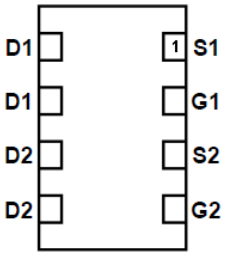
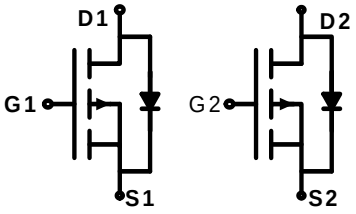
Main Product Characteristics:

V_{DSS}	-20V
R_{DS}(on)	55mΩ (typ.)
I_D	-3.4A



DFN 3x2-8L
Bottom View



Schematic diagram

Features and Benefits:

- Advanced 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℃ operating temperature

Description:

It utilizes the latest 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	-3.4	A
I_{DM}	Pulsed Drain Current②	-17	
P_D @TC = 25°C	Power Dissipation③	1.7	W
	Linear Derating Factor	0.014	W/°C
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-to-Source Voltage	±8	V
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to +150	°C

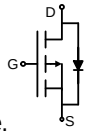
Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-case③	—	74	℃/W
$R_{\theta JA}$	Junction-to-ambient (t ≤ 10s) ④	—	60	℃/W

Electrical Characterizes @T_A=25℃ unless otherwise specified

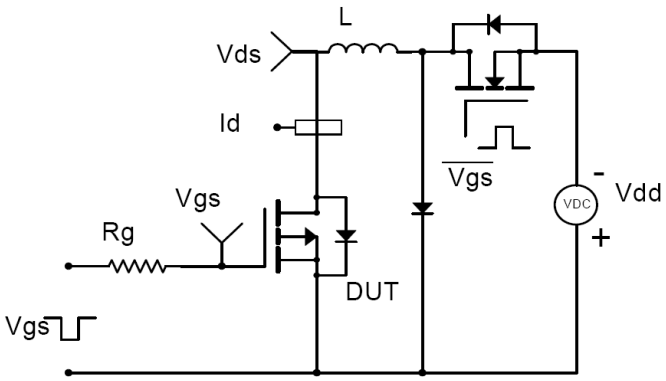
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	-20	—	—	V	V_{GS} = 0V, ID = -250μA
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	55	80	mΩ	V_{GS}=-4.5V,I_D = -2.9A
		—	78	105		V_{GS}=-2.5V,I_D = -2.2A
$V_{GS(th)}$	Gate threshold voltage	-0.45	—	-1.0	V	V_{DS} = V_{GS}, I_D = -250μA
I_{DSS}	Drain-to-Source leakage current	—	—	1	μA	V_{DS} = -20V,V_{GS} = 0V
		—	—	50		T_J = 125℃
I_{GSS}	Gate-to-Source forward leakage	—	—	100	nA	V_{GS} =8V
		—	—	-100		V_{GS} = -8V
Q_g	Total gate charge	—	6.5	—	nC	I_D =-2.6A,
Q_{gs}	Gate-to-Source charge	—	1.1	—		V_{DS}=-16V,
Q_{gd}	Gate-to-Drain("Miller") charge	—	2.2	—		V_{GS} =-4.5V
$t_{d(on)}$	Turn-on delay time	—	4.7	—	ns	V_{GS}=-4.5V, VDS=-16V, I_D = -2.6A,R_{GEN}=2Ω
t_r	Rise time	—	10	—		
$t_{d(off)}$	Turn-Off delay time	—	28	—		
t_f	Fall time	—	20	—		
C_{iss}	Input capacitance	—	645	—	pF	V_{GS} = 0V
C_{oss}	Output capacitance	—	86	—		V_{DS} = -16V
C_{rss}	Reverse transfer capacitance	—	38	—		f = 1MHz

Source-Drain Ratings and Characteristics

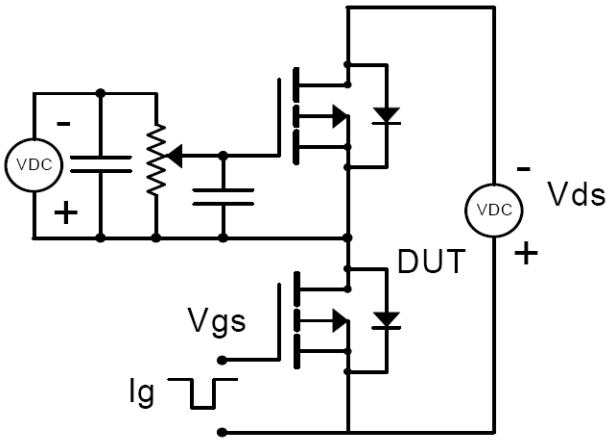
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	-3.4	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode)	—	—	-17	A	
V_{sd}	Diode Forward Voltage	—	—	-1.2	V	I_S=-1.1A, V_{GS}=0V
t_{rr}	Reverse Recovery Time	—	17	—	ns	TJ = 25°C, IF =1A, di/dt = 100A/μs
Q_{rr}	Reverse Recovery Charge	—	8.6	—	nC	

