ambient	170	˚C/W

Electrical Parameter

Symbol	Parameter
I_D	Off-state current
I_H	Holding current
$V_{(BO)}$	Breakover voltage
V_F	Forward voltage
V_{FRM}	Peak forward recovery voltage
$V_{GK(BO)}$	Gate-cathode impluse breakover voltag
I_{GKS}	Gate reverse current
I_{GT}	Gate trigger current

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Electrical Parameter	
Symbol	Parameter
V_{GT}	Gate-cathode trigger voltage
C_{KA}	Cathode-anode off-state capacitance

Parameter Measurement Information

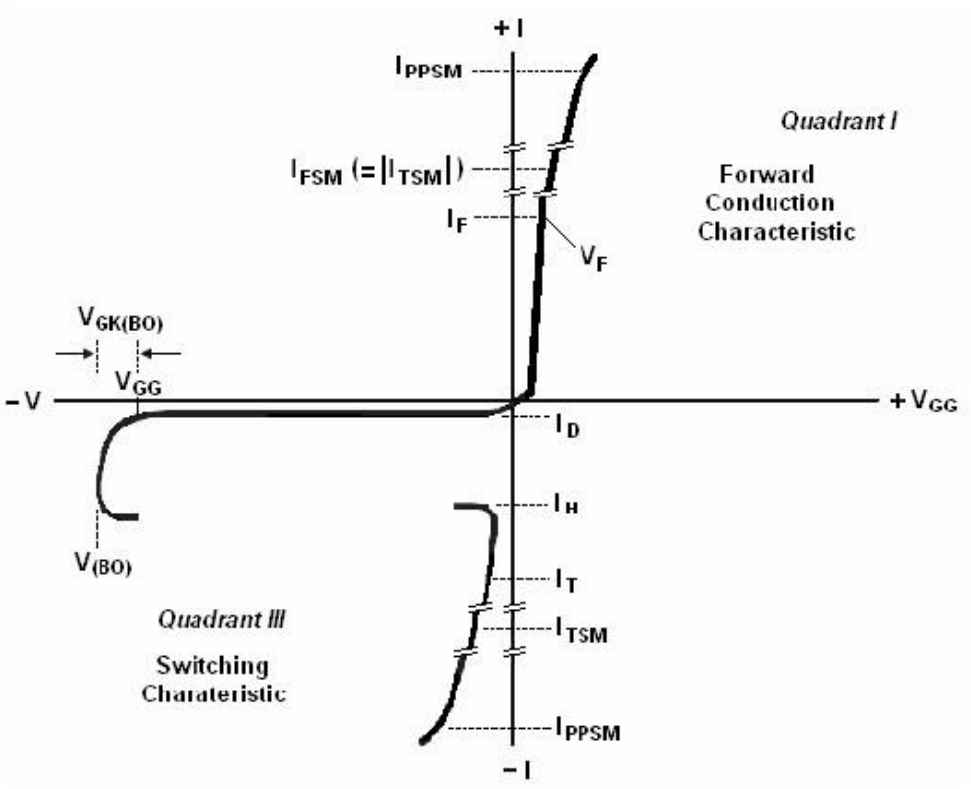

Figure 1. Voltage-Current Charateristic

Unless Otherwise Noted, All Voltages are Referenced to the Anode Information

Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.						
Parameter		Test Conditions	Min	Typ.	Max.	Units
I_D	Off-state current	VD=VDRM, VGK=0 TJ=25˚C TJ=85˚C			-5 -50	uA
$V_{(BO)}$	Breakover voltage	2/10us,IPP=-56A,RS=45Ω,VGG=-48V,CG=220nF 2/10us,IPP=-100A,RS=50Ω,VGG=-48V,CG=220nF 1.2/50us,IPP=-53A,RS=47Ω,VGG=-48V,CG=220nF 1.2/50us,IPP=-96A,RS=52Ω,VGG=-48V,CG=220nF		-57 -60 -60 -64		V
$V_{GK(BO)}$	Gate-cathode impulse Breakover voltage	2/10us,IPP=-56A,RS=45Ω,VGG=-48V,CG=220nF 2/10us,IPP=-100A,RS=50Ω,VGG=-48V,CG=220nF 1.2/50us,IPP=-53A,RS=47Ω,VGG=-48V,CG=220nF 1.2/50us,IPP=-96A,RS=52Ω,VGG=-48V,CG=220nF		9 12 12 16		V

