



Dual N -Channel Enhancement Power MOSFET

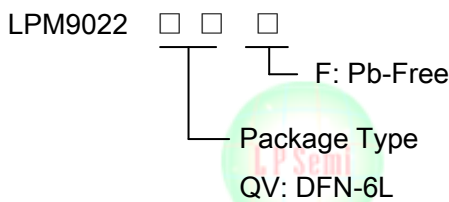
General Description

The LPM9022 integrates two N-Channel enhancement MOSFET Transistor. It uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for using in DC-DC conversion, power switch and charging circuit. Standard Product LPM9022 is Pb-free and Halogen-free.

Features

- ◆ Trench Technology
- ◆ Single NMOS: $V_{DS}=20V, I_D=6A$
 $R_{DS(ON)} < 26m\Omega @ V_{GS}=2.5V$
 $R_{DS(ON)} < 20m\Omega @ V_{GS}=4.5V$
- ◆ Super high density cell design
- ◆ Extremely Low Threshold Voltage
- ◆ Small package DFN-6L 2*3mm

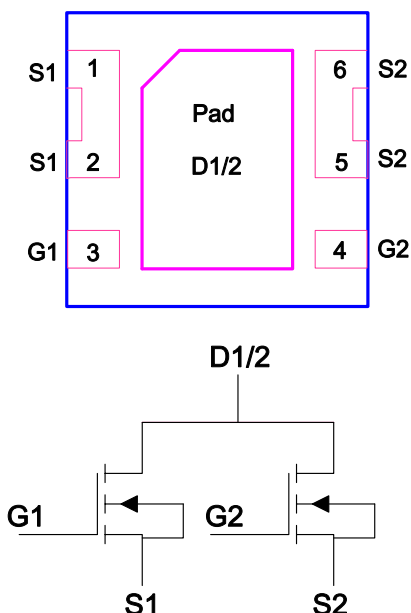
Order Information



Applications

- ◇ Driver for Relay, Solenoid, Motor, LED etc.
- ◇ DC-DC converter circuit
- ◇ Power Switch
- ◇ Load Switch
- ◇ Charging

Pin Configurations



Marking Information

Device	Marking	Package	Shipping
LPM9022		DFN-6L	3K/REEL

Pin Description

Pin Number	Pin Description
1,2	Source Of NMOS1
3	Gate Of NMOS1
4	Gate Of NMOS2
5,6	Source Of NMOS2
Bottom Pad	Drain Of Both NMOS



Absolute Maximum Ratings

Parameter		Symbol	LPM9022	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 10	
Continuous Drain Current	TA=25°C		12	A
Maximum Power Dissipation	TA=25°C		1.6	W
Operating Junction Temperature		T_J	-40 to 150	°C
Lead Temperature		T_L	260	°C
Storage Temperature Range		T_{stg}	-55 to 150	°C

Thermal resistance ratings

Parameter		Symbol	LPM9022	Unit
Junction-to-Ambient Thermal Resistance	Steady State	$R_{\theta JA}$	80	°C/W





