



**PRODUCT NAME** : IRF720 N-Channel Mos  
fet

**PRICE** : Rs 39.00

**SKU** : RM2125



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## DESCRIPTION

## Features

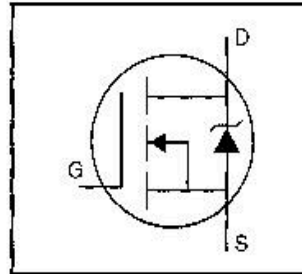
- Drain-Source Volt (Vds): 400V
- Gate-Source Volt (Vgs): 20V
- Drain Current (Id): 3.3A
- Power Dissipation (Ptot): 50W
- Type: N-Channel

# International Rectifier

# IRF720

## HEXFET® Power MOSFET

- Dynamic dv/dt Rating
- Repetitive Avalanche Rated
- Fast Switching
- Ease of Paralleling
- Simple Drive Requirements

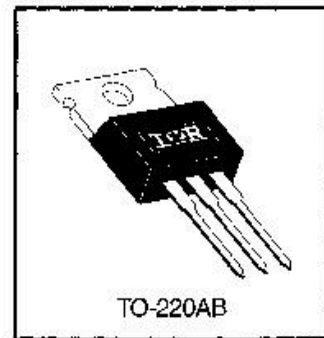


$V_{DSS} = 400V$   
 $R_{DS(on)} = 1.8\Omega$   
 $I_D = 3.3A$

### Description

Third Generation HEXFETs from International Rectifier provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

The TO-220 package is universally preferred for all commercial-industrial applications at power dissipation levels to approximately 50 watts. The low thermal resistance and low package cost of the TO-220 contribute to its wide acceptance throughout the industry.



DATA SHEETS

### Absolute Maximum Ratings

	Parameter	Max.	Units
$I_D @ T_C = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10 V$	3.3	A
$I_D @ T_C = 100^\circ C$	Continuous Drain Current, $V_{GS} @ 10 V$	2.1	
$I_{DM}$	Pulsed Drain Current ①	13	W
$P_D @ T_C = 25^\circ C$	Power Dissipation	50	
	Linear Derating Factor	0.40	W/°C
$V_{GS}$	Gate-to-Source Voltage	$\pm 20$	V
$E_{AS}$	Single Pulse Avalanche Energy ②	190	mJ
$I_{AR}$	Avalanche Current ③	3.3	A
$E_{AR}$	Repetitive Avalanche Energy ①	5.0	mJ
dv/dt	Peak Diode Recovery dv/dt ③	4.0	V/ns
$T_J$ $T_{STG}$	Operating Junction and Storage Temperature Range	-55 to +150	°C
	Soldering Temperature, for 10 seconds	300 (1.6mm from case)	
	Mounting Torque, 6-32 or M3 screw	10 lbf·in (1.1 N·m)	

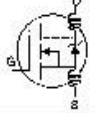
### Thermal Resistance

	Parameter	Min.	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case	—	—	2.5	°C/W
$R_{\theta CS}$	Case-to-Sink, Flat, Greased Surface	—	0.50	—	
$R_{\theta JA}$	Junction-to-Ambient	—	—	62	

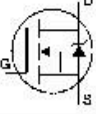
# IRF720



## Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise specified)

Parameter	Min.	Typ.	Max.	Units	Test Conditions
V <sub>(BR)DSS</sub>	400	—	—	V	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA
ΔV <sub>(BR)DSS</sub> /ΔT <sub>J</sub>	—	0.51	—	V/°C	Reference to 25°C, I <sub>D</sub> =1mA
R <sub>DS(on)</sub>	—	—	1.8	Ω	V <sub>GS</sub> =10V, I <sub>D</sub> =2.0A ①
V <sub>GS(th)</sub>	2.0	—	4.0	V	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA
g <sub>fs</sub>	1.7	—	—	S	V <sub>DS</sub> =50V, I <sub>D</sub> =2.0A ①
I <sub>DSS</sub>	—	—	25	μA	V <sub>DS</sub> =400V, V <sub>GS</sub> =0V
			250		V <sub>DS</sub> =320V, V <sub>GS</sub> =0V, T <sub>J</sub> =125°C
I <sub>GSS</sub>	—	—	100	nA	V <sub>GS</sub> =20V
			-100		V <sub>GS</sub> =-20V
Q <sub>g</sub>	—	—	20	nC	I <sub>D</sub> =3.3A
Q <sub>gs</sub>	—	—	3.3		V <sub>DS</sub> =320V
Q <sub>gd</sub>	—	—	11		V <sub>GS</sub> =10V See Fig. 6 and 13 ④
t <sub>d(on)</sub>	—	10	—		V <sub>DD</sub> =200V
t <sub>r</sub>	—	14	—	ns	I <sub>D</sub> =3.3A
t <sub>d(off)</sub>	—	30	—		R <sub>G</sub> =18Ω
t <sub>f</sub>	—	13	—		R <sub>D</sub> =56Ω See Figure 10 ②
L <sub>D</sub>	—	4.5	—	nH	Between lead, 6 mm (0.25in.) from package and center of die contact
L <sub>S</sub>	—	7.5	—		
C <sub>iss</sub>	—	410	—	pF	V <sub>GS</sub> =0V
C <sub>oss</sub>	—	120	—		V <sub>DS</sub> =25V
C <sub>rss</sub>	—	47	—		f=1.0MHz See Figure 5

## Source-Drain Ratings and Characteristics

Parameter	Min.	Typ.	Max.	Units	Test Conditions
I <sub>S</sub>	—	—	3.3	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I <sub>SM</sub>	—	—	13		
V <sub>SD</sub>	—	—	1.6	V	T <sub>J</sub> =25°C, I <sub>S</sub> =3.3A, V <sub>GS</sub> =0V ③
t <sub>rr</sub>	—	270	600	ns	T <sub>J</sub> =25°C, I <sub>F</sub> =3.3A
Q <sub>rr</sub>	—	1.4	3.0	μC	di/dt=100A/μs ④
t <sub>on</sub>	Intrinsic turn-on time is negligible (turn-on is dominated by L <sub>S</sub> +L <sub>D</sub> )				

### Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature (See Figure 11)
- ② V<sub>DD</sub>=50V, starting T<sub>J</sub>=25°C, L=30mH, R<sub>G</sub>=25Ω, I<sub>AS</sub>=3.3A (See Figure 12)
- ③ I<sub>SD</sub>≤3.3A, di/dt≤65A/μs, V<sub>DD</sub>≤V<sub>(BR)DSS</sub>, T<sub>J</sub>≤150°C
- ④ Pulse width ≤ 300 μs; duty cycle ≤2%.