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Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.						
Parameter		Test Conditions	Min	Typ.	Max.	Units
VF	Forward voltage	IF = 5 A, TW = 200 us			3	V
VFRM	Peak forward recovery voltage	2/10us,IPP=-56A,RS=45Ω,VGG=-48V,CG=220nF 2/10us,IPP=-100A,RS=50Ω,VGG=-48V,CG=220nF 1.2/50us,IPP=-53A,RS=47Ω,VGG=-48V,CG=220nF 1.2/50us,IPP=-96A,RS=52Ω,VGG=-48V,CG=220nF		6 8 8 12		V
IH	Holding current	IT = -1 A, di/dt = 1A/ms, VGG =-48 V	-150			mA
IGKS	Gate reverse current	VGG = VGK = VGKRM, VKA = 0 TJ=25°C TJ=85°C			-5 -50	uA
IGT	Gate trigger current	IT = -3 A, tp(g) ≥ 20 us, VGG = -48V			5	mA
VGT	Gate-cathode trigger	IT = -3 A, tp(g) ≥ 20 us, VGG = -48V			2.5	V
QGS	Gate switching charge	1.2/50us,IPP=-53A,RS=47Ω,VGG=-48V, CG=220nF		0.1		uC
CKA	Cathode-anode off-State capacitance	F=1 MHz, Vd=1V, IG=0 VD=-4 V VD=-48 V			100 50	pF

■Typical Characteristics

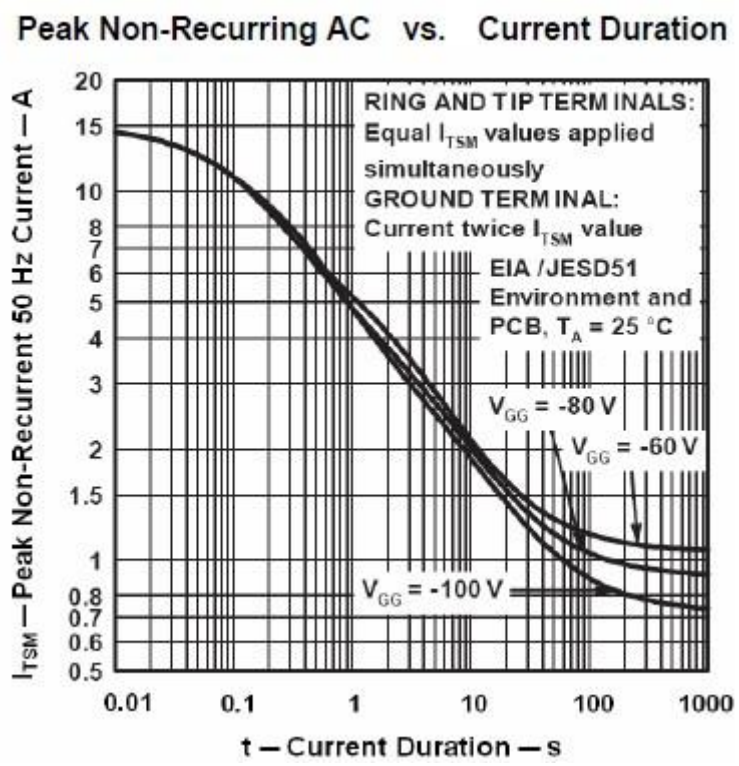

Fig2. Non-repetitive Peak On-State Current against Duration

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