

FH8214

P- Channel Power MOSFET

■ Description

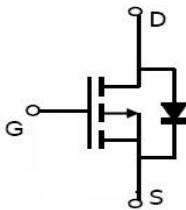
The FH8214 used advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge. It has been optimized for power management applications requiring a wide range of gate drive voltage ratings.

■ Applications

- Low Switch
- DC-DC Converters
- Lithium-Ion Battery Protection
- Power Management in Portable / Desktop PCs

■ Features

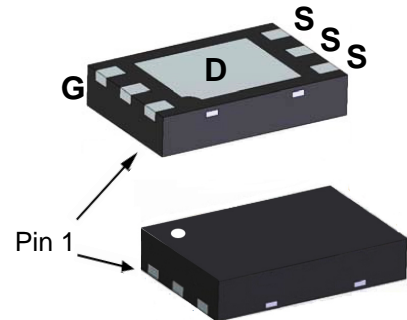
- $V_{DS} = -30V$, $I_D = -11A$
 - $R_{DS(ON)} < 13m\Omega(Typ.) @ V_{GS} = -10V$
 - $R_{DS(ON)} < 17m\Omega(Typ.) @ V_{GS} = -4.5V$
 - $R_{DS(ON)} < 21m\Omega(Typ.) @ V_{GS} = -2.5V$
- High power and current handling capability
- SMDpackage (DFN2*3-6L)



Schematic diagram



Marking and pin Assignmen



DFN2*3-6L Pin assignment and Top / Bottom View

■ Absolute Maximum Ratings ($T_A = 25^\circ C$, unless otherwise specified)

