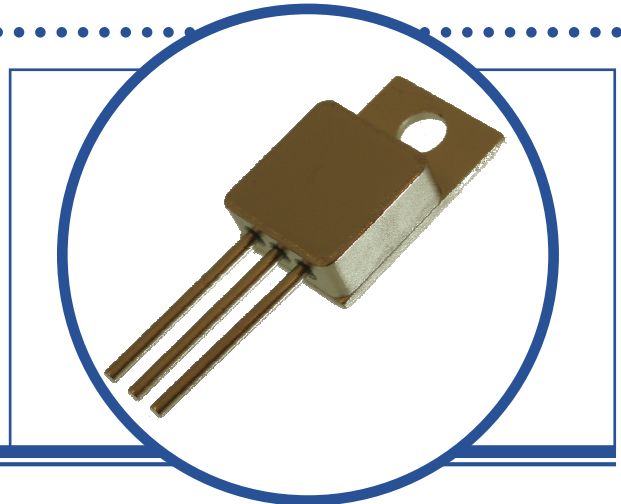


N-CHANNEL POWER MOSFET

IRFY430 / IRFY430M

- $BV_{DSS} = 500V$, MOSFET Transistor
In A Hermetic Metal TO-257AB Package
- Designed For Switching, Power Supply,
Motor Control and Amplifier Applications
- Screening Options Available



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ C$ unless otherwise stated)

VDS	Drain – Source Voltage		500V
VGS	Gate – Source Voltage		$\pm 20V$
ID	Continuous Drain Current	$T_C = 25^\circ C$	4.5A
ID	Continuous Drain Current	$T_C = 100^\circ C$	2.8A
IDM	Pulsed Drain Current ⁽¹⁾		18A
PD	Total Power Dissipation at	$T_C = 25^\circ C$	75W
	Derate Above $25^\circ C$		0.6W/ $^\circ C$
EAS	Single Pulse Avalanche Energy ⁽²⁾⁽⁵⁾		280mJ
IAR	Avalanche Current ⁽¹⁾⁽⁵⁾		4.5A
EAR	Repetative Pulse Avalanche Energy ⁽¹⁾⁽⁵⁾		7.5mJ
dv/dt	Peak Diode Recovery ⁽³⁾⁽⁵⁾		3.5V/ns
TJ	Junction Temperature Range		-55 to +150 $^\circ C$
Tstg	Storage Temperature Range		-55 to +150 $^\circ C$

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	1.67	$^\circ C/W$

INTERNAL PACKAGE INDUCTANCE

Symbols	Parameters	Min.	Typ.	Max.	Units
L_D	Internal Drain Inductance		8.7		nH
L_S	Internal Source Inductance		8.7		

Notes

- (1) Repetitive Rating: Pulse width limited by maximum junction temperature
- (2) @ $V_{DD} = 50V$, Starting $T_J = 25^\circ C$, $L = 28mH$, Peak $I_L = 4.5A$, $V_{GS} = 10V$
- (3) @ $I_{SD} \leq 4.5A$, $di/dt \leq 75A/\mu s$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 150^\circ C$, Suggested $R_G = 7.5\Omega$
- (4) Pulse Width $\leq 380\mu s$, $\delta \leq 2\%$
- (5) By Design Only, Not A Production Test.

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.



N-CHANNEL POWER MOSFET IRFY430 / IRFY430M

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 I _D = 1.0mA	500			V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = 1.0mA		0.78		V/°C
R _{DS(on)}	Static Drain-Source On-State Resistance	V _{GS} = 10V I _D = 2.4A ⁽⁴⁾			1.6	Ω
		V _{GS} = 10V I _D = 3.7A ⁽⁴⁾			1.84	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} I _D = 250μA	2		4	V
g _{fs}	Forward Transconductance	V _{DS} ≥ 15V I _{DS} = 2.4A ⁽⁴⁾	1.5			S(Ω)
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0 V _{DS} = 0.8BV _{DSS} T _J = 125°C			25	μA
					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 = 1.0MHz		65		
Q _g ⁽⁵⁾	Total Gate Charge	V _{GS} = 10V			29.5	nC
Q _{gs} ⁽⁵⁾	Gate-Source Charge	I _D = 3.7A			4.6	
Q _{gd} ⁽⁵⁾	Gate-Drain Charge	V _{DS} = 0.5BV _{DSS}			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				55	
t _f	Fall Time	R _G = 7.5Ω			30	

