

TO-220-3L Plastic-Encapsulate MOSFETS

IRF740 N-Channel Power MOSFET

GENERAL DESCRIPTION

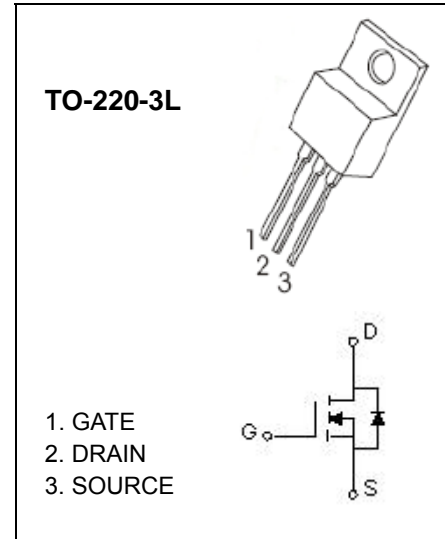
The IRF740 power MOSFET is designed for high voltage, high speed power switching applications such as switching power supplies, switching adaptors etc.

FEATURE

- High current rating
- Ultra lower $R_{DS(on)}$
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Fast switching

APPLICATION

- Power switching application
- Load switching in high circuit application
- DC/DC converters



Maximum ratings ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	400	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	10	A
Pulsed Drain Current	I_{DM}	40	
Single Pulsed Avalanche Energy (note1)	E_{AS}	570	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	
Maximum Lead Temperature for Soldering Purposes , 1/8"from Case for 5 Seconds	T_L	260	

Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	400			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 400V, V _{GS} = 0V			25	μA
		V _{DS} = 0.8 x Rated V _{(BR)DSS} , V _{GS} = 0V, T _J = 125°C			250	μA
Gate-body leakage current	I _{GSS}	V _{DS} = 0V, V _{GS} = ± 20V			± 500	nA
On characteristics (note2)						
Gate-threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2		4	V
Static drain-source on-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 5.2A		380	550	mΩ
Forward transconductance	g _{fs}	V _{DS} = 50V, I _D = 5.2A	5.8			S
Dynamic characteristics (note 3)						
Input capacitance	C _{iss}	V _{DS} = 25V, V _{GS} = 0V, f = 1MHz		1170		pF
Output capacitance	C _{oss}			160		
Reverse transfer capacitance	C _{rss}			26		
Switching characteristics (note 2,3)						
Turn-on delay time	t _{d(on)}	V _{DD} = 200V, V _{GS} = 10V, R _G = 9.1Ω, R _L = 20Ω, I _D = 10A		65		ns
Turn-on rise time	t _r			130		
Turn-off delay time	t _{d(off)}			240		
Turn-off fall time	t _f			145		
Total gate charge	Q _G	V _{GS} = 10V, I _D = 10A, I _{G(REF)} = 1.5mA V _{DS} = 0.8 x Rated BV _{DSS} Gate charge is essentially independent of operating temperature		138		nC
Gate to source charge	Q _{GS}			35		
Gate to drain "miller" charge	Q _{GD}			35		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note2)	V _{SD}	V _{GS} = 0V, I _S = 10A			2	V
Continuous drain-source diode forward current(note4)	I _S				10	A
Pulsed drain-source diode forward current	I _{SM}				40	A

Notes :

- I_L = 10A, V_{DD} = 50V, R_G = 25Ω, Starting T_J = 25°C.
- Pulse Test : Pulse width ≤ 300μs, duty cycle ≤ 2%.
- Guaranteed by design, not subject to production
- Surface mounted on FR4 board, t ≤ 10s

