PRODUCT NAME : IRF640 N-Channel MOS FET

PRICE : Rs 35.00
SKU : RM2124

DESCRIPTION

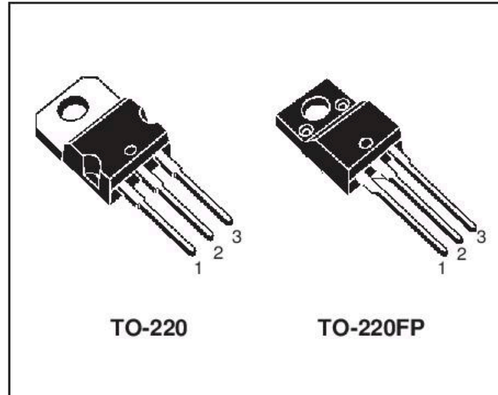
- Drain-Source Volt (Vds): 200V
- Gate-Source Volt (Vgs): 200V
- Gate-Source Volt (Vgs): 20V
- Drain Current (Id): 18A
- Power Dissipation (Ptot): 125W
- Type: N-Channel

IRF640
IRF640FP

N - CHANNEL 200V - 0.150Ω - 18A TO-220/TO-220FP MESH OVERLAY™ MOSFET

TYPE	V_{DSS}	$R_{DS(on)}$	I_D
IRF640	200 V	< 0.18 Ω	18 A
IRF640FP	200 V	< 0.18 Ω	18 A

- TYPICAL $R_{DS(on)}$ = 0.150 Ω
- EXTREMELY HIGH dV/dt CAPABILITY
- VERY LOW INTRINSIC CAPACITANCES
- GATE CHARGE MINIMIZED



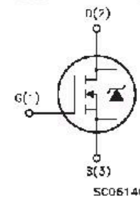
DESCRIPTION

This power MOSFET is designed using he company's consolidated strip layout-based MESH OVERLAY™ process. This technology matches and improves the performances compared with standard parts from various sources.

APPLICATIONS

- HIGH CURRENT SWITCHING
- UNINTERRUPTIBLE POWER SUPPLY (UPS)
- DC/DC COVERTERS FOR TELECOM, INDUSTRIAL, AND LIGHTING EQUIPMENT.

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		IRF640	IRF640FP	
V_{DS}	Drain-source Voltage (V_{GS} = 0)	200		V
V_{DGR}	Drain- gate Voltage (R_{GS} = 20 kΩ)	200		V
V_{GS}	Gate-source Voltage	± 20		V
I_D	Drain Current (continuous) at T_c = 25 °C	18	18(**)	A
I_D	Drain Current (continuous) at T_c = 100 °C	11	11(**)	A
I_{DM}(•)	Drain Current (pulsed)	72	72	A
P_{tot}	Total Dissipation at T_c = 25 °C	125	40	W
	Derating Factor	1.0	0.32	W/°C
dv/dt(1)	Peak Diode Recovery voltage slope	5	5	V/ns
V_{ISO}	Insulation Withstand Voltage (DC)	—	2000	V
T_{stg}	Storage Temperature	-65 to 150		°C
T_j	Max. Operating Junction Temperature	150		°C

(•) Pulse width limited by safe operating area
(1) $I_{SD} \leq$ 18A, di/dt ≤ 300 A/µs, $V_{DD} \leq V_{(BR)DSS}$, $T_j \leq T_{JMAX}$
First Digit of the Datecode Being Z or K Identifies Silicon Characterized in this Datasheet
(**) Limited only by Maximum Temperature Allowed

THERMAL DATA

		TO-220	TO-220FP	
$R_{thj-case}$	Thermal Resistance Junction-case Max	1.0	3.12	°C/W
$R_{thj-amb}$	Thermal Resistance Junction-ambient Max	62.5		°C/W
$R_{thc-sink}$	Thermal Resistance Case-sink Typ	0.5		°C/W
T_l	Maximum Lead Temperature For Soldering Purpose	300		°C

AVALANCHE CHARACTERISTICS

Symbol	Parameter	Max Value	Unit
I_{AR}	Avalanche Current, Repetitive or Not-Repetitive (pulse width limited by T_j max)	18	A
E_{AS}	Single Pulse Avalanche Energy (starting T_j = 25 °C, I_D = I_{AR}, V_{DD} = 50 V)	280	mJ

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

OFF

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	Drain-source Breakdown Voltage	I_D = 250 μA V_{GS} = 0	200			V
I_{DSS}	Zero Gate Voltage Drain Current (V_{GS} = 0)	V_{DS} = Max Rating V_{DS} = Max Rating T_c = 125 °C			1 10	μA μA
I_{GSS}	Gate-body Leakage Current (V_{DS} = 0)	V_{GS} = ± 20 V			± 100	nA

ON (*)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS} I_D = 250 μA	2	3	4	V
$R_{DS(on)}$	Static Drain-source On Resistance	V_{GS} = 10V I_D = 9 A		0.15	0.18	Ω
$I_{D(on)}$	On State Drain Current	V_{DS} > $I_{D(on)}$ x $R_{DS(on)max}$ V_{GS} = 10 V	18			A

DYNAMIC

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
g_{fs} (*)	Forward Transconductance	V_{DS} > $I_{D(on)}$ x $R_{DS(on)max}$ I_D = 9 A	7	11		S
C_{iss} C_{oss} C_{rss}	Input Capacitance Output Capacitance Reverse Transfer Capacitance	V_{DS} = 25 V f = 1 MHz V_{GS} = 0		1200 200 60	1560 260 80	pF pF pF