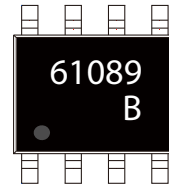


## FEATURES

- | Dual programmable transient suppressor.
- | Wide negative firing voltage range:  $V_{GKRM} = -167V$  max.
- | Low dynamic switching voltage:  $V_{FRM}$  and  $V_{GK(BD)}$
- | Low gate triggering current:  $I_{GT} = 5mA$  max.
- | Peak pulse current:  $I_{PP} = 30A$  for 10/1000 $\mu s$  surge.
- | Holding current:  $I_H = 150mA$  min.



SOP-8



Marking

## APPLICATIONS

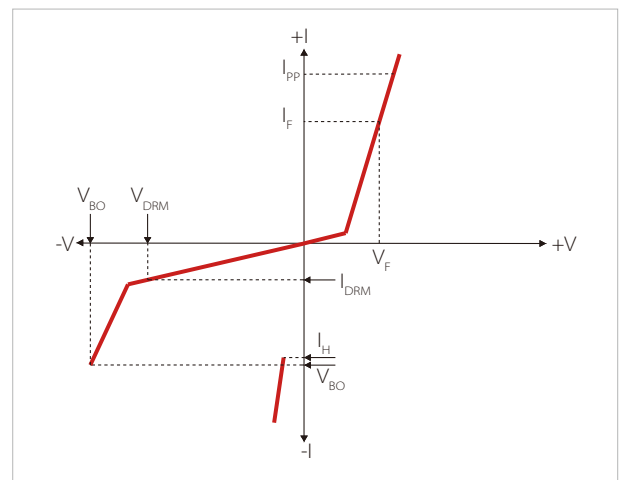
- | Switch Line Card
- | Access Network Line Card
- | PBX
- | VoIP

## APPROVALS

<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003

## ELECTERICAL CAHRACTERISTIC

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



## ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C)

Symbol	Parameter	Value	Unit	
T <sub>STG</sub>	Storage temperature range	-40 to +150	°C	
T <sub>J</sub>	Junction temperature			
T <sub>A</sub>	Operating free-air temperature range			
Non-repetitive peak on-state pulse current				
I <sub>TSP</sub>	(Telcordia (Bellcore) GR-1089-CORE, Issue 2, February)	10/1000μs	30	A
	(ITU-T K.20/21 & K.45/44 open-circuit voltage 10/700μs)	5/310μs	70	
	(Telcordia (Bellcore) GR-1089-CORE, Issue 2, February)	1.2/50μs	120	
V <sub>PP</sub>	Non-repetitive peak pulse voltage(10/700μs)	3000	V	
I <sub>TSM</sub>	Non repetitive surge peak on-state current (sinusoidal) 60Hz	0.1s	11	A
		1s	4.5	
		5s	2.4	
		300s	0.95	
		900s	0.93	
V <sub>DRM</sub>	Maximum voltage Line/Ground	-170	V	
V <sub>GKRM</sub>	Maximum voltage Gate/Line	-167		

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.

## TESTING STANDARDS

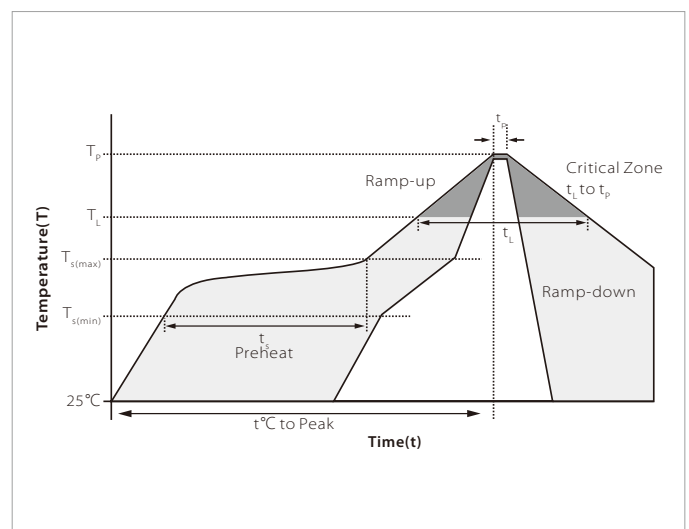
Type	Wave Sharp		V <sub>PP</sub> /I <sub>PP</sub>
ITU-T K.20/21 and K.45	Voltage	10/700μs	3000V
	Current	5/310μs	70A

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)

