Description

This device is especially design for 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. This devices are not subject to aging and provide a fail safe mode in short circuit for a better protection. WPG are used to help equipment to meet various standards such as IEC950 / CSA C22.2 and FCC part68.

Features

- Dual line programmable transient voltage suppressor
- Low dynamic switching voltages: VFP and VDGL
- Wide negative firing voltage range: V_{MGL} = -155V (P61089B)
- Low gate triggering current: I_{GT} = 5 mA max
- Peak pulse current: I_{PP} = 30 A (10/1000 s)
- Holding current: I_H > 150 mA
- Solid-state silicon technology

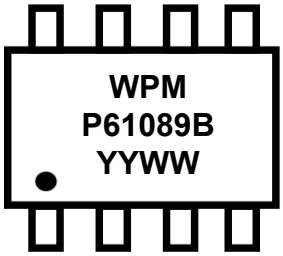
Protection Solution To Meet

- TIA-968-A/TIA-968-B
- ITU K.20/21 Enhanced Level*/Basic Level
- GR 1089 Inter-building*/Intra-building
- IEC 61000-4-5
- YD/T 1082
- YD/T 993
- YD/T 950

Applications Standards

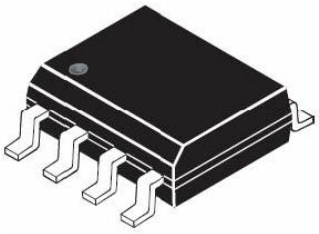
- T-1/E-1, ISDN, and xDSL transmission equipment
- Telecommunications infrastructure
- PBX's and other switches
- Set-top box
- VoIP

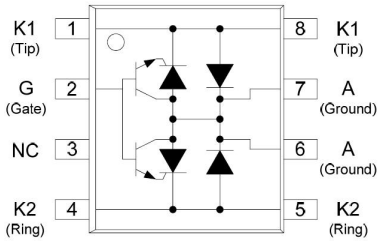
Marking Information



YYWW:
Date Code

Package & Symbol





Ordering Information

Out line	Reel (pcs)	Reel diameters (mm)
Taping	4K	330

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Absolute Maximum Ratings (T_A=25ºC, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage, V_{GK} =0	V_{DRM}	-170	V
Repetitive peak gate-cathode voltage, V_{KA}=0	V_{GKRM}	-170	V
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)	I_{PPSM}	30 40 100 120	A
Non -repetitive peak on-state current. VGG=-75V 50Hz to 60Hz 0.1 s 1 s 5 s 300 s 900 s	I_{TSM}	11 4.8 2.7 0.95 0.93	A
Lead Soldering Temperature	T_L	260 (10 sec.)	℃
Operating free-air Temperature Range	T_A	-40 ~ 85	℃
Junction temperature	T_J	-40-150	℃
Storage Temperature Range	T_{STG}	-55 ~ 150	℃
Lead Solder Temperature − Maximum (10 Second Duration)	T_L	260	℃
Junction To ambient	R θ JA	170	℃/W

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied,damage may occur and reliability may be affected.

