



**PRODUCT NAME** : IRF540 N-Channel MOS  
FET

**PRICE** : Rs 40.00

**SKU** : RM2121



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## DESCRIPTION

A diode is a two-terminal electronic component with asymmetric conductance; it has low resistance to current in one direction, and high resistance in the other direction.

## Features

- Drain-Source Volt ( $V_{ds}$ ): 100V
- Gate-Source Volt ( $V_{gs}$ ): 100V
- Gate-Source Volt ( $V_{gs}$ ): 20V
- Drain Current ( $I_d$ ): 30A
- Power Dissipation ( $P_{tot}$ ): 150W
- Type: N-Channel



**IRF540  
 IRF540FI**

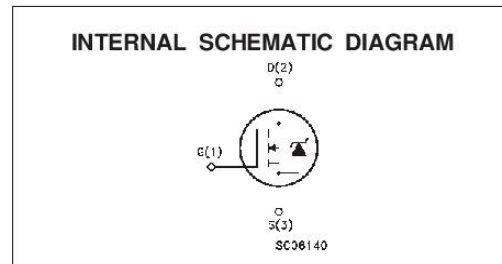
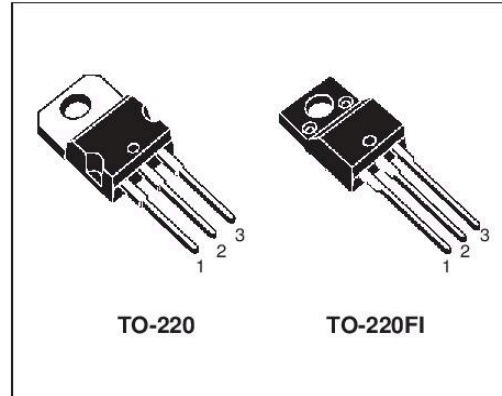
**N - CHANNEL 100V - 0.050Ω - 30A - TO-220/TO-220FI  
 POWER MOSFET**

TYPE	V <sub>DSS</sub>	R <sub>DS(on)</sub>	I <sub>D</sub>
IRF540	100 V	< 0.077 Ω	30 A
IRF540FI	100 V	< 0.077 Ω	16 A

- TYPICAL R<sub>DS(on)</sub> = 0.050 Ω
- AVALANCHE RUGGED TECHNOLOGY
- 100% AVALANCHE TESTED
- REPETITIVE AVALANCHE DATA AT 100°C
- LOW GATE CHARGE
- HIGH CURRENT CAPABILITY
- 175°C OPERATING TEMPERATURE
- APPLICATION ORIENTED CHARACTERIZATION

**APPLICATIONS**

- HIGH CURRENT, HIGH SPEED SWITCHING
- SOLENOID AND RELAY DRIVERS
- DC-DC & DC-AC CONVERTER
- AUTOMOTIVE ENVIRONMENT (INJECTION, ABS, AIR-BAG, LAMP DRIVERS Etc.)



**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value		Unit
		IRF530	IRF530FI	
V <sub>DS</sub>	Drain-source Voltage (V <sub>GS</sub> = 0)	100		V
V <sub>DGR</sub>	Drain- gate Voltage (R <sub>GS</sub> = 20 kΩ)	100		V
V <sub>GS</sub>	Gate-source Voltage	± 20		V
I <sub>D</sub>	Drain Current (continuous) at T <sub>c</sub> = 25 °C	30	17	A
I <sub>D</sub>	Drain Current (continuous) at T <sub>c</sub> = 100 °C	21	12	A
I <sub>DM</sub> (•)	Drain Current (pulsed)	120	120	A
P <sub>tot</sub>	Total Dissipation at T <sub>c</sub> = 25 °C	150	45	W
	Derating Factor	1	0.3	W/°C
Viso	Insulation Withstand Voltage (DC)	-	2000	V
T <sub>stg</sub>	Storage Temperature	-65 to 175		°C
T <sub>J</sub>	Max. Operating Junction Temperature	175		°C

(•) Pulse width limited by safe operating area

(1) I<sub>SD</sub> ≤ 30 A, di/dt ≤ 200 A/μs, V<sub>DD</sub> ≤ V<sub>(BR)DSS</sub>, T<sub>J</sub> ≤ T<sub>JMAX</sub>

**IRF540/IRF540FI**

**THERMAL DATA**

				TO-220	TO220-FI	
R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max		1	3.33	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max		62.5		°C/W
R <sub>thc-sink</sub>	Thermal Resistance Case-sink	Typ		0.5		°C/W
T <sub>l</sub>	Maximum Lead Temperature For Soldering Purpose			300		°C

**AVALANCHE CHARACTERISTICS**

Symbol	Parameter	Max Value	Unit
I <sub>AR</sub>	Avalanche Current, Repetitive or Not-Repetitive (pulse width limited by T <sub>j</sub> max)	30	A
E <sub>AS</sub>	Single Pulse Avalanche Energy (starting T <sub>j</sub> = 25 °C, I <sub>D</sub> = I <sub>AR</sub> , V <sub>DD</sub> = 25 V)	200	mJ

**ELECTRICAL CHARACTERISTICS** (T<sub>case</sub> = 25 °C unless otherwise specified)

**OFF**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>(BR)DSS</sub>	Drain-source Breakdown Voltage	I <sub>D</sub> = 250 μA V <sub>GS</sub> = 0	100			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current (V <sub>GS</sub> = 0)	V <sub>DS</sub> = Max Rating V <sub>DS</sub> = Max Rating T <sub>c</sub> = 125 °C			1 10	μA μA
I <sub>GSS</sub>	Gate-body Leakage Current (V <sub>DS</sub> = 0)	V <sub>GS</sub> = ± 20 V			± 100	nA

**ON (\*)**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> I <sub>D</sub> = 250 μA	2	3	4	V
R <sub>DS(on)</sub>	Static Drain-source On Resistance	V <sub>GS</sub> = 10V I <sub>D</sub> = 15 A		0.05	0.077	Ω
I <sub>D(on)</sub>	On State Drain Current	V <sub>DS</sub> > I <sub>D(on)</sub> × R <sub>DS(on)max</sub> V <sub>GS</sub> = 10 V	30			A

**DYNAMIC**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
g <sub>fs</sub> (*)	Forward Transconductance	V <sub>DS</sub> > I <sub>D(on)</sub> × R <sub>DS(on)max</sub> I <sub>D</sub> = 15 A	10	20		S
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> = 25 V f = 1 MHz V <sub>GS</sub> = 0		2600	3600	pF
C <sub>oss</sub>	Output Capacitance			350	500	pF
C <sub>rss</sub>	Reverse Transfer Capacitance			85	120	pF

