GSTG4009SF

400V Trench Gate Field-Stop IGBT

Product Description

It is a Trench Field-Stop Insulated Gate Bipolar Transistor and is suitable for the resonant or soft switching applications.

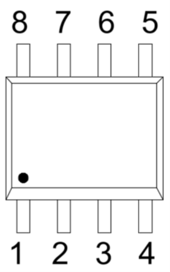
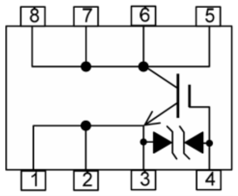
Features

- Low Saturation Voltage
- High Switching Speed
- High Avalanche Ruggedness

Mechanical Data

- SOP-8L Package
- RoHS Compliant and Halogen Free

Package and Pin Assignment

SOP-8L	Equivalent Circuit
	

Pin	Symbol	Description	Pin	Symbol	Description
1	E	Emitter	**8**	C	Collector
2	E	Emitter	**7**	C	Collector
3	E	Emitter	**6**	C	Collector
4	G	Gate	**5**	C	Collector

Ordering and Marking Information

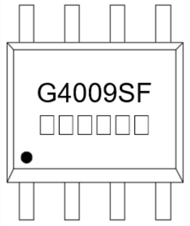
Ordering Information

Part Number	Package	Part Marking	Quantity / Reel
GSTG4009SF	SOP-8L	G4009SF □□□□□□	4,000 PCS

GSTG4009 $\boxed{1}$ $\boxed{2}$

- **Product Code:**
  GSTG4009
- **Package Code:**
  $\boxed{1}$ is **S** for SOP-8L
- **Green Level:**
  $\boxed{2}$ is **F** for RoHS Compliant and Halogen Free

Marking Information



- **Product Code:**
  G4009SF
- **GS Code:**
  □□□□□□
  ●The dot indicates pin1

Absolute Maximum Ratings (T$_A$=25ºC unless otherwise specified)

Symbol	Parameter		Value	Unit
V_{CES}	Collector-Emitter Voltage		400	V
V_{GES}	Gate-Emitter Voltage		±6	V
I_{CM} [1]	Collector Current Pulsed		150	A
P_D	Power Dissipation	T_A=25°C	1	W
$R_{\theta JA}$ [2]	Thermal Resistance – Junction to Ambient		125	℃/W
T_J	Operating Junction Temperature Range		-40 to +150	ºC
T_{STG}	Storage Temperature Range		-40 to +150	ºC

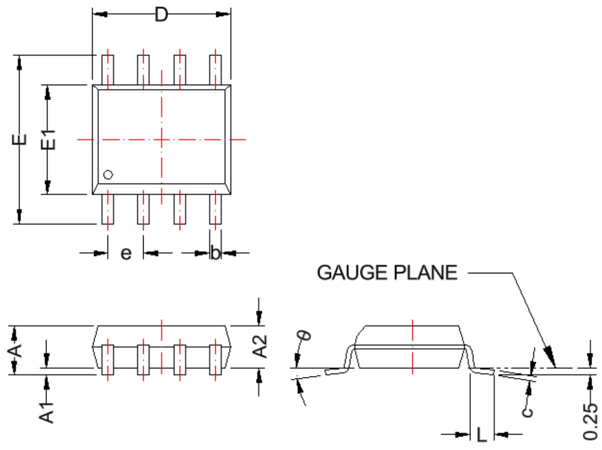
Electrical Characteristics (T$_A$=25ºC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
OFF Characteristics						
BV_{CES}	Collector-Emitter Breakdown Voltage		400	-	-	V
I_{CES}	Collector Cut-Off Current	V_{CE}=400V, V_{GE}=0V	-	-	1	μA
I_{GES}	G-E Leakage Current	V_{CE}=0V, V_{GE}=±6V	-	-	±10	μA
ON Characteristics						
$V_{GE(th)}$	Gate to Emitter Threshold Voltage	V_{CE}=V_{GE}, I_C=250μA	0.4	-	1.2	V
$V_{CE(SAT)}$ [1]	Collector to Emitter Saturation Voltage	V_{GE}=2.5V, I_C=40A			5.3	V
Dynamic Characteristics						
C_{ies}	Input Capacitance	V_{CE}=25V, V_{GE}=0V, f=1MHz	-	3410	-	pF
C_{oes}	Output Capacitance		-	34	-	
C_{res}	Reverse Transfer Capacitance		-	25	-	

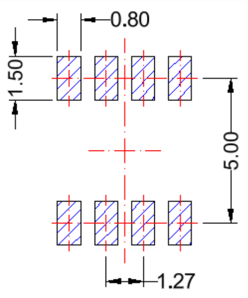
NOTE:
1. Single pulse width is limited by max junction temperature.
2. The device was mounted on 1in^2 FR-4 board with 2oz.copper.

SOP-8L

Package Dimension



Recommended Land Pattern



Unit:mm

Dimensions				
Symbol	**Millimeters**		**Inches**	
	Min	**Max**	**Min**	**Max**
A	---	1.85	---	0.073
A1	0.00	0.25	0.000	0.010
A2	1.20	---	0.047	---
b	0.30	0.55	0.012	0.022
c	0.10	0.35	0.004	0.014
D	4.70	5.15	0.185	0.203
E	5.70	6.30	0.224	0.248
E1	3.75	4.15	0.148	0.163
e	1.27 BSC		0.050 BSC	
L	0.40	1.27	0.016	0.050
θ	0°	8°	0°	8°

NOTE:

Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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