**Other voltages may be available upon request.*

1. Non repetitive current pulse, per Figure 1.

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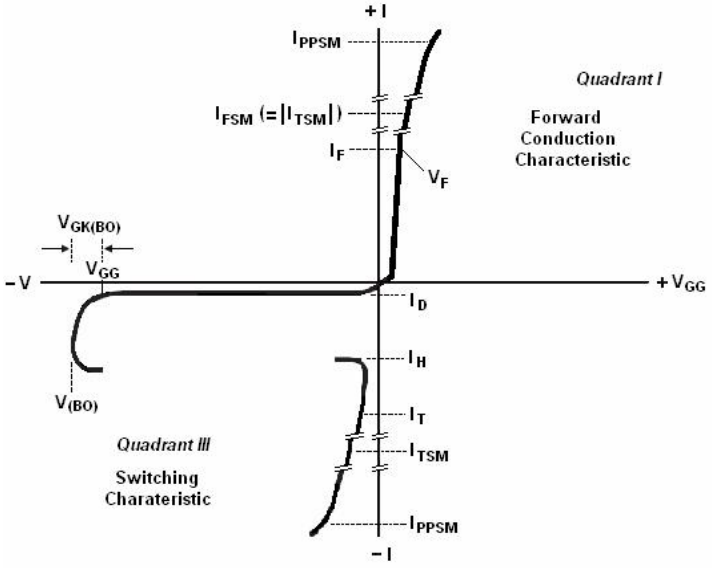
Electrical Characteristics (T_A=25℃)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
I_D	Off-state current	V_D=VDRM, V_{GK}=0 T_J=25 ℃			-5	μA
		T_J=85 ℃			-50	μA
$V_{(BO)}$	Breakover voltage	2/10us,I_{PP}=-56A,R_S=45Ω,V_{GG}=-48V,C_G =220nF		-57		V
		2/10us,I_{PP}=-100A,R_S=50Ω,V_{GG}=-48V,C_G =220nF		-60		
		1.2/50us,I_{PP}=-53A,R_S=47Ω,V_{GG}=-48V,C_G =220nF		-60		
		1.2/50us,I_{PP}=-96A,R_S =52Ω,V_{GG} =-48V,C_G =220nF		-64		
$V_{GK(BO)}$	Gate-cathode impulse Break-over voltage	2/10us,I_{PP}=-56A,R_S=45Ω,V_{GG}=-48V,C_G=220nF		9		V
		2/10us,I_{PP}=-100A,R_S=50Ω,V_{GG}=-48V,C_G=220nF		12		
		1.2/50us,I_{PP}=-53A,R_S=47Ω,V_{GG}=-48V,C_G=220nF		12		
		1.2/50us,I_{PP}=-96A,R_S=52Ω,V_{GG}=-48V,C_G=220nF		16		
V_F	Forward voltage	I_F = 5 A, T_W = 200 us			3	V
V_{FRM}	Peak forward recovery voltage	2/10us,I_{PP}=-56A,R_S=45Ω,V_{GG}=-48V,C_G=220nF		6		V
		2/10us, I_{PP} =-100A, R_S =50Ω,V_{GG}=-48V,C_G=220nF		8		
		1.2/50us, I_{PP} =-53A, R_S=47Ω,V_{GG}=-48V,C_G=220nF		8		
		1.2/50us, I_{PP} =-96A, R_S=52Ω,V_{GG}=-48V,C_G=220nF		12		
I_H	Holding current	I_T = -1 A, di/dt = 1A/ms, V_{GG} =-48 V	-150			mA
I_{GKS}	Gate reverse current	V_{GG} = V_{GK} = V_{GKRM}, V_{KA} = 0 T_J=25 ℃			-5	μA
		T_J=85 ℃			-50	μA
I_{GT}	Gate trigger current	I_T = -3 A, $t_{p(g)}$ ≥ 20 us, V_{GG} = -48V			5	mA
V_{GT}	Gate-cathode trigger voltage	I_T = -3 A, $t_{p(g)}$ ≥ 20 us, V_{GG} = -48V			2.5	V
Q_{GS}	Gate switching charge	1.2/50us,I_{PP}=-53A,R_S=47Ω,V_{GG}=-48V,C_G=220nF		0.1		uC
C_{KA}	Cathode-anode off-State capacitance	F=1 MHz, V_d=1V, I_G=0 V_D= -3 V			100	pF
		V_D=-48 V			50	pF

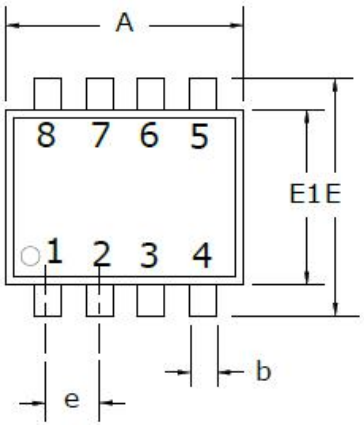
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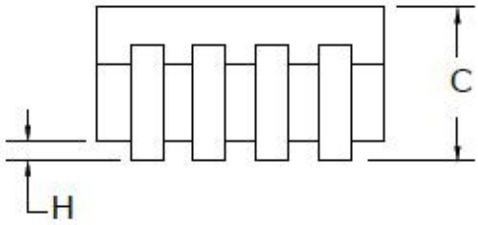
Electrical Characteristics (T_A=25℃ continued)

