FH3419AG4

P-Channel Enhancement Mode MOSFET

Description

The FH3419AG4 is the P-Channel enhancement mode MOSFET in a plastic package (DFN2x2-6L) using the Trench technology.

Applications

- High Speed Switch
- DC-DC Converters
- Lithium-Ion Battery
- Lightning-cable

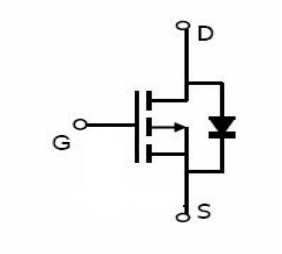
Features

- V_{DS} = -30V ; I_D = -9.0A

  $R_{DS(ON)}$(Typ.)= 13 mΩ @V_{GS} = -10V

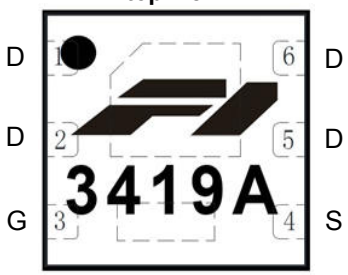
  $R_{DS(ON)}$(Typ.)= 16 mΩ @V_{GS} = -4.5V

  $R_{DS(ON)}$(Typ.)= 15 mΩ @V_{GS} = -5.0V
- Logic Level Compatible
- SMD Package (DFN2x2-6L)
- Trench Technology
- Fast Switching

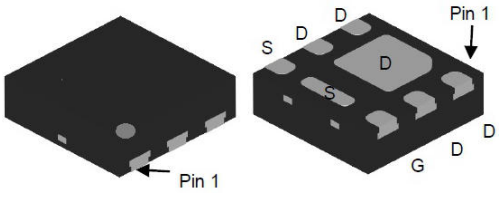


Schematic diagram

top view



Marking and Pin Assignment



DFN2x2-6L top and bottom view

■ Absolute Maximum Ratings (T_A = 25°C, unless otherwise specified)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±25	V
Continuous Drain Current (T_J= 150°C)	I_D	-9.0	A
Pulsed Drain Current **(Note 3)**	I_{DM}	-27	A
Power Dissipation	P_D	3.5	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C
Thermal Resistance-Junction to Ambient **(Note 1)**	R_{thJA}	83	°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	-35	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS},, I_D = -250μA	-1.0	-1.5	-1.9	V
Gate-Body Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±25V	-	-	±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 = - 4.0A	-	13	17	mΩ
		V_{GS} = -4.5V, I_D = - 4.0A	-	16	21	
		V_{GS} = -5.0V, I_D = - 1.0A	-	15	20	
Forward Transconductance	g_{FS}	V_{DS} = -5V, I_D = -5.0A	-	14		S
Diode Forward Voltage **(Note 2)**	V_{SD}	V_{GS} = 0V, I_S = -1.0A	-	-	-1.2	V
Diode Forward Current **(Note 1)**	I_S		-	-	-9.0	A
Dynamic						
Total Gate Charge	Q_g	V_{DS} = -15V, V_{GS} = -10V, I_D = -1A	-	29	-	nC
Gate-Source Charge	Q_{gs}		-	4	-	
Gate-Drain Charge	Q_{gd}		-	3	-	
Input Capacitance	C_{iss}	$_{DS}$ = -15V, V_{GS} = 0V, f = 1MHz	-	1372	-	pF
Output Capacitance	C_{oss}		-	198	-	
Reverse Transfer Capacitance	C_{rss}		-	129	-	
Switching						
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -15V, R_L = 15Ω, I_D = -1A, V_{GS} = -4.5V, R_{GEN} = 10Ω	-	9	-	nS
Rise Time	t_r		-	3.2	-	
Turn-Off Delay Time	$t_{d(off)}$		-	38	-	
Fall-Time	t_f		-	11	-	

Note: 1. Mounted on FR4 board, t ≤ 5sec.
2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
3. Repetitive Rating: Pulse width limited by maximum junction temperature.

