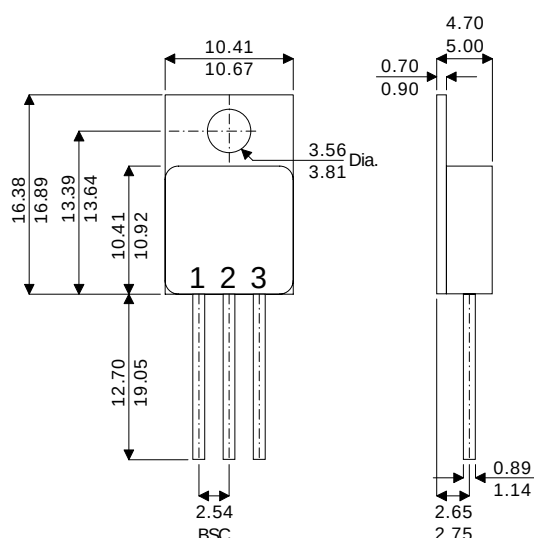


MECHANICAL DATA

Dimensions in mm (inches)



TO-220M – Metal Package

IRFY430

Pin 1 – Gate Pin 2 – Drain Pin 3 – Source

IRFY430M

Pin 1 – Drain Pin 2 – Source Pin 3 – Gate

N-CHANNEL POWER MOSFET FOR HI-REL APPLICATIONS

V_{DS}	500V
$I_{D(cont)}$	3.7A
$R_{DS(on)}$	1.6Ω

FEATURES

- HERMETICALLY SEALED TO-220 METAL PACKAGE
- SIMPLE DRIVE REQUIREMENTS
- LIGHTWEIGHT
- SCREENING OPTIONS AVAILABLE
- ALL LEADS ISOLATED FROM CASE

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

V_{GS}	Gate – Source Voltage	$\pm 20V$
I_D	Continuous Drain Current ($V_{GS} = 0$, $T_{case} = 25^{\circ}C$)	3.7A
I_D	Continuous Drain Current ($V_{GS} = 0$, $T_{case} = 100^{\circ}C$)	2.4A
I_{DM}	Pulsed Drain Current ¹	14A
P_D	Power Dissipation @ $T_{case} = 25^{\circ}C$	45W
	Linear Derating Factor	0.36W/ $^{\circ}C$
T_J , T_{stg}	Operating and Storage Temperature Range	-55 to 150 $^{\circ}C$
T_L	Package Mounting Surface Temperature (for 5 sec)	300 $^{\circ}C$
$R_{\theta JC}$	Thermal Resistance Junction to Case	1.67 $^{\circ}C/W$ max.

Notes

1) Pulse Test: Pulse Width $\leq 300ms$, $\delta \leq 2\%$

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS							
BV _{DSS}	Drain – Source Breakdown Voltage	V _{GS} = 0	I _D = 1mA	500			V
ΔBV _{DSS} ΔT _J	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = 1mA			0.78		V/°C
R _{DS(on)}	Static Drain – Source On–State Resistance ¹	V _{GS} = 10V	I _D = 2.4A			1.6	Ω
		V _{GS} = 10V	I _D = 3.7A			1.84	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS}	I _D = 250μA	2		4	V
g _{fs}	Forward Transconductance ¹	V _{DS} ≥ 15V	I _{DS} = 2.4A	1.5			S(Ω)
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0	V _{DS} = 0.8BV _{DSS}			25	μA
			T _J = 125°C			250	
I _{GSS}	Forward Gate – Source Leakage	V _{GS} = 20V				100	nA
I _{GSS}	Reverse Gate – Source Leakage	V _{GS} = –20V				–100	
DYNAMIC CHARACTERISTICS							
C _{iss}	Input Capacitance	V _{GS} = 0			610		pF
C _{oss}	Output Capacitance	V _{DS} = 25V			135		
C _{rss}	Reverse Transfer Capacitance	f = 1MHz			65		
Q _g	Total Gate Charge ¹	V _{GS} = 10V	I _D =3.7A	19.8		29.5	nC
		V _{DS} = 0.5BV _{DSS}					
Q _{gs}	Gate – Source Charge ¹	V _{GS} = 10V	I _D = 3.7A	2.2		4.6	nC
Q _{gd}	Gate – Drain (“Miller”) Charge ¹	V _{DS} = 0.5BV _{DSS}		5.5		19.7	
t _{d(on)}	Turn–On Delay Time	V _{DD} = 250V				35	ns
t _r	Rise Time	I _D =3.7A				30	
t _{d(off)}	Turn–Off Delay Time	R _G = 7.5Ω				55	
t _f	Fall Time	V _{GS} = 10V				30	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I _S	Continuous Source Current					3.7	A
I _{SM}	Pulse Source Current ²					14	
V _{SD}	Diode Forward Voltage	I _S = 3.7A	T _C = 25°C			1.4	V
		V _{GS} = 0					
t _{rr}	Reverse Recovery Time	I _S = 3.7A	T _J = 25°C			900	ns
Q _{rr}	Reverse Recovery Charge	d _i / d _t ≤ 100A/μs V _{DD} ≤ 50V				7.0	μC
t _{on}	Forward Turn–On Time			Negligible			
PACKAGE CHARACTERISTICS							
L _D	Internal Drain Inductance (6mm down drain lead to centre of die)				8.7		nH
L _S	Internal Source Inductance (6mm down source lead to centre of source bond pad)				8.7		

Notes

- 1) Pulse Test: Pulse Width $\leq 300\text{ms}$, $\delta \leq 2\%$
- 2) Repetitive Rating – Pulse width limited by maximum junction temperature.