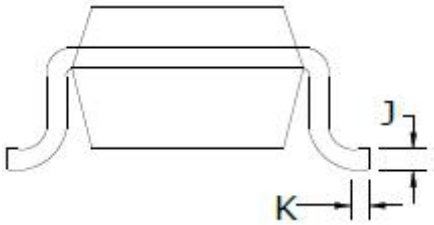
Symbol	Parameter
I_D	Off-state current
I_H	Holding current
$V_{(BO)}$	Break-over voltage
V_F	Forward voltage
V_{FRM}	Peak forward recovery voltage
$V_{GK(BO)}$	Gate-cathode impulse Break-over voltage
I_{GKS}	Gate reverse current
I_{GT}	Gate trigger current
V_{GT}	Gate-cathode trigger voltage
C_{KA}	Cathode-anode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



Package Mechanical Data (SOP-8)





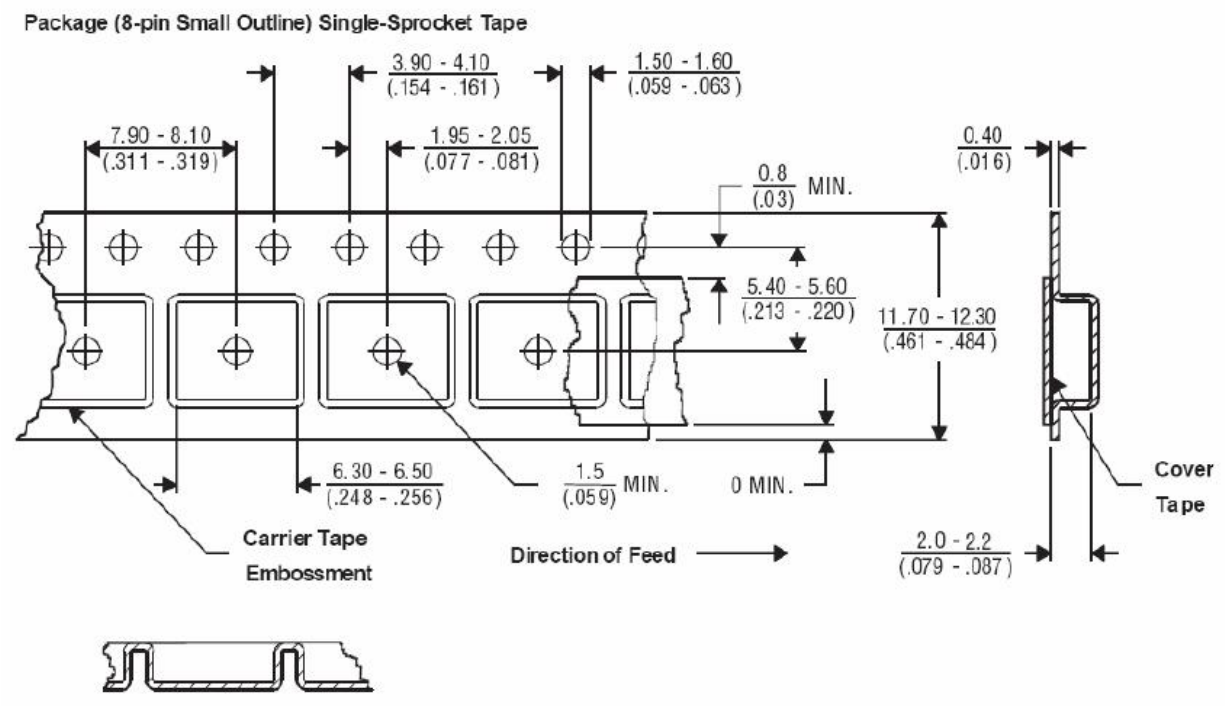


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.70	5.10	0.185	0.2
E	6.00(BSC)		0.236(BSC)	
E1	3.80	4.00	0.150	0.157
b	0.35	0.49	0.014	0.019
C	1.35	1.79	0.054	0.068
J	0.18	0.25	0.007	0.009
e	1.27(BSC)		0.05(BSC)	
K	0.40	1.25	0.016	0.049
H	0.10	0.25	0.004	0.008

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Tape & Reel Specification

Package (8-pin Small Outline) Single-Sprocket Tape



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)

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