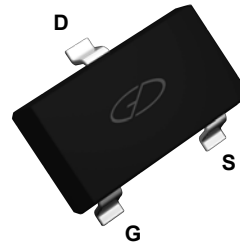
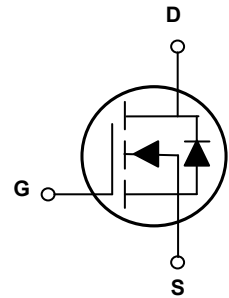


Main Product Characteristics

V_{DSS}	60V
$R_{DS(ON)}$	70m Ω (typ.)
I_D	2.7A



SOT-23



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery
- 150°C operating temperature



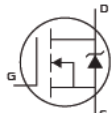
Description

The SSF6092G1 utilizes the latest trench processing techniques to achieve high cell density, low on-resistance and high repetitive avalanche rating. These features make this device extremely efficient and reliable for use in power switching applications and a wide variety of other applications.

Absolute Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous, V_{GS} @ 10V ¹	I_D	2.7	A
Drain Current-Pulsed ²	I_{DM}	10.8	A
Power Dissipation ³	P_D	1.25	W
Linear Derating Factor		0.01	W/ $^\circ\text{C}$
Junction-to-Ambient ($t \leq 10\text{s}$) ⁴	$R_{\theta JA}$	99	$^\circ\text{C}/\text{W}$
Junction-to-Ambient (PCB mounted, steady-state) ⁴		100	$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	T_J	-55 To +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 To +150	$^\circ\text{C}$

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$	-	-	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.0	-	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=2.7A$	-	70	92	m Ω
Dynamic and Switching Characteristics						
Total Gate Charge	Q_g	$V_{DD}=40V, I_D=4A$ $V_{GS}=10V$	-	12	-	nC
Gate-Source Charge	Q_{gs}		-	3.5	-	
Gate-Drain Charge	Q_{gd}		-	3.7	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=25V, R_{GEN}=50\Omega$ $V_{GS}=10V, I_D=1.2A$	-	9.2	-	nS
Rise Time	t_r		-	16.7	-	
Turn-Off Delay Time	$t_{d(off)}$		-	35.4	-	
Fall Time	t_f		-	8.6	-	
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V,$ $F=1MHz$	-	641	-	pF
Output Capacitance	C_{oss}		-	48	-	
Reverse Transfer Capacitance	C_{rss}		-	38	-	
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current (Body Diode) ^①	I_S	MOSFET symbol  showing the	-	-	2.7	A
Pulsed Source Current (Body Diode)	I_{SM}	integral reverse p-n junction diode.	-	-	10.8	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=2.7A,$ $T_J=25^\circ\text{C}$	-	0.85	1.3	V

Notes:

- ① Calculated continuous current based on maximum allowable junction temperature. Package limitation current is 75A.
- ② Repetitive rating; pulse width limited by max. junction temperature.
- ③ The power dissipation P_D is based on max. junction temperature, using junction-to-case thermal resistance.
- ④ The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$.

Test Circuits and Waveforms

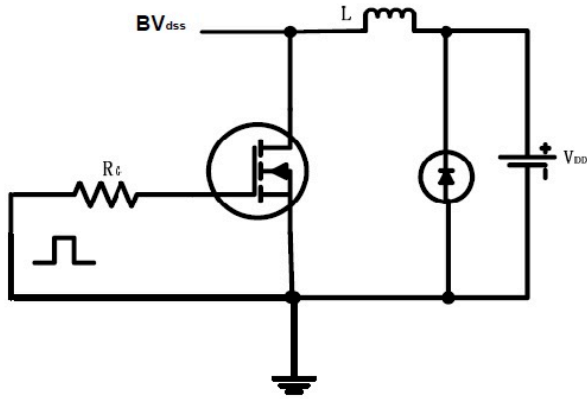


Figure 1. EAS Test Circuit:

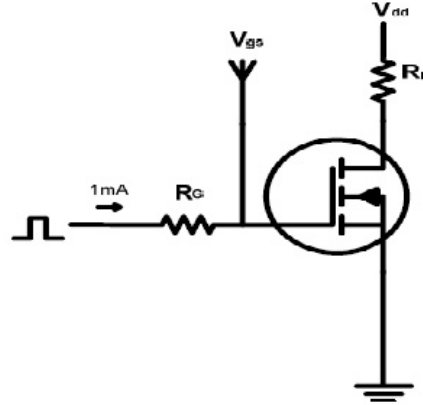


Figure 2. Gate Charge Test Circuit:

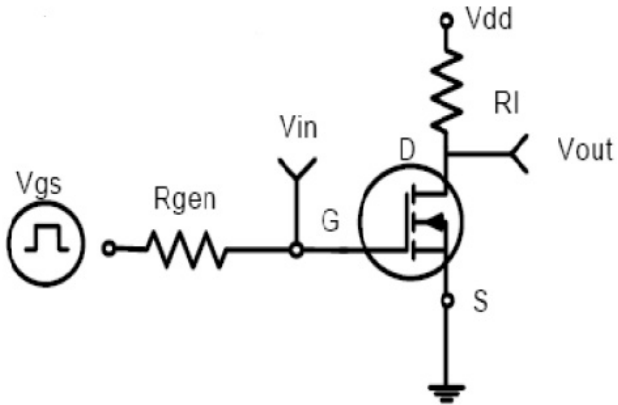


Figure 3. Switching Time Test Circuit:

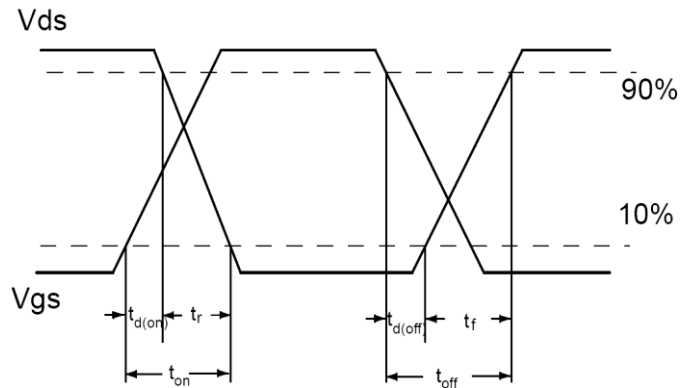


Figure 4. Switch Waveforms:

Thermal Characteristics

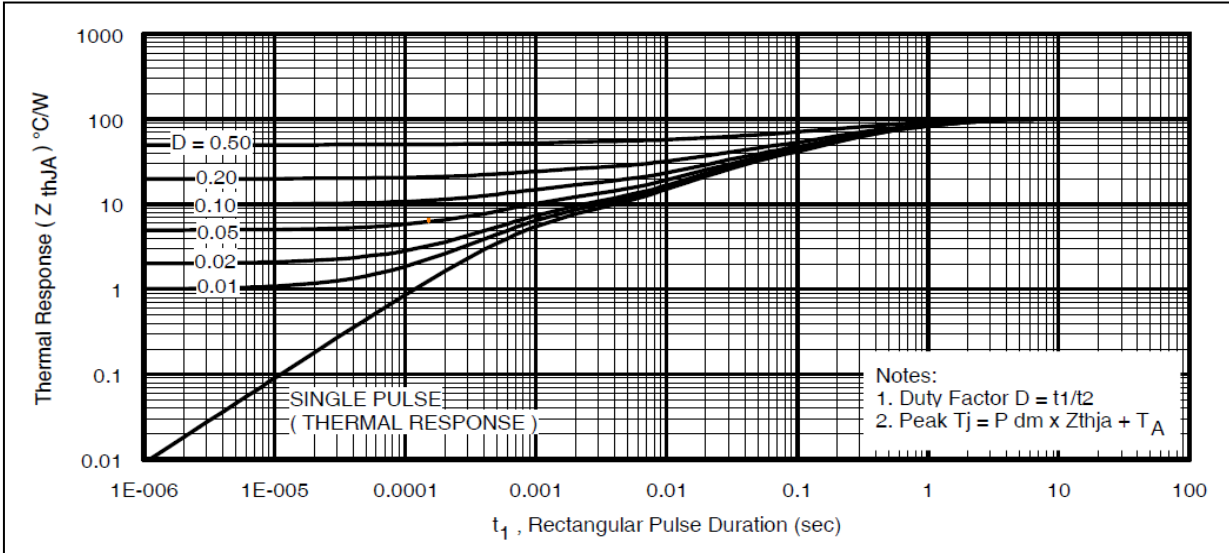
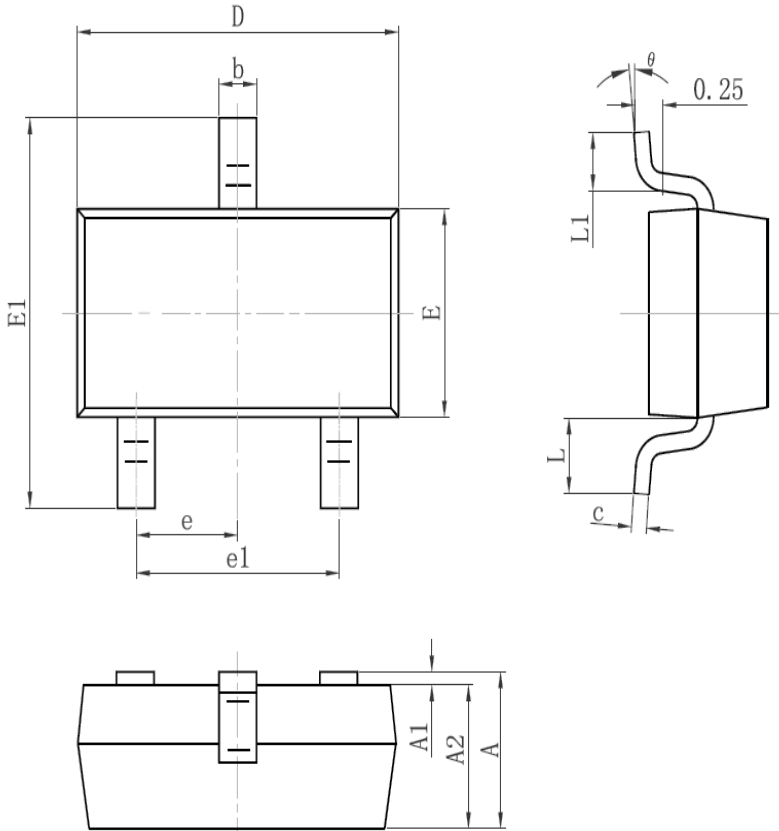


Figure 5. Typical Effective Transient Thermal Impedance, Junction-to-Ambient

Package Outline Dimensions (SOT-23)



Symbol	Dimension In Millimeters		Dimension In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.95TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.55REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°