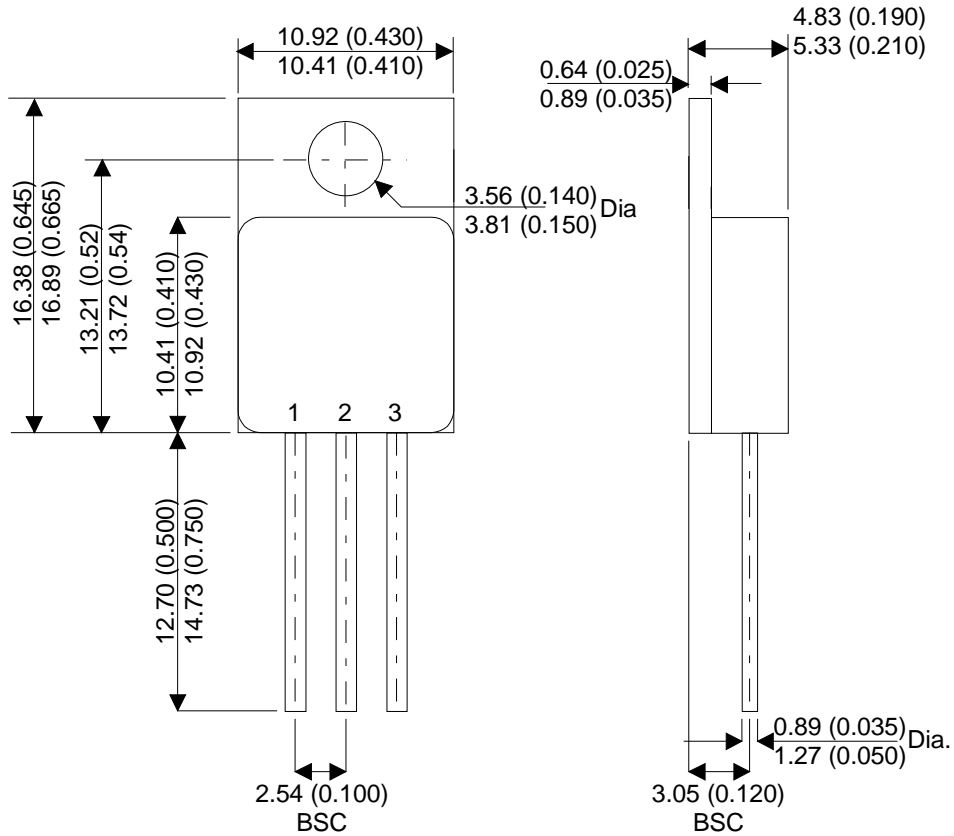
SOURCE-DRAIN DIODE CHARACTERISTICS

I _S	Continuous Source Current				4.5	A
I _{SM}	Pulse Source Current ⁽¹⁾				18	
V _{SD}	Diode Forward Voltage	I _S = 3.7A V _{GS} = 0 ⁽⁴⁾	T _J = 25°C		1.4	V
t _{rr}	Reverse Recovery Time	I _S = 3.7A	T _J = 25°C		900	ns
Q _{rr}	Reverse Recovery Charge	V _{DD} ≤ 50V	di/dt = 100A/μs ⁽⁴⁾		7	μC

N-CHANNEL POWER MOSFET IRFY430 / IRFY430M

MECHANICAL DATA

Dimensions in mm (inches)



TO220M (TO-257AB)

Part No.	Pin 1	Pin 2	Pin 3
IRFY430	Gate	Drain	Source
IRFY430M	Drain	Source	Gate