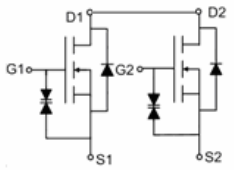
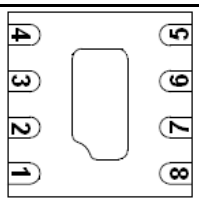
DESCRIPTION

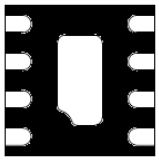
The SSFN2220 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.



Schematic diagram



Pin Assignment



DFN2X2-8L bottom view

GENERAL FEATURES

- V_{DS} = 20V,I_D = 6A
  $R_{DS(ON)}$ < 39mΩ @ V_{GS}=2.5V
  $R_{DS(ON)}$ < 25mΩ @ V_{GS}=4.5V
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

Application

- Battery protection
- Load switch
- Power management

Pb

RoHs Compliant

PACKAGE MARKING AND ORDERING INFORMATION

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
2220	SSFN2220	DFN2X2-8L	-	-	-

ABSOLUTE MAXIMUM RATINGS(TA=25℃unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Drain Current-Continuous@ Current-Pulsed (Note 1)	I_D	6	A
	I_{DM}	40	A
Maximum Power Dissipation	P_D	1.3	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃

THERMAL CHARACTERISTICS

Thermal Resistance,Junction-to-Ambient (Note 2)	$R_{\theta JA}$	100	℃/W

ELECTRICAL CHARACTERISTICS (TA=25℃unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=1mA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V,V_{GS}=0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±10V,V_{DS}=0V			±10	μA

ON CHARACTERISTICS (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=1mA	0.5		1.3	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=3A		20	25	mΩ
		V_{GS}=2.5V, I_D=1.5A		30	39	mΩ
Forward Transconductance	g_{FS}	V_{DS}=10V,I_D=3A	4			S
DYNAMIC CHARACTERISTICS (Note4)						
Input Capacitance	C_{lss}	V_{DS}=10V,V_{GS}=0V, F=1.0MHz		600		PF
Output Capacitance	C_{oss}			100		PF
Reverse Transfer Capacitance	C_{rss}			70		PF
SWITCHING CHARACTERISTICS (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=10V,I_D=3A V_{GS}=4.5V,R_{GEN}=20kΩ		300		nS
Turn-on Rise Time	t_r			1000		nS
Turn-Off Delay Time	$t_{d(off)}$			3000		nS
Turn-Off Fall Time	t_f			2200		nS
Total Gate Charge	Q_g	V_{DS}=10V,I_D=6A, V_{GS}=4.5V		6.5		nC
Gate-Source Charge	Q_{gs}			0.8		nC
Gate-Drain Charge	Q_{gd}			2		nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V,I_S=6A		0.8	1.2	V

NOTES:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

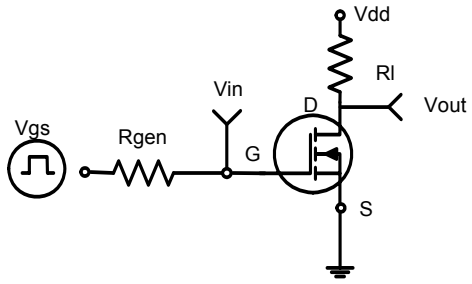


Figure 1:Switching Test Circuit

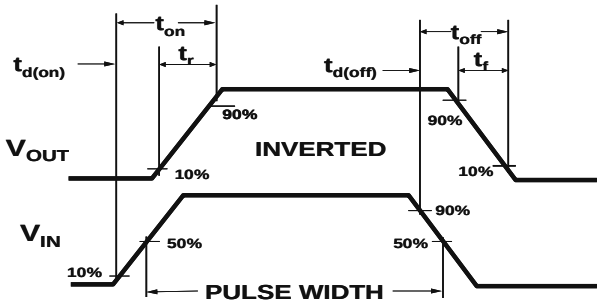
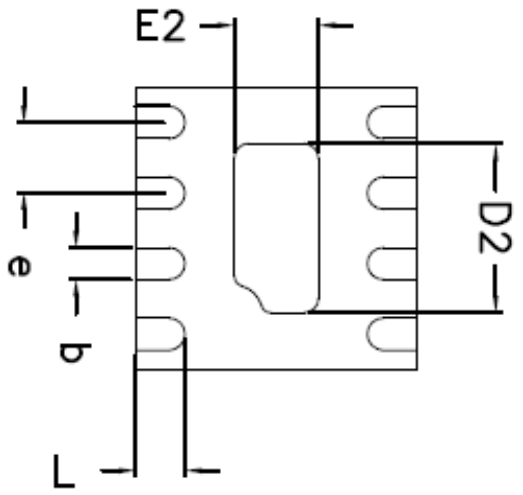
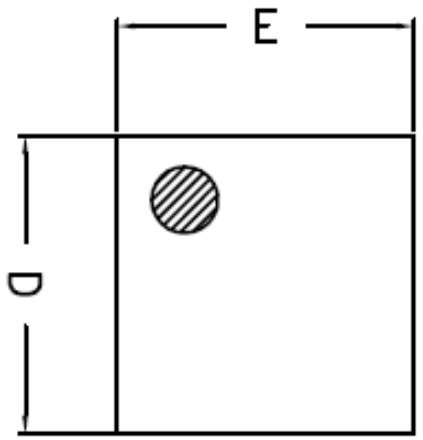
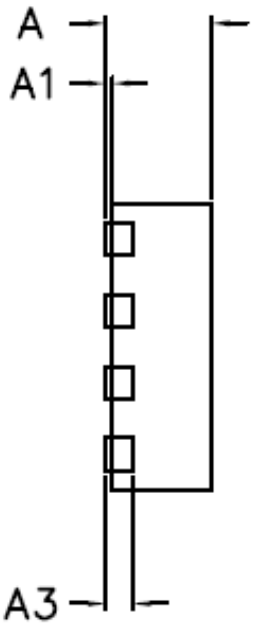


Figure 2:Switching Waveforms

DFN2X2-8L PACKAGE INFORMATION







COMMON DIMENSIONS(MM)			
PKG.	W: VERY VERY THIN		
REF.	MIN.	NOM.	MAX
A	0.70	0.75	0.80
A1	0.00	–	0.05
A3	0.2 REF.		
D	1.95	2.00	2.05
E	1.95	2.00	2.05
b	0.18	0.23	0.30
L	0.25	0.35	0.45
D2	1.05	1.20	1.30
E2	0.45	0.60	0.70
e	0.50 BSC		

NOTES:

1. All dimensions are in millimeters.
2. Dimensions are inclusive of plating
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 6 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.

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