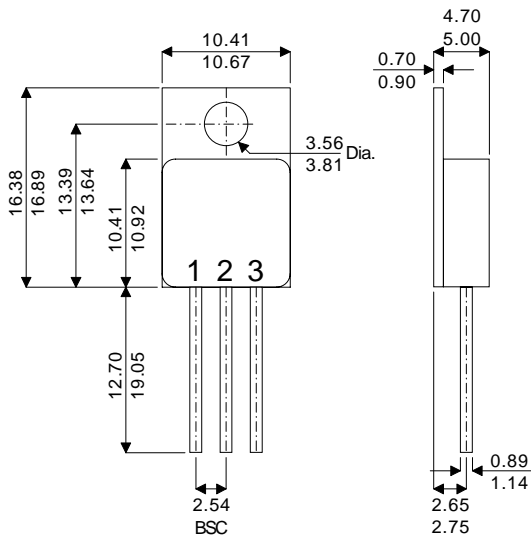


MECHANICAL DATA

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

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	$V_{GS} = 0$ $I_D = 1\text{mA}$	500		V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C $I_D = 1\text{mA}$		0.78	$\text{V}/^{\circ}\text{C}$
$R_{DS(on)}$	Static Drain – Source On–State Resistance ¹	$V_{GS} = 10\text{V}$ $I_D = 2.4\text{A}$		1.6	Ω
		$V_{GS} = 10\text{V}$ $I_D = 3.7\text{A}$		1.84	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = 250\mu\text{A}$	2	4	V
g_{fs}	Forward Transconductance ¹	$V_{DS} \geq 15\text{V}$ $I_{DS} = 2.4\text{A}$	1.5		$\text{S}(\bar{v})$
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS} = 0$ $V_{DS} = 0.8BV_{DSS}$ $T_J = 125^{\circ}\text{C}$		25	μA
				250	
I_{GSS}	Forward Gate – Source Leakage	$V_{GS} = 20\text{V}$		100	nA
I_{GSS}	Reverse Gate – Source Leakage	$V_{GS} = -20\text{V}$		-100	
DYNAMIC CHARACTERISTICS					
C_{iss}	Input Capacitance	$V_{GS} = 0$		610	pF
C_{oss}	Output Capacitance	$V_{DS} = 25\text{V}$		135	
C_{rss}	Reverse Transfer Capacitance	$f = 1\text{MHz}$		65	
Q_g	Total Gate Charge ¹	$V_{GS} = 10\text{V}$ $I_D = 3.7\text{A}$ $V_{DS} = 0.5BV_{DSS}$	19.8	29.5	nC
Q_{gs}	Gate – Source Charge ¹	$V_{GS} = 10\text{V}$ $I_D = 3.7\text{A}$	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	$V_{DD} = 250\text{V}$		35	ns
t_r	Rise Time	$I_D = 3.7\text{A}$		30	
$t_{d(off)}$	Turn–Off Delay Time	$R_G = 7.5\Omega$		55	
t_f	Fall Time	$V_{GS} = 10\text{V}$		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	$I_S = 3.7\text{A}$ $T_C = 25^{\circ}\text{C}$ $V_{GS} = 0$		1.4	V
t_{rr}	Reverse Recovery Time	$I_S = 3.7\text{A}$ $T_J = 25^{\circ}\text{C}$		900	ns
Q_{rr}	Reverse Recovery Charge	$d_i / d_t \leq 100\text{A}/\mu\text{s}$ $V_{DD} \leq 50\text{V}$		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.