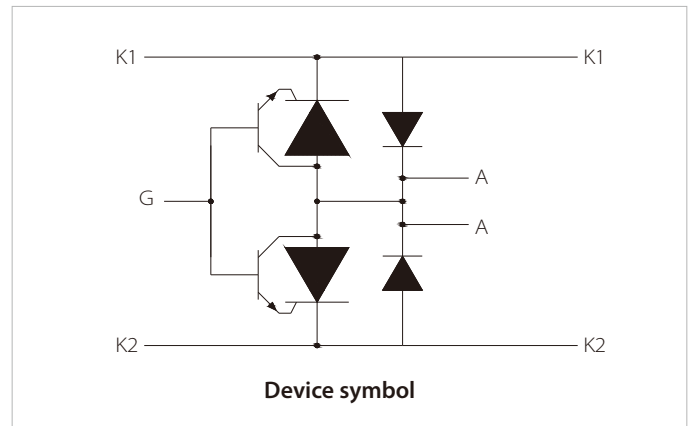
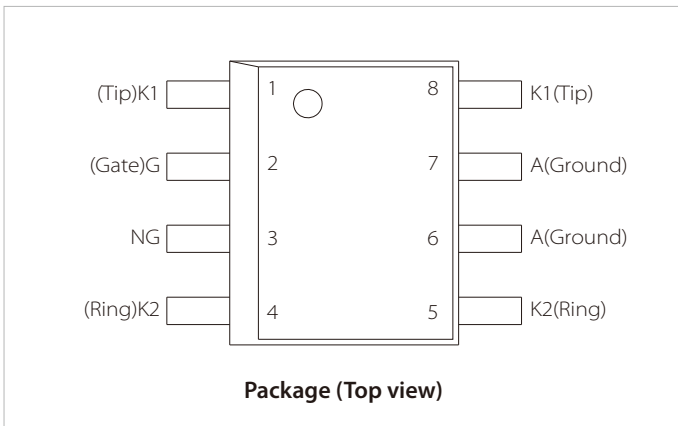
Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Parameters related to the diode						
V <sub>F</sub>	Forward voltage	I <sub>F</sub> =5A, t <sub>W</sub> =200μs	-	-	3	V
V <sub>FRM</sub>	Peak forward recovery voltage	2/10μs, I <sub>F</sub> =100A, R <sub>S</sub> =50Ω, di/dt=80A/μs	-	-	10	
Parameters related to the protection thyristor						
I <sub>DRM</sub>	Off-state current	V <sub>DRM</sub> =-170V, V <sub>GK</sub> =0V	-	-	-5	μA
V <sub>BO</sub>	Break-over voltage	2/10μs, I <sub>TM</sub> =-100A, R <sub>S</sub> =50Ω, di/dt=-80A/μs, V <sub>GG</sub> =-100V	-	-	-112	V
I <sub>H</sub>	Holding current	I <sub>T</sub> =-1A, di/dt=1A/ms, V <sub>GG</sub> =-100V	-150	-	-	mA
I <sub>GKS</sub>	Gate reverse current	V <sub>GG</sub> =V <sub>GK</sub> =-167V, V <sub>KA</sub> =0, T <sub>J</sub> =25°C	-	-	-5	μA
I <sub>GT</sub>	Gate trigger current	I <sub>T</sub> =-3A, t <sub>p(g)</sub> ≥20μs, V <sub>GG</sub> =-48V	-	-	5	mA
V <sub>GT</sub>	Gate trigger voltage		-	-	2.5	V
C <sub>AK</sub>	Anode-cathode off-state capacitance	f=1MHz, V <sub>D</sub> =1V, I <sub>G</sub> =0A, V <sub>D</sub> =-3V	-	-	100	pF

## REFLOW PROFILE

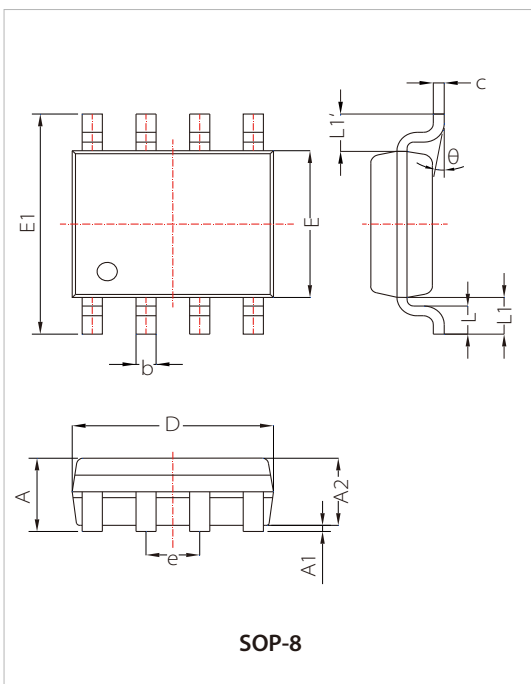
Reflow Condition		Lead-free assembly
Pre Heat	Temperature Min	150°C
	Temperature Max	200°C
	Time(min to max)	60~180 secs
Average ramp up rate (Liquidus)Temp (T <sub>L</sub> ) to peak T <sub>s</sub> (max) to T <sub>L</sub> - Ramp-up Rate		3°C/second max
Reflow	Temperature (T <sub>L</sub> ) (Liquidus)	217°C
	Time(min to max)(t <sub>s</sub> )	60~150 seconds
Peak Temperature (T <sub>p</sub> )		260 °C
Time within 5°C of actual peak Temperature (t <sub>p</sub> )		20~40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T <sub>p</sub> )		8 minutes max.
Do not exceed		260°C



## SOP PACKAGE TOP VIEW AND DEVICE SYMBOL



## PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.40		1.70	0.055		0.067
A1	0.05		0.15	0.002		0.006
A2	1.35		1.55	0.053		0.061
b	0.31		0.51	0.012		0.020
c	0.17		0.25	0.007		0.010
D	4.70		5.10	0.185		0.201
E	3.80		4.00	0.150		0.157
E1	5.80		6.20	0.228		0.244
e	1.14	1.27	1.40	0.045	0.050	0.055
L	0.62		0.77	0.024		0.030
L1	1.00	1.02	1.04	0.039	0.040	0.041
L1-L1'			0.12			0.005
$\theta$	0°		8°	0°		8°

## ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel
STP61089B	SOP-8	4000PCS	13"

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Website



Wechat

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