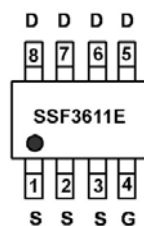
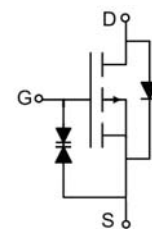


Main Product Characteristics:

V_{DSS}	-30 V
$R_{DS(on)}$	10.6 mΩ(typ.)
I_D	-12A


SOP-8

Marking and pin Assignment

Schematic diagram
Features and Benefits:

- Advanced trench MOSFET process technology
- Special designed 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:

It utilizes the latest trench processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications

Absolute max Rating:

Symbol	Parameter	Max.	Units
I_D @ TC = 25°C	Continuous Drain Current, V_{GS} @ 10V①	-12	A
I_D @ TC = 100°C	Continuous Drain Current, V_{GS} @ 10V①	-7.4	
I_{DM}	Pulsed Drain Current②	-48	
P_D @TC = 25°C	Power Dissipation③	2	W
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-to-Source Voltage	± 20	V
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to +150	°C

Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
$R_{\theta JA}$	Junction-to-ambient (t ≤ 10s) ④	—	62.5	°C/W

Electrical Characterizes @T_A=25°C unless otherwise specified

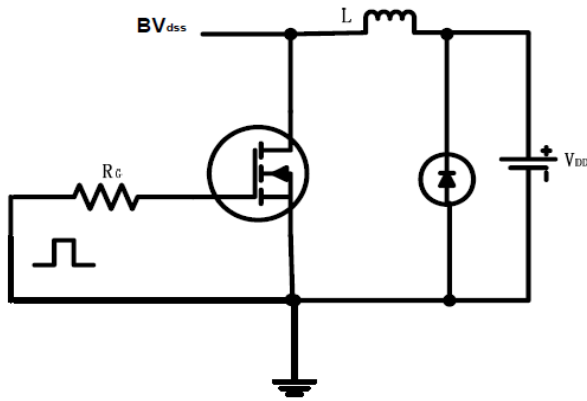
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	-30	—	—	V	V _{GS} = 0V, I _D = 250μA
R _{DS(on)}	Static Drain-to-Source on-resistance	—	10.6	13	mΩ	V _{GS} = -10.0V, I _D = -10.0A
		—	14.1	16		V _{GS} = -4.50V, I _D = -7.50A
V _{GS(th)}	Gate threshold voltage	-1	—	-2	V	V _{DS} = V _{GS} , I _D = 250μA
I _{DSS}	Drain-to-Source leakage current	—	—	-1	μA	V _{DS} = -30V, V _{GS} = 0V
I _{GSS}	Gate-to-Source forward leakage	—	—	10	μA	V _{GS} = 20V
		—	—	-10		V _{GS} = -20V
Q _g	Total gate charge	—	55	—	nC	I _D = -10A, V _{DS} = -25V, V _{GS} = -10V
Q _{gs}	Gate-to-Source charge	—	3.5	—		
Q _{gd}	Gate-to-Drain("Miller") charge	—	18	—		
t _{d(on)}	Turn-on delay time	—	8.0	—	ns	V _{GS} = -10V, V _{DS} = -15V, R _L = 15Ω, R _{GEN} = 3Ω
t _r	Rise time	—	5.8	—		
t _{d(off)}	Turn-Off delay time	—	56	—		
t _f	Fall time	—	38	—		
C _{iss}	Input capacitance	—	3224	—	pF	V _{GS} = 0V V _{DS} = -15V f = 1MHz
C _{oss}	Output capacitance	—	459	—		
C _{rss}	Reverse transfer capacitance	—	425	—		

Source-Drain Ratings and Characteristics

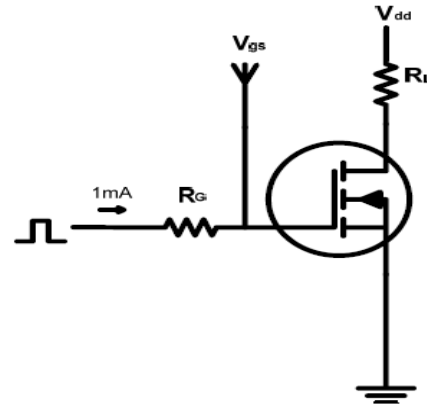
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode)	—	—	-12	A	MOSFET symbol showing the integral reverse p-n junction diode.
I _{SM}	Pulsed Source Current (Body Diode)	—	—	-48	A	
V _{SD}	Diode Forward Voltage	—	-0.73	-1.2	V	I _S = -2.1A, V _{GS} = 0V
t _{rr}	Reverse Recovery Time	—	16	—	ns	T _J = 25°C, I _F = -10A, di/dt = 100A/μs
Q _{rr}	Reverse Recovery Charge	—	5.9	—	uC	

Test circuits and Waveforms

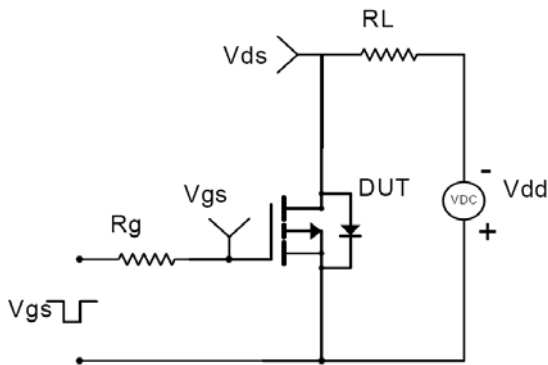
EAS test circuits:



