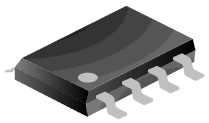
# 2-Channel Voltage Clamp Ultra-High Current Transient Voltage Suppressor

## General Description

The GG0306SAG is a 2-channel voltage clamp ultra-high current transient voltage suppressor. Each channel has a pair of ESD discharge current steering diodes which are used for steering positive/negative discharging current to the positive/negative voltage clamp pins. This device integrates a Zener diode. Generally, the negative clamp pin of the GG0306SAG is connected to GND plane for protecting power supply of the desired circuit because the positive discharging current flows to GND through the Zener diode.
The GG0306SAG is suitable for the ESD protection of 10 / 100M Ethernet interfaces.



SOP-8-225-1.27

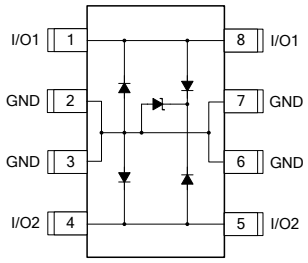
## Features

- 2 channels of ESD protection
- Provides ESD protection to IEC61000-4-2
  - ±30kV air discharge
  - ±30kV contact discharge
- Inputs to GND capacitance: no higher than 25pF
- Channel I/O to I/O capacitance: no higher than 12pF
- Low clamping voltage
- High peak current
- Reliable Silicon avalanche breakdown structure
- SOP-8-225-1.27 package
- 5V Low operating voltage

## Applications

- T1/E1 line interface
- T3/E3 and DS3 interfaces
- 10 / 100M Ethernet
- STS-1 interfaces
- ISDN S/T interfaces
- ISDN-U interfaces

## Pin Configuration




SOP-8-225-1.27
(Top view)

## Absolute Maximum Ratings

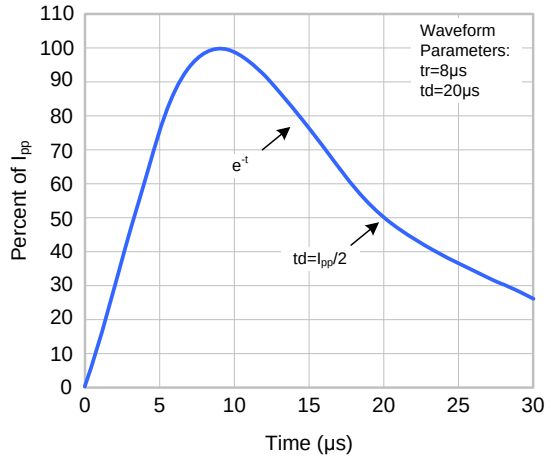
| Characteristics | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Peak Pulse Power(8/20μs) | | $P_{PP}$ | 2000 | W |
| Peak Pulse Current(8/20μs) | | $I_{PP}$ | 100 | A |
| Maximum ESD Capability | IEC 61000-4-2(Air) | $V_{ESD1}$ | ±30kV | kV |
| | IEC 61000-4-2(Contact) | $V_{ESD2}$ | ±30kV | kV |
| Operating Temperature Range | | $T_{opr}$ | -55 ~ +125 | °C |
| Storage Temperature Range | | $T_{stg}$ | -55 ~ +150 | °C |

## Electrical Characteristics (Tamb=25°C)

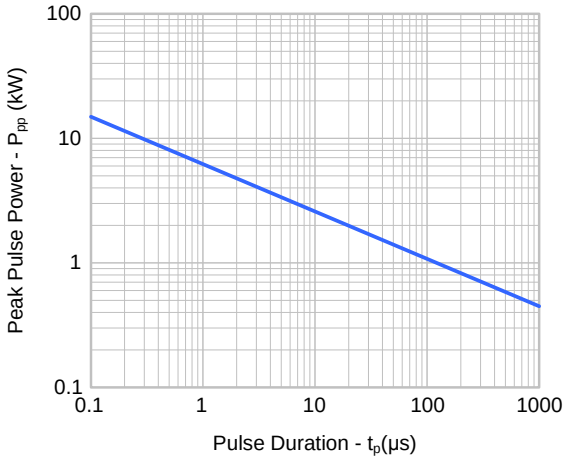
| Characteristics | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Reverse Working Voltage | $V_{RWM}$ | Any I/O pin to GND | -- | -- | 5 | V |
| Reverse Breakdown Voltage | $V_{BR}$ | Any I/O pin to GND; It=1mA | 6 | -- | -- | V |
| Reverse Leakage Current | $I_R$ | $V_{RWM}$ =5V, T=25°C; Any I/O pin to GND | -- | -- | 1 | μA |
| Positive Clamping Voltage | $V_{C1}$ | $I_{PP}$=5A, $t_P$=8/20μS; Positive pulse; Any I/O pin to GND | -- | 7.8 | 12.0 | V |
| Positive Clamping Voltage | $V_{C1}$ | $I_{PP}$=25A, $t_P$=8/20μS; Positive pulse; Any I/O pin to GND | -- | 14 | 20 | V |
| Positive Clamping Voltage | $V_{C1}$ | $I_{PP}$=100A, $t_P$=8/20μS; Positive pulse; Any I/O pin to GND | -- | 15 | 20 | V |
| Negative Clamping Voltage | $V_{C2}$ | $I_{PP}$=5A, $t_P$=8/20μS; Negative pulse; Any I/O pin to GND | -- | 1.4 | -- | V |
| Negative Clamping Voltage | $V_{C2}$ | $I_{PP}$=25A, $t_P$=8/20μS; Negative pulse; Any I/O pin to GND | -- | 4.6 | -- | V |
| Negative Clamping Voltage | $V_{C2}$ | $I_{PP}$=100A, $t_P$=8/20μS; Negative pulse; Any I/O pin to GND | -- | 8.0 | -- | V |
| Junction Capacitance Between Channel | $C_{J1}$ | $V_R$=0V, f=1MHz Between I/O pins | -- | 12 | 15 | pF |
| Junction Capacitance Between I/O And GND | $C_{J2}$ | $V_R$=0V, f=1MHz Any I/O pin to GND | -- | -- | 25 | pF |

