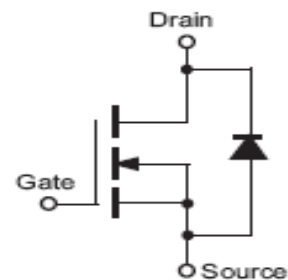


IRF640

N CHANNEL ENHANCEMENT MODE POWER MOS TRANSISTORS

FEATURE

N channel in a plastic TO220 package.
They are intended for use in high speed power switching, low voltage, relay drivers and general purpose switching applications.
DC-DC & DC-AC converters for telecom, industrial and lighting equipment.
Compliance to RoHS.



ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit
V_{DS}	Drain-Source Voltage	200	V
I_{DS}	Continuous Drain Current $T_C= 37^\circ\text{C}$	18	A
I_{DM}	Pulsed Drain Current $T_C= 25^\circ\text{C}$	72	
I_{AR}	Avalanche Current, Limited by T_{jmax}	18	
E_{AS}	Avalanche Energy, Single pulse $I_D = 18 \text{ A}, V_{DD} = 50 \text{ V}, T_j = 25^\circ\text{C}$	280	mJ
E_{AR}	Avalanche Energy, Periodic Limited by T_{jmax}	13	
V_{GS}	Gate-Source Voltage	20	V
$R_{DS(on)}$	Drain-Source on Resistance	0.18	Ω
P_T	Power Dissipation at Case Temperature $T_C= 25^\circ\text{C}$	125	W
t_j	Operating Temperature	150	$^\circ\text{C}$
t_{stg}	Storage Temperature range	-55 to +150	

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R_{thJC}	Thermal Resistance, junction-case	1	$^\circ\text{C/W}$
R_{thJA}	Thermal Resistance, junction-ambient	62.5	

IRF640

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
V_{DSS}	Drain-Source Breakdown Voltage	$I_D = 250 \mu A, V_{GS} = 0 V$	200	-	-	V
$V_{GS(th)}$	Gate-threshold Voltage	$I_D = 250 \mu A, V_{GS} = V_{DS}$	2	3	4	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 200 V, V_{GS} = 0 V$ $T_j = 25^\circ C$	-	-	25	μA
		$V_{DS} = 200 V, V_{GS} = 0 V$ $T_j = 125^\circ C$	-	-	250	
I_{GSS}	Gate-Source leakage Current	$V_{GS} = 20 V, V_{DS} = 0 V$	-	-	100	nA
$R_{DS(on)}$	Drain-Source on Resistance	$I_D = 10 A, V_{GS} = 10 V$	-	0.15	0.18	Ω

DYNAMIC CHARACTERISTICS

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
g_{fs}	Transconductance	$V_{DS} = 2 \cdot I_D \cdot R_{DS(on)max}$ $I_D = 9 A$	7	11	-	S
C_{ISS}	Input Capacitance	$V_{GS} = 0 V, V_{DS} = 25 V$ $f = 1 MHz$	-	1200	1560	μF
C_{OSS}	Output Capacitance		-	200	260	
C_{RSS}	Reverse transfer Capacitance		-	60	80	
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = 100 V,$ $I_D = 18 A, R_{GS} = 25 \Omega$	-	20	50	ns
t_r	Rise time		-	145	300	
$t_{d(off)}$	Turn-off Delay Time		-	145	300	
t_f	Fall Time		-	110	230	

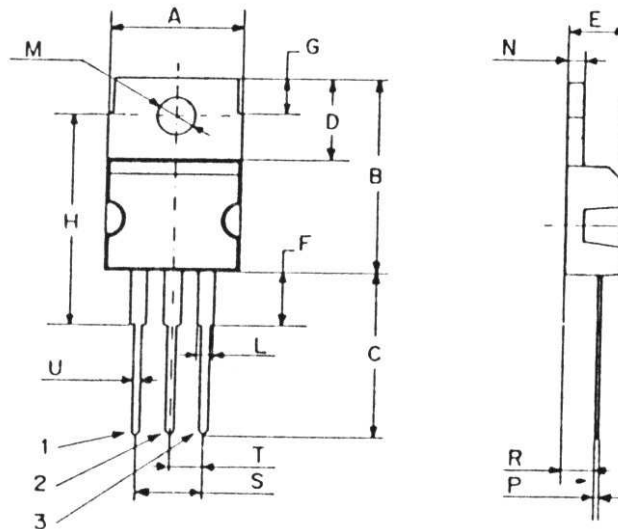
REVERSE DIODE

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
I_S	Inverse Diode Continuous Forward Current.	$T_C = 25^\circ C$	-	-	18	A
I_{SM}	Inverse diode direct current, pulsed.	$T_C = 25^\circ C$	-	-	72	
V_{SD}	Inverse Diode Forward voltage	$V_{GS} = 0 V, I_F = 18 A$	-	-	2	V
T_{rr}	Reverse Recovery Time	$V_R = 25 V, I_F = 18 A$	-	130	-	ns
Q_{rr}	Reverse Recovery Charge	$di/dt = 100 A/\mu s, T_C = 150^\circ C$	-	0.8	-	μC

IRF640

MECHANICAL DATA CASE TO-220

DIMENSIONS (mm)		
	Min.	Max.
A	9,90	10,30
B	15,65	15,90
C	13,20	13,40
D	6,45	6,65
E	4,30	4,50
F	2,70	3,15
G	2,60	3,00
H	15,75	17,15
L	1,15	1,40
M	3,50	3,70
N	-	1,37
P	0,46	0,55
R	2,50	2,70
S	4,98	5,08
T	2,49	2,54
U	0,70	0,90



Pin 1 :	Gate
Pin 2 :	Drain
Pin 3 :	Source

Revised August 2012

Information furnished is believed to be accurate and reliable. However, Comset Semiconductors assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. Data are subject to change without notice. Comset Semiconductors makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Comset Semiconductors assume any liability arising out of the application or use of any product and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Comset Semiconductors' products are not authorized for use as critical components in life support devices or systems.