

FH3418L

P-Channel Enhancement Mode MOSFET

Description

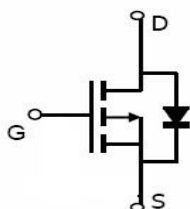
The FH3418L is the P-Channel enhancement mode MOSFET in a plastic package (SOT23-3L) using the Trench technology.

Applications

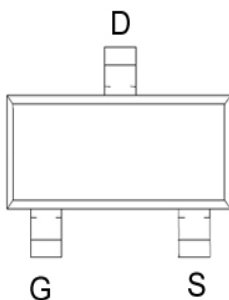
- ◆ High Speed Switch
- ◆ DC-DC Converters
- ◆ Lithium-Ion Battery
- ◆ Lightning-cable

Features

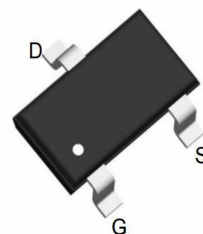
- ◆ $V_{DS} = -25V$; $I_D = -7.2A$
- $R_{DS(ON)}(Typ.) = 12 m\Omega$ @ $V_{GS} = -10V$
- $R_{DS(ON)}(Typ.) = 17 m\Omega$ @ $V_{GS} = -4.5V$
- $R_{DS(ON)}(Typ.) = 16 m\Omega$ @ $V_{GS} = -5.0V$
- ◆ LogicLevelCompatible
- ◆ SMDPackage (SOT23-3L)
- ◆ TrenchTechnology
- ◆ FastSwitching



Schematic diagram



Marking and Pin Assignment



SOT23-3L top view

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

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V_{DS}	-25	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T _J = 150°C)	I_D	-7.2	A
Pulsed Drain Current (Note 3)	I_{DM}	-28	A
Power Dissipation	P_D	1.25	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 150	°C
Thermal Resistance-Junction to Ambient (Note 1)	R _{thJA}	92	°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	-25	-27	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} ., I _D = -250μA	-0.9	-1.4	-1.9	V
Gate-Body Leakage Current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -25V, V _{GS} = 0V	-	-	-1	μA
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = - 4.0A	-	12	17	mΩ
		V _{GS} = -4.5V, I _D = - 4.0A	-	17	22	
		V _{GS} = -5.0V, I _D = -1.0A	-	16	21	
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		-	-	-3.2	A
Dynamic						
Total Gate Charge	Q _g	V _{DS} = -13V, V _{GS} = -10V, I _D = -1A	-	32	-	nC
Gate-Source Charge	Q _{gs}		-	4	-	
Gate-Drain Charge	Q _{gd}		-	3	-	
Input Capacitance	C _{iSS}	V _{DS} = -13V, V _{GS} = 0V, f = 1MHz	-	1373	-	pF
Output Capacitance	C _{oSS}		-	212	-	
Reverse Transfer Capacitance	C _{rSS}		-	139	-	
Switching						
Turn-On Delay Time	t _{d(on)}	V _{DD} = -13V, R _L = 15Ω, I _D = -1A, V _{GS} = -4.5V, R _{GEN} = 10Ω	-	9.5	-	nS
Rise Time	t _r		-	3.4	-	
Turn-Off Delay Time	t _{d(off)}		-	36	-	
Fall-Time	t _f		-	12	-	