# Typical Characteristics

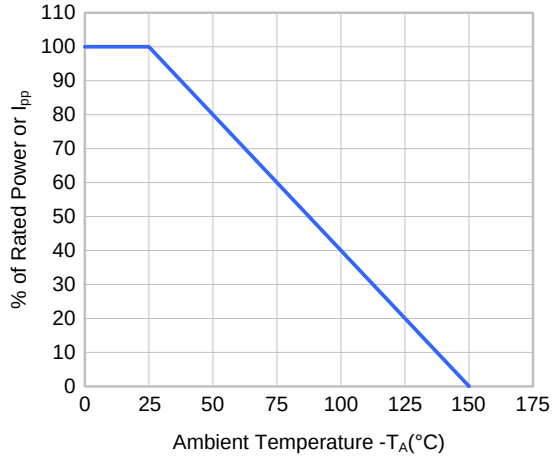
Pulse Waveform



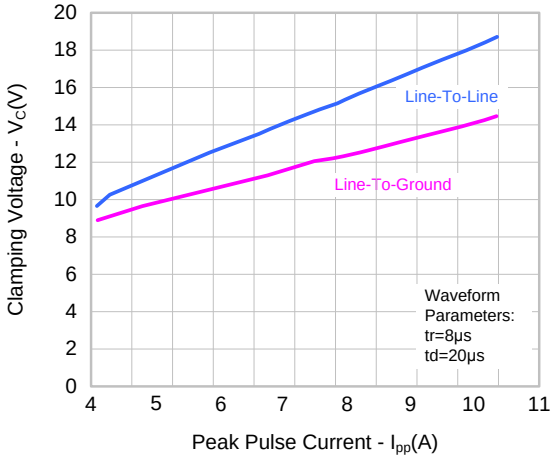

Non-repetitive Peak Pulse Power vs. Pulse Time



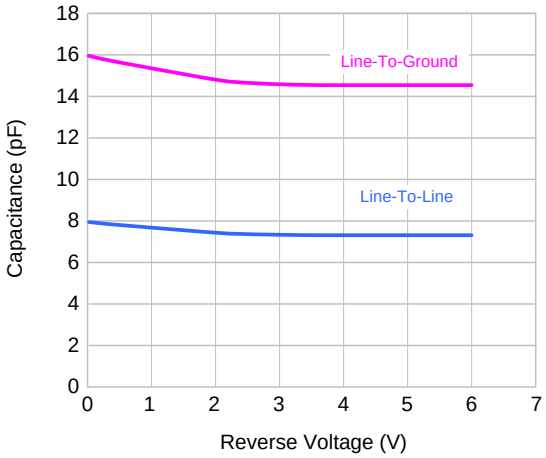

Power Derating Curve




Clamping Voltage vs. Peak Pulse Current




Capacitance vs. Reverse voltage

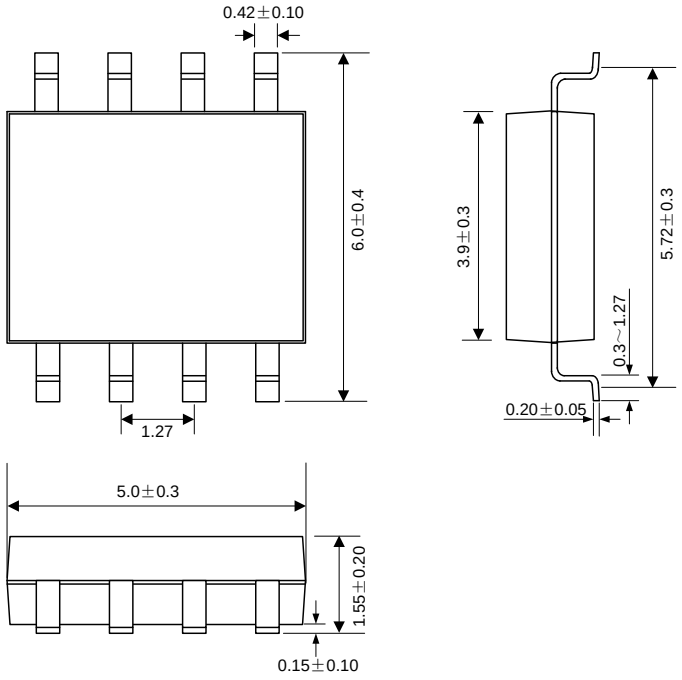


## Ordering Information

| Part No | Package | Marking | Material | Packing |
|---|---|---|---|---|
| GG0306SAG | SOP-8-225-1.27 | GG0306SAG | Halogen free | Tube |
| GG0306SAGTR | SOP-8-225-1.27 | GG0306SAG | Halogen free | Tape&Reel |

## Package Outline

SOP-8-225-1.27 UNIT: mm

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