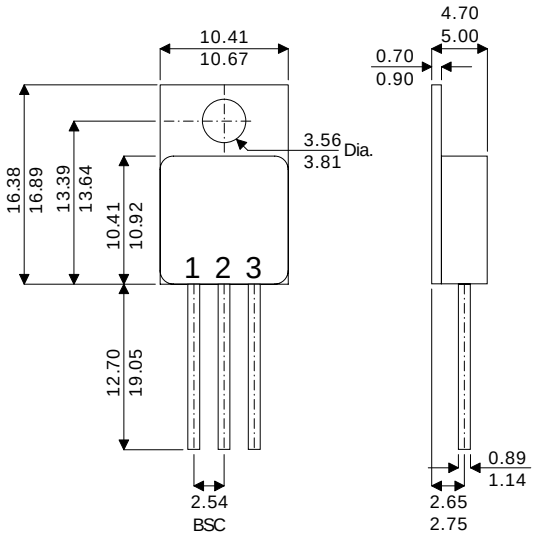
IRFY430
IRFY430M

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
$R_{DS(on)}$	1.6Ω

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°C unless otherwise stated)

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

Notes

1) Pulse Test: Pulse Width ≤ 300ms, δ ≤ 2%

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ELECTRICAL CHARACTERISTICS (T_{amb} = 25°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
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	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(℧)
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 V_{DS} = 0.5BV_{DSS}	19.8		29.5	nC
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 V_{GS} = 0			1.4	V
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 ≤ 300ms, δ ≤ 2%

2) Repetitive Rating – Pulse width limited by maximum junction temperature.