- 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

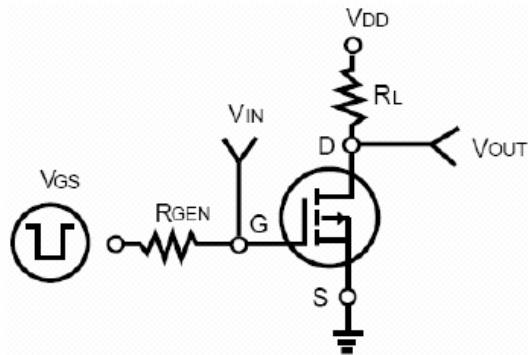


Figure 1: Switching Test Circuit

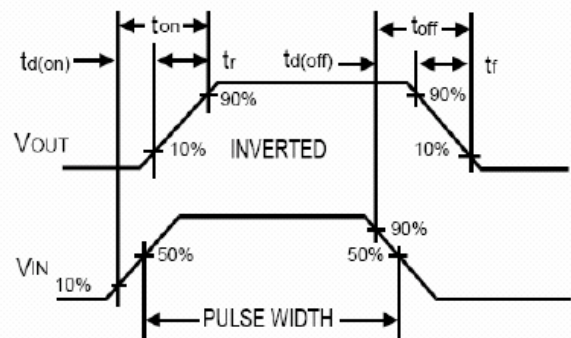


Figure 2: Switching Waveforms

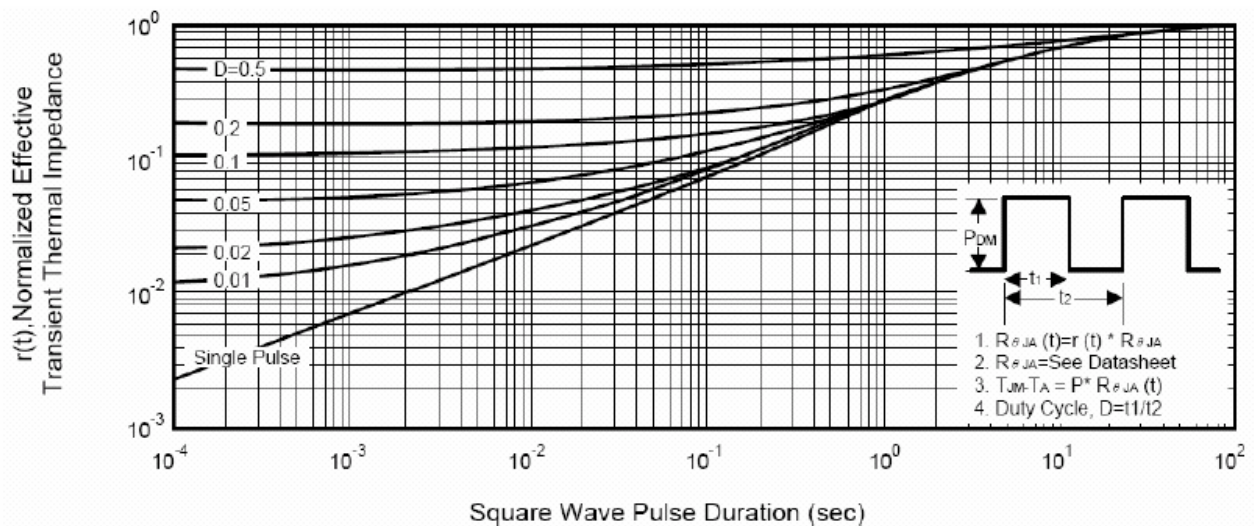
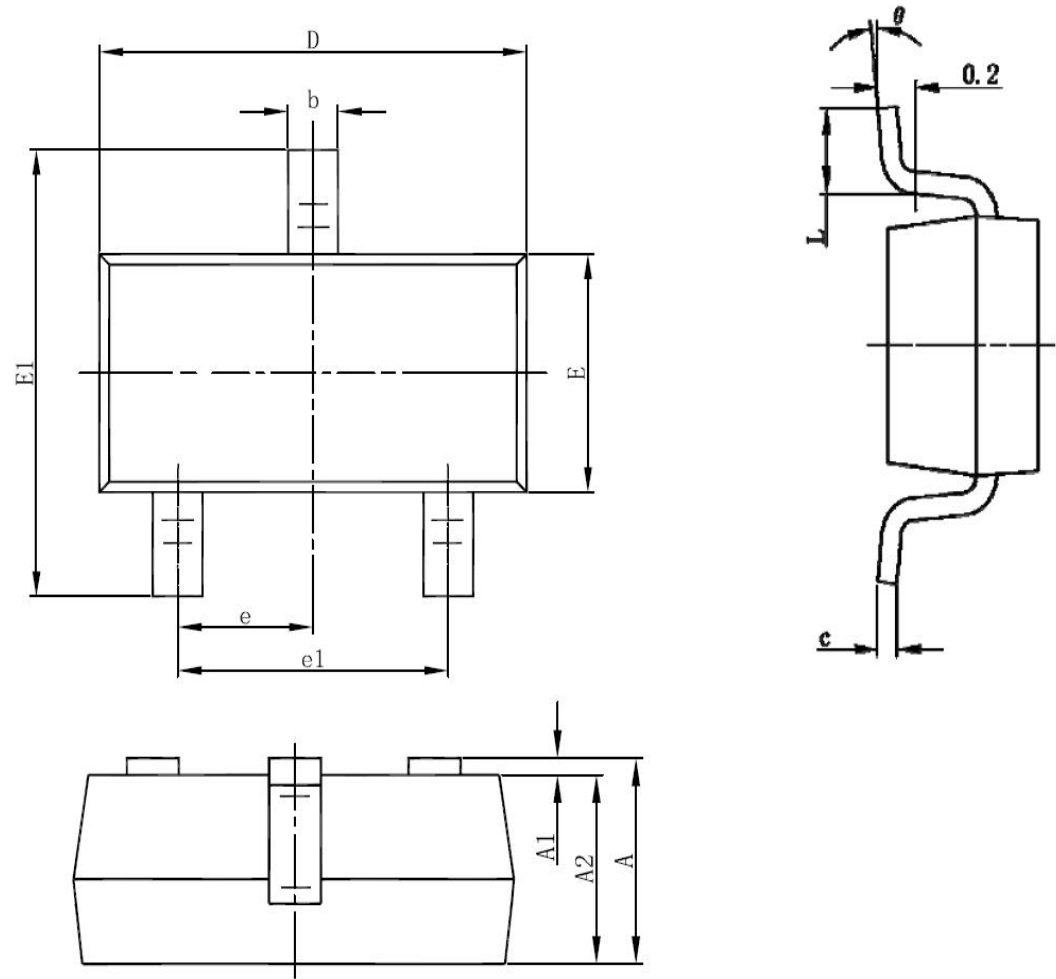


Figure 3: Normalized Maximum Transient Thermal Impedance

■ Package Dimensions : SOT23-3L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°