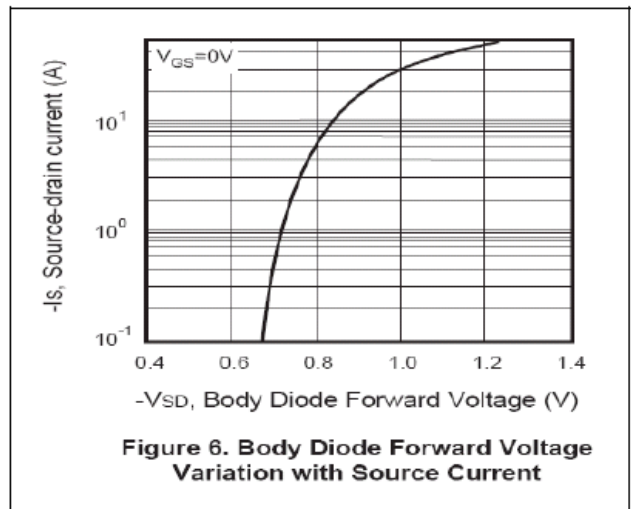
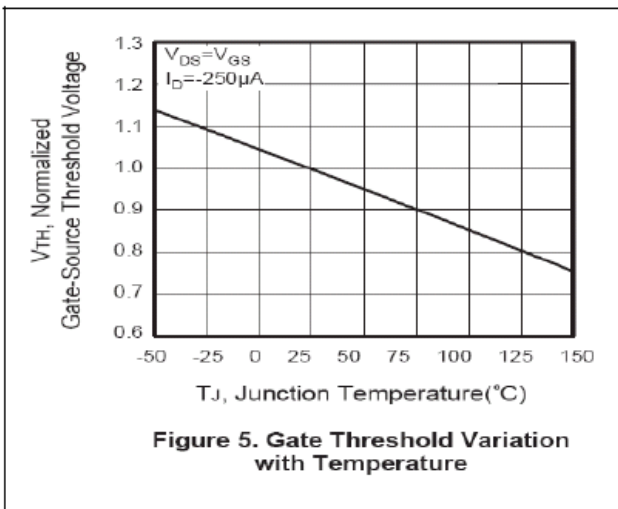
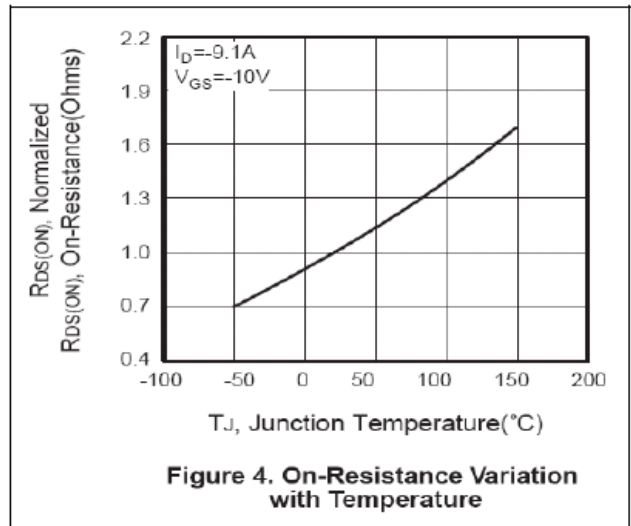
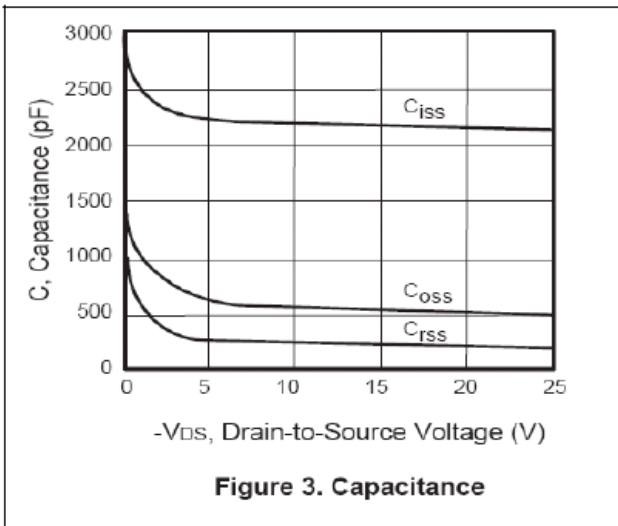
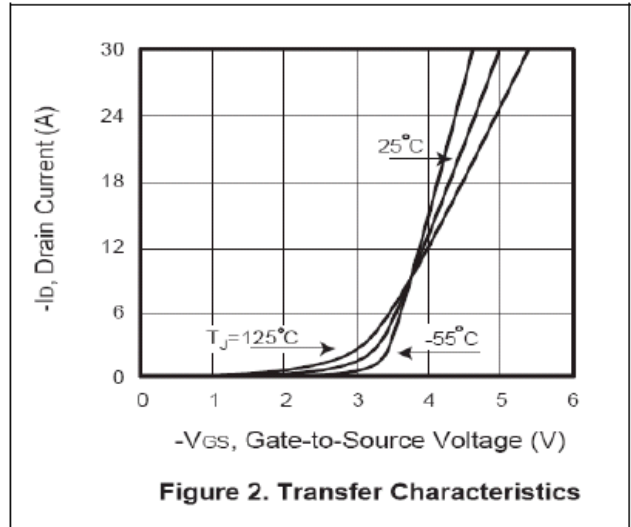
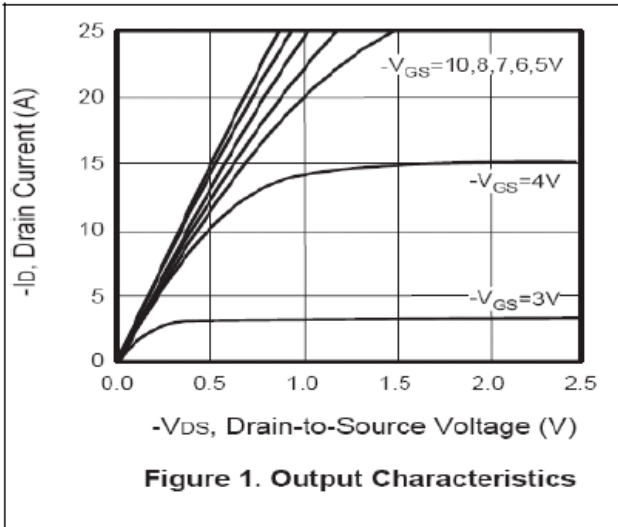
Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_J = 150^\circ C$)	I_D	-11	A
Pulsed Drain Current	I_{DM}	-44	A
Power Dissipation	P_D	1.5	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$
Thermal Resistance-Junction to Ambient (Note 1)	R_{thJA}	83.3	$^\circ C/W$