Test circuits and Waveforms

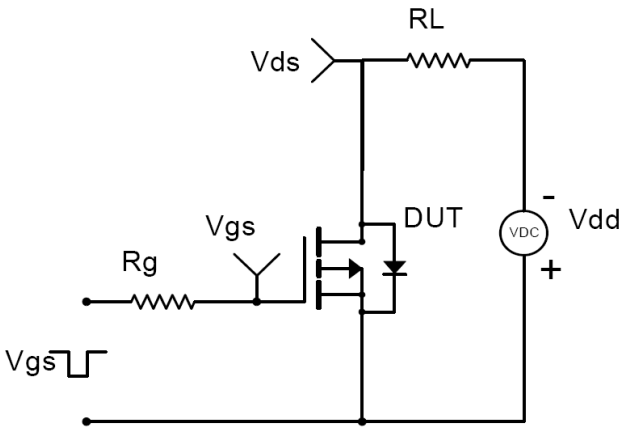
EAS test circuit:



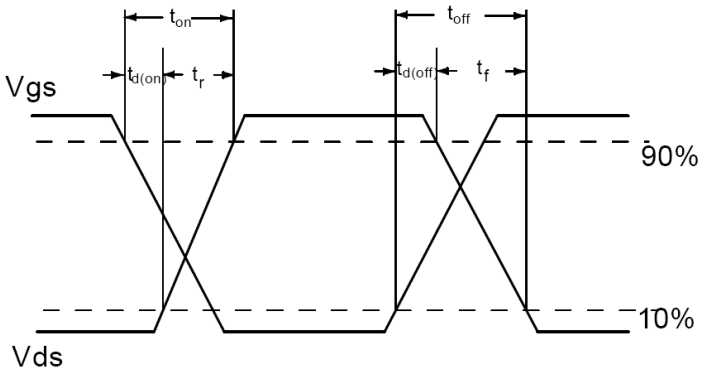
Gate charge test circuit:



Switching time test circuit:



Switch Waveforms:



Notes:

①Calculated continuous current based on maximum allowable junction temperature.

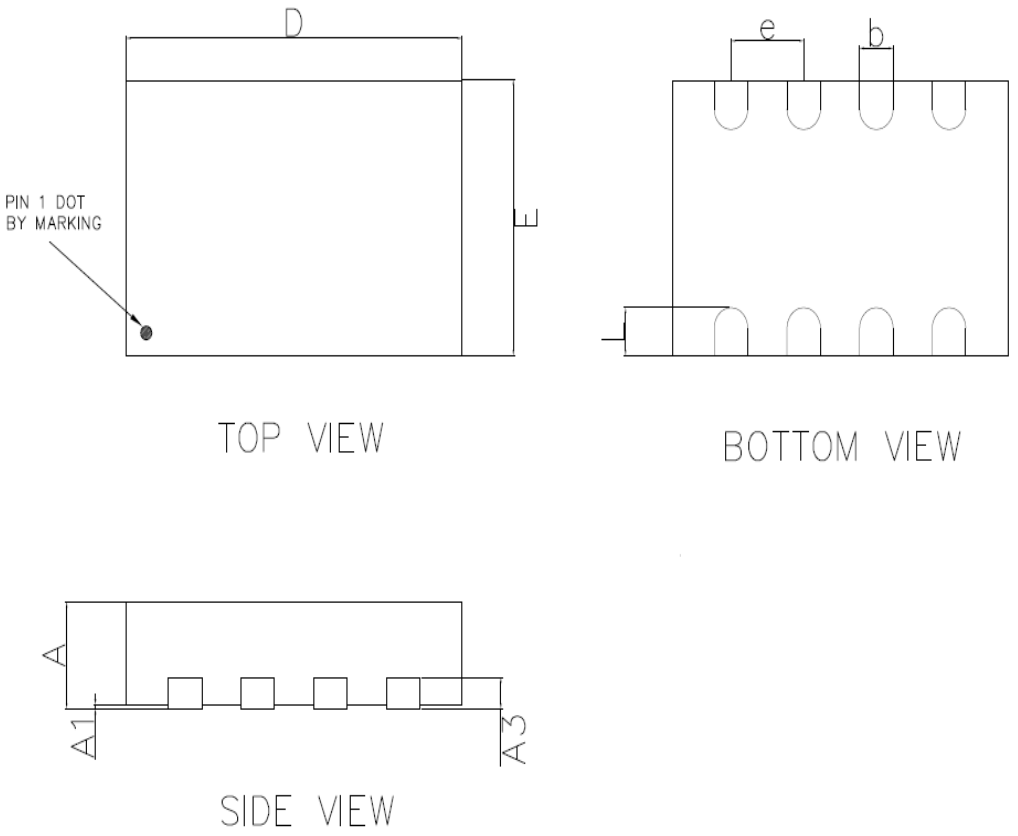
②Repetitive rating; pulse width limited by max. junction temperature.

③The power dissipation PD is based on max. junction temperature, using junction-to-case thermal resistance.

④The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with TA =25°C

Mechanical Data：

DFN 3X2_8L PACKAGE OUTLINE DIMENSION



Symbol	Dimension In Millimeters			Dimension In Inches		
	Min	Nom	Max	Min	Nom	Max
A	0.700	0.750	0.800	0.028	0.030	0.031
A1	0.000	-	0.050	0.000	-	0.002
A3	0.200REF			0.008REF		
D	2.950	3.000	3.050	0.116	0.118	0.120
E	1.950	2.000	2.050	0.077	0.079	0.081
b	0.250	0.300	0.350	0.010	0.012	0.014
L	0.280	0.350	0.420	0.016	0.014	0.017
e	0.650BSC			0.026BSC		

Ordering and Marking Information

Device Marking: SSFN2569

Package (Available)

DFN3X2-8L

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
DFN3X2-8L	3000	5	15000	4	60000

Reliability Test Program

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

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