Electrical Characteristics

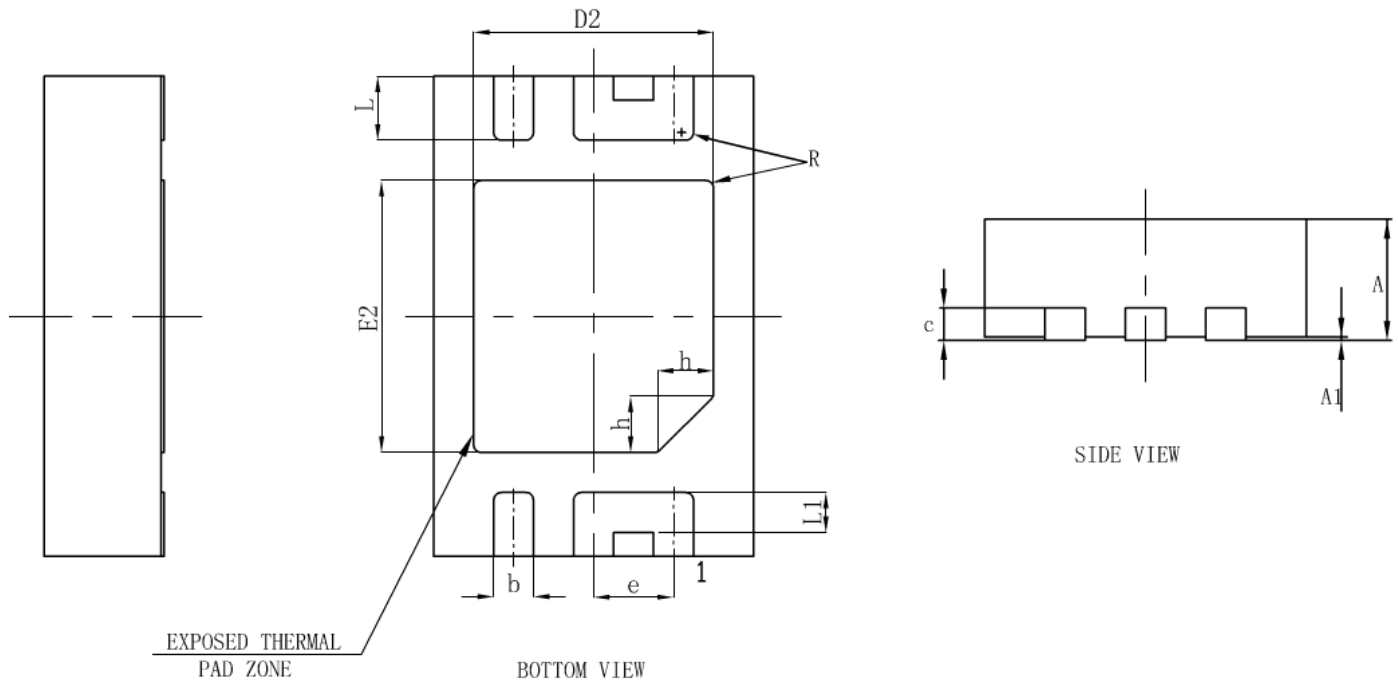
Parameter	Symbol	Test Condition	Min	Typ.	Max	Units
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$		20		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			500	nA
Gate-to-source Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 10V$			± 100	nA
ON CHARACTERISTICS (Note c)						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 250\mu A$	0.4		0.95	V
Drain-to-source On-resistance	$R_{DS(on)}$	$V_{GS} = 2.5V$			26	mΩ
		$V_{GS} = 4.5V, I_D = 6A$			20	
Forward Transconductance	g_{FS}	$V_{DS} = 2.5V, I_D = 6A$	4			S
CAPACITANCES, CHARGES (Note d)						
Input Capacitance	C_{ISS}	$V_{GS} = 0V,$ $f = 1.0MHz$ $V_{DS} = 15V$		1550		pF
Output Capacitance	C_{OSS}			300		
Reverse Transfer Capacitance	C_{RSS}			180		
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS} = 4.5V,$ $V_{DS} = 15V,$ $I_D = 6A$		13		nC
Gate-to-Source Charge	Q_{GS}			5.5		
Gate-to-Drain Charge	Q_{GD}			3.5		
SWITCHING CHARACTERISTICS (Note d)						
Turn-On Delay Time	$t_{d(ON)}$	$V_{GS} = 10V,$ $V_{DD} = 20V,$ $I_D = 1.0A,$ $R_G = 6\Omega$		30		ns
Rise Time	t_r			20		
Turn-Off Delay Time	$t_{d(OFF)}$			100		
Fall Time	t_f			80		
BODY DIODE CHARACTERISTICS						
Forward Voltage(Note c)	V_{SD}	$V_{GS} = 0V, I_S = 1A$		0.2	1.0	V

Note:

- a. Pulse width limited by maximum junction temperature.
- b. Surface mounted on FR4 board, $t < 10s$.
- c. Pulse width $< 295\mu s$, Duty Cycle $< 2\%$.
- d. Guaranteed by design, not subject to production.

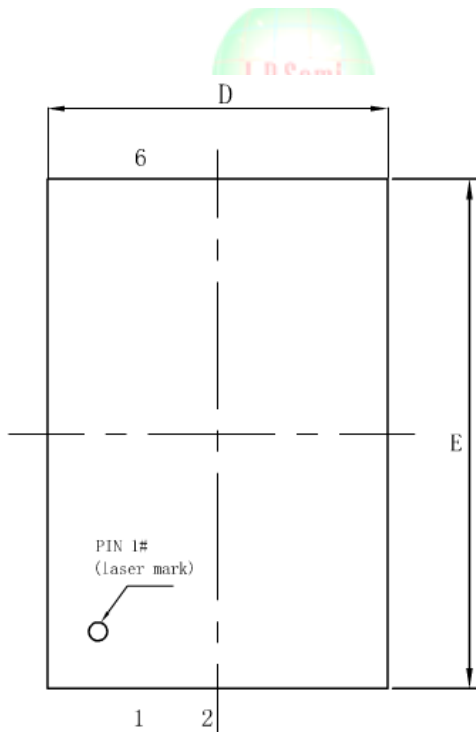


Packaging Information



SIDE VIEW

BOTTOM VIEW



TOP VIEW

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
b	0.20	0.25	0.30
c	0.18	0.20	0.25
D	1.95	2.00	2.05
D2	1.45	1.50	1.55
e	0.50BSC		
E	2.95	3.00	3.05
E2	1.65	1.70	1.75
L	0.35	0.40	0.45
L1	0.20	0.25	0.30
h	0.30	0.35	0.40
R	0.05REF		