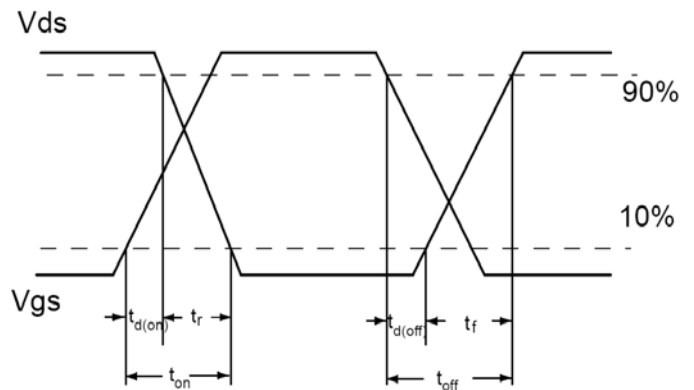
Gate charge test circuit:



Switch time test circuit:

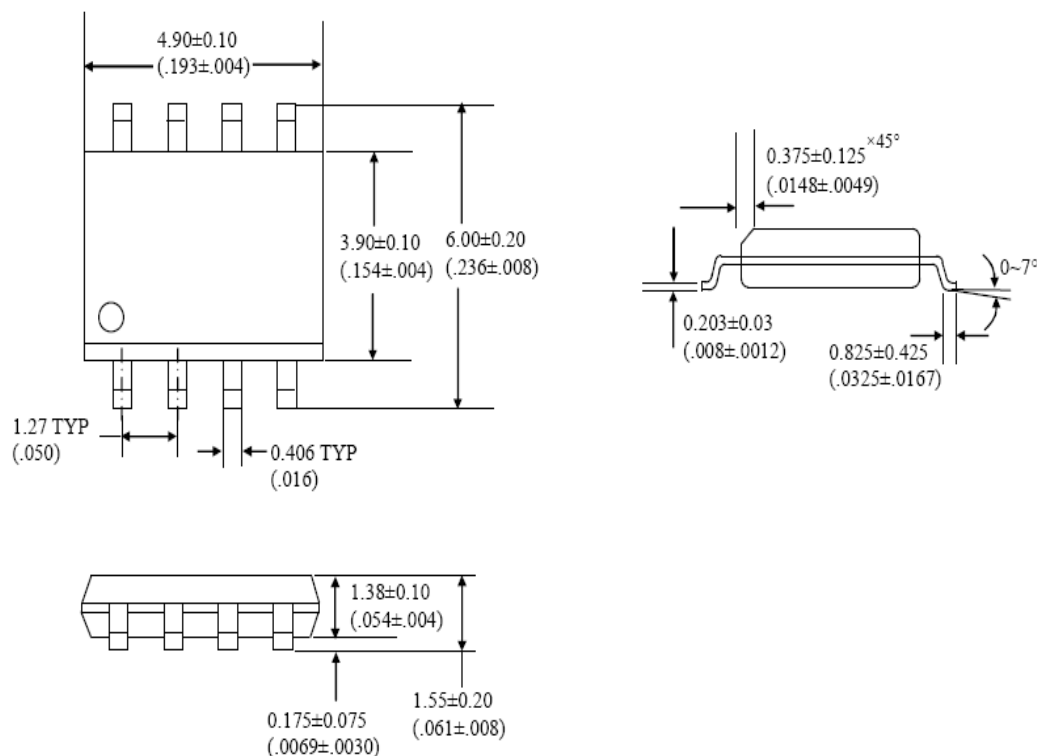


Switch Waveforms:



Notes:

- ① The maximum current rating is limited by bond-wires.
- ② Repetitive rating; pulse width limited by max. junction temperature.
- ③ The power dissipation PD is based on max. junction temperature, using junction-to-ambient thermal resistance.
- ④ The value of $R_{\theta JA}$ is measured with the device mounted on 1in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$
- ⑤ These curves are based on the junction-to-case thermal impedance which is measured with the device mounted to a large heatsink, assuming a maximum junction temperature of $T_{J(MAX)} = 150^\circ\text{C}$.

Mechanical Data:
SOP8 PACKAGE OUTLINE DIMENSION


Symbol	Dimension In Millimeters		Dimension In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.280	1.480	0.050	0.058
b	0.406		0.016	
c	0.173	0.233	0.007	0.009
D	4.800	5.000	0.189	0.197
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.27TYP		0.050TYP	
L	0.400	1.250	0.016	0.050

Ordering and Marking Information**Device Marking: SSF3611E****Package (Available)****SOP-8****Operating Temperature Range****C : -55 to 150 °C****Devices per Unit**

Package Type	Units/Tape	Tapes/Inner Box	Units/Inner Box	Inner Boxes/Carton Box	Units/Carton Box
SOP-8	2500	2	5000	8	40000

Reliability Test Program

Test Item	Conditions	Duration	Sample Size
High Temperature Reverse Bias(HTRB)	$T_j=125^{\circ}\text{C}$ or 150°C @ 80% of Max $V_{\text{DSS}}/V_{\text{CES}}/V_{\text{R}}$	168 hours 500 hours 1000 hours	3 lots x 77 devices
High Temperature Gate Bias(HTGB)	$T_j=125^{\circ}\text{C}$ or 150°C @ 100% of Max V_{GSS}	168 hours 500 hours 1000 hours	3 lots x 77 devices

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