■ Electrical Characteristics (T_A = 25°C, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = -250μA	-30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.8	-1.0	-1.3	V
Gate-Body Leakage Current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -30V, V _{GS} = 0V			-1	μA
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -9A		13	16	mΩ
		V _{GS} = -4.5V, I _D = -7A		17	20	
		V _{GS} = -2.5V, I _D = -4A		21	25	
Forward Transconductance	g _{FS}	V _{DS} = -10V, I _D = -9A		21		S
Diode Forward Voltage (Note 2)	V _{SD}	V _{GS} = 0V, I _S = -2.1A			-1.3	V
Diode Forward Current (Note 1)	I _S				-2.1	A
Dynamic						
Total Gate Charge	Q _g	V _{DS} = -15V, V _{GS} = -5V, I _D = -4.6A		23		nC
Gate-Source Charge	Q _{gs}			7		
Gate-Drain Charge	Q _{gd}			8.5		
Input Capacitance	C _{iss}	V _{DS} = -15V, V _{GS} = 0V, f = 1MHz		2353		pF
Output Capacitance	C _{oss}			555		
Reverse Transfer Capacitance	C _{rss}			253		
Switching						
Turn-On Delay Time	t _{d(on)}	V _{DD} = -15V, I _D = -1A, V _{GS} = -10V, R _{GEN} = 6Ω		13		nS
Rise Time	t _r			7		
Turn-Off Delay Time	t _{d(off)}			115		
Fall-Time	t _f			36		

Note: 1. Mounted on FR4 board, t ≤ 10sec.
2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

■ Typical Electrical and Thermal Characteristics



■ Typical Electrical and Thermal Characteristics (continuous)

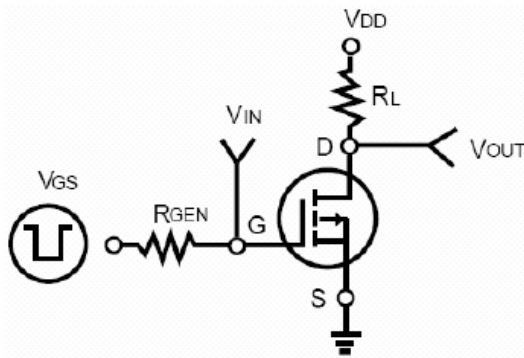
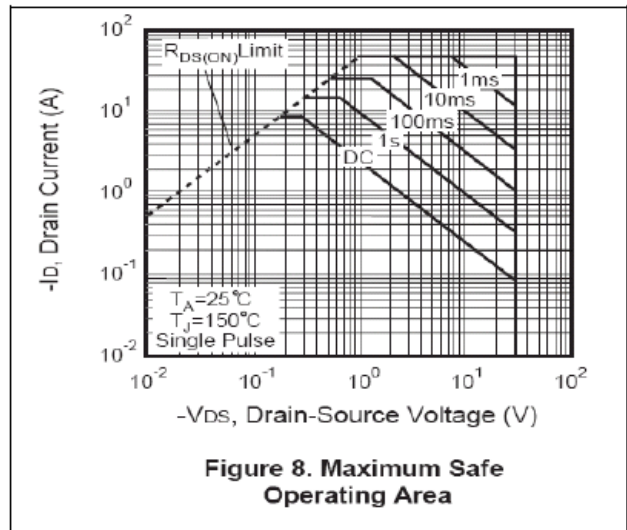
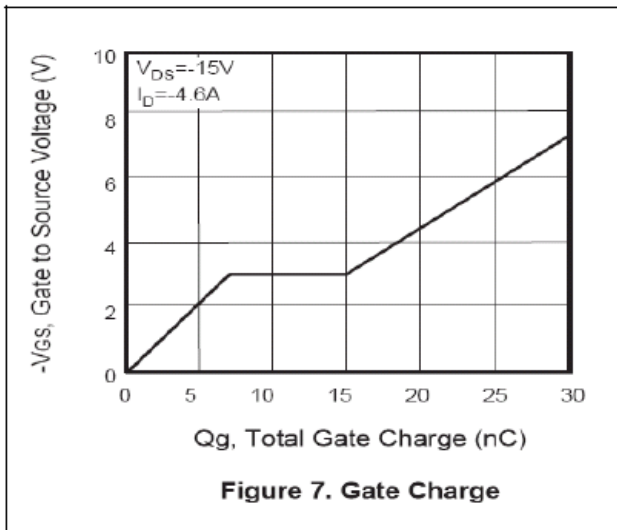