■ Typical Electrical and Thermal Characteristics

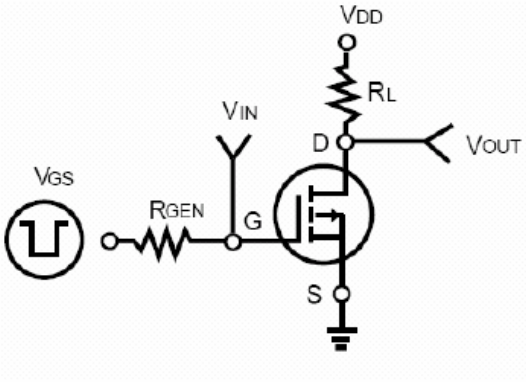


Figure 1: Switching Test Circuit

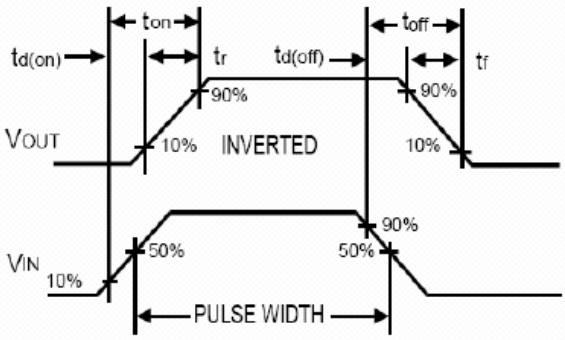


Figure 2: Switching Waveforms

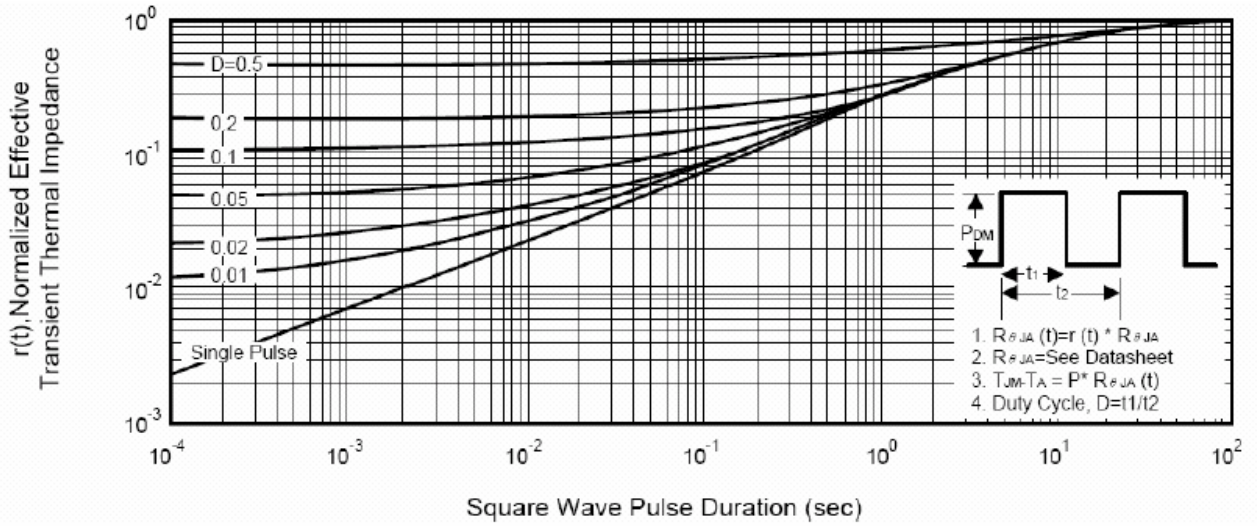
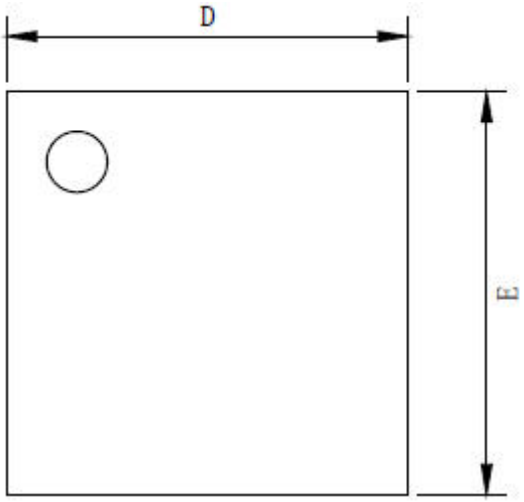
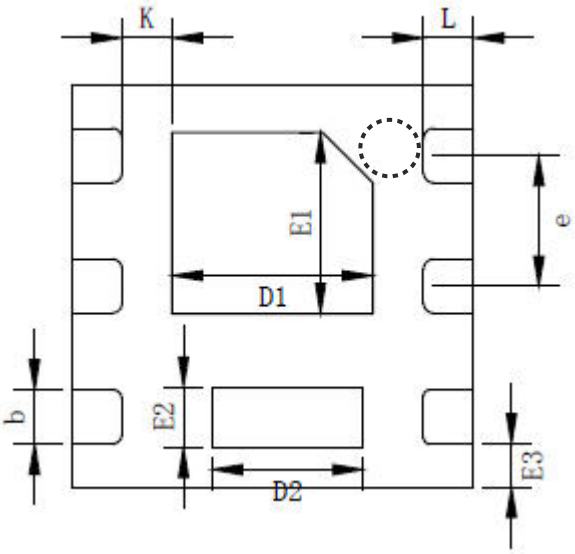
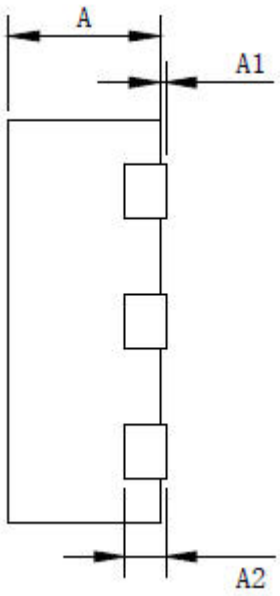


Figure 3: Normalized Maximum Transient Thermal Impedance

■ Package Dimensions :DFN2x2-6L







SYMBOL	MILLMETER		
	MIN	NOM	MAX
A	—	—	0.80
A1	0.00	—	0.05
A2	0.203 TIY		
b	0.22	0.27	0.32
D	1.95	2.00	2.05
D1	0.90	1.00	1.10
D2	0.70	0.75	0.80
E	1.95	2.00	2.05
E1	0.85	0.90	0.95
E2	0.25	0.30	0.35
E3	0.215 TIY		
e	0.65 BSC		
K	0.25 BSC		
L	0.20	—	0.30