DC COMPONENTS CO., LTD.

DISCRETE SEMICONDUCTORS

IRF630

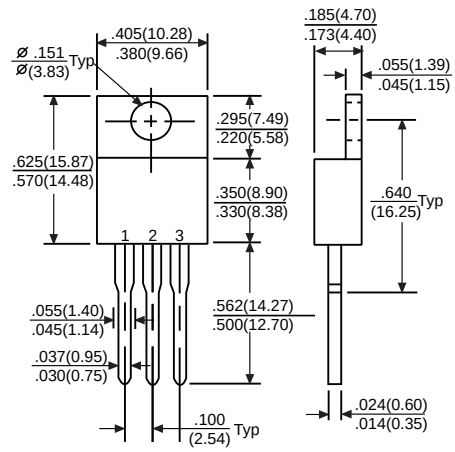
TECHNICAL SPECIFICATIONS OF N-CHANNEL POWER MOSFET

V_{DSS} = 200 Volts *$R_{DS(ON)}$ = 0.4 Ohm* *I_D = 9.0 Amperes*

Features

* Repetitive Avalanche Rated
* Fast Switching
* Ease of Paralleling
* Simple Drive Requirements

TO-220AB



Dimensions in inches and (millimeters)

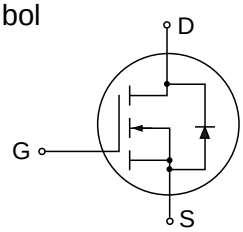
Description

Designed for low voltage, high speed power switching applications such as switching regulators, converters, solenoid and relay drivers.

Pinning

1 = Gate
2 = Drain
3 = Source

Symbol



N-Channel MOSFET

Absolute Maximum Ratings

Characteristic		Symbol	Rating	Unit
Drain Current @ T_C=25°C	Continuous Pulsed	I_D I_{DM}	9.0 36	A
Gate-to-Source Voltage		V_{GS}	± 20	V
Total Power Dissipation @ T_C=25°C Derate above 25°C		P_D	74 0.59	W W/°C
Operating Junction Temperature		T_J	-55 to +150	°C
Storage Temperature		T_{STG}	-55 to +150	°C
Maximum Lead Temperature for Soldering Purposes, 1/8" from Case for 10 Seconds		T_L	300	°C

Electrical Characteristics (T_J = 25°C unless otherwise specified)

Characteristic		Symbol	Min	Typ	Max	Unit	Test Conditions
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	200	-	-	V	V_{GS}=0V, I_D=250μA
Drain-Source Leakage Current		I_{DSS}	-	-	25	μA	V_{DS}=200V, V_{GS}=0V
			-	-	250		V_{DS}=160V, V_{GS}=0V, T_J=125°C
Gate-Source Forward Leakage Current		I_{GSSF}	-	-	100	nA	V_{GSF}=20V, V_{DS}=0V
Gate-Source Reverse Leakage Current		I_{GSSR}	-	-	-100		V_{GSR}=-20V, V_{DS}=0V
Gate Threshold Voltage		$V_{GS(th)}$	2.0	-	4.0	V	V_{DS}=V_{GS}, I_D=250μA
Static Drain-Source On-Resistance		$R_{DS(on)}$	-	-	0.4	Ω	V_{GS}=10V, I_D=5.4A(Note)
Forward Transconductance		g_{FS}	3.8	-	-	S	V_{DS}=50V, I_D=5.4A(Note)
Input Capacitance		C_{iss}	-	800	-	pF	V_{DS}=25V, V_{GS}=0V, f=1.0MHz
Output Capacitance		C_{oss}	-	240	-		
Reverse Transfer Capacitance		C_{rss}	-	76	-		
Turn-On Delay Time		$t_{d(on)}$	-	9.4	-	ns	V_{DD}=100V, I_D=5.9A, R_G=12Ω, R_D=16Ω(Note)
Rise Time		t_r	-	28	-		
Turn-Off Delay Time		$t_{d(off)}$	-	39	-		
Fall Time		t_f	-	20	-		
Total Gate Charge		Q_g	-	-	43	nC	V_{DS}=160V, I_D=5.9A, V_{GS}=10V(Note)
Gate-Source Charge		Q_{gs}	-	-	7.0		
Gate-Drain Charge		Q_{gd}	-	-	23		
Internal Drain Inductance		L_D	-	4.5	-	nH	Measured from the drain lead 0.25" from package to center of die
Internal Source Inductance		L_S	-	7.5	-	nH	Measured from the source lead 0.25" from package to source bond pad
Diode Forward Voltage		V_{SD}	-	-	2.0	V	I_S=9.0A, V_{GS}=0V(Note)
Reverse Recovery Time		t_{rr}	-	170	340	ns	I_F=5.9A, di/dt=100A/μs(Note)
Forward Turn-On Time		t_{on}	Intrinsic turn-on time is neglegible and dominated by inductance L_S+L_D				
Thermal Resistance	Junction to Case	$R_{\theta JC}$	-	-	1.7	°C/W	-
	Junction to Ambient	$R_{\theta JA}$	-	-	62		

Note: Pulse Test: Pulse Width ≦ 300μs, Duty Cycle ≦ 2%