Figure 1: Switching Test Circuit

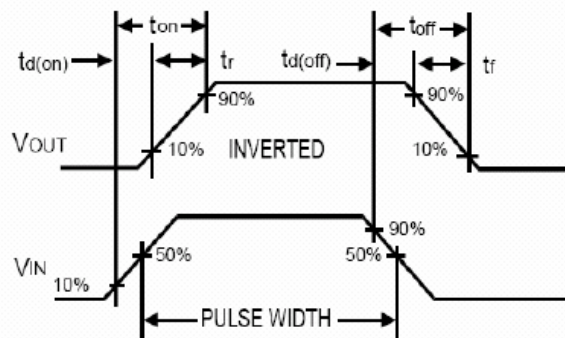
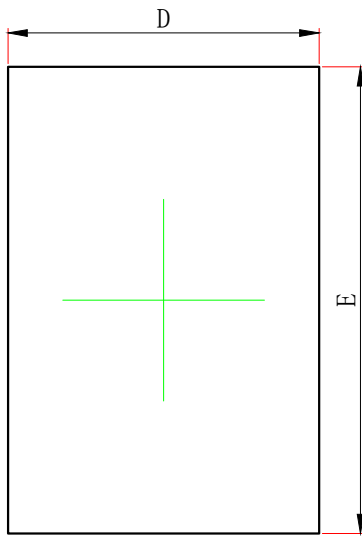
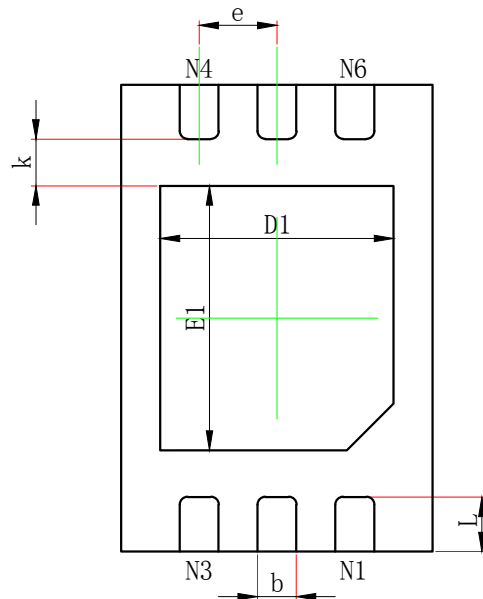


Figure 2: Switching Waveforms

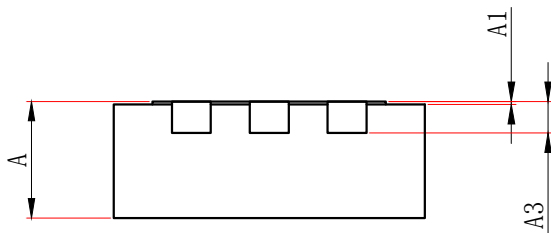
Package Outline Dimensions : DFN2*3-6L



TOPVIEW



BOTTOMVIEW



SIDEVIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.950	2.050	0.077	0.081
E	2.950	3.050	0.116	0.120
D1	1.450	1.550	0.057	0.061
E1	1.650	1.750	0.065	0.069
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.300	0.400	0.012	0.016