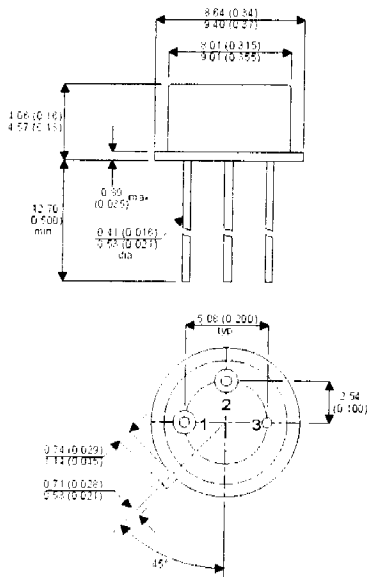


2N6802  
IRFF430

MECHANICAL DATA

Dimensions in mm (inches)



TO39 – Package

Underside View

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

N-CHANNEL ENHANCEMENT  
MODE POWER MOSFET

$BV_{DSS}$  500V  
 $I_{D(cont)}$  2.5  
 $R_{DS(on)}$  1.5 $\Omega$

FEATURES

- AVALANCHE ENERGY RATED
- HERMETICALLY SEALED
- DYNAMIC dv/dt RATING
- SIMPLE DRIVE REQUIREMENTS

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

$V_{GS}$	Gate – Source Voltage	$\pm 20V$
$I_D$	Continuous Drain Current ( $V_{GS} = 10V, T_{case} = 25^{\circ}C$ )	2.5A
$I_D$	Continuous Drain Current ( $V_{GS} = 10V, T_{case} = 100^{\circ}C$ )	1.5A
$I_{DM}$	Pulsed Drain Current <sup>1</sup>	11A
$P_D$	Power Dissipation @ $T_{case} = 25^{\circ}C$	25W
	Linear Derating Factor	0.2W/ $^{\circ}C$
$E_{AS}$	Single Pulse Avalanche Energy <sup>2</sup>	0.35mJ
dv/dt	Peak Diode Recovery <sup>3</sup>	3.5V/ns
$T_J, T_{stg}$	Operating and Storage Temperature Range	-55 to +150 $^{\circ}C$
$R_{\theta JC}$	Thermal Resistance Junction to Case	5.0 $^{\circ}C/W$
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient	175 $^{\circ}C/W$

Notes

- 1) Pulse Test: Pulse Width  $\leq 300\mu s, \delta \leq 2\%$
- 2) @  $V_{DD} = 50V, Peak I_L = 2.5A, Starting T_J = 25^{\circ}C$
- 3) @  $I_{SD} \leq 2.5A, di/dt \leq 75A/\mu s, V_{DD} \leq BV_{DSS}, T_J \leq 150^{\circ}C, SUGGESTED R_G = 7.5\Omega$



# 2N6802 IRFF430

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
<b>STATIC ELECTRICAL RATINGS</b>						
$BV_{DSS}$	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 $25^{\circ}\text{C}$ $I_D = 1\text{mA}$			0.43	$\text{V}/^{\circ}\text{C}$
$R_{DS(on)}$	Static Drain – Source On–State Resistance	$V_{GS} = 10\text{V}$	$I_D = 1.5\text{A}$		1.5	$\Omega$
		$V_{GS} = 10\text{V}$	$I_D = 2.5\text{A}$		1.725	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = 250\mu\text{A}$	2	4	V
$g_{fs}$	Forward Transconductance	$V_{DS} > 15\text{V}$	$I_{DS} = 1.5\text{A}$	1.5		$\text{S}(\overline{\tau})$
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{GS} = 0$	$V_{DS} = 0.8BV_{DSS}$		25	$\mu\text{A}$
			$T_J = 125^{\circ}\text{C}$		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	
<b>DYNAMIC CHARACTERISTICS</b>						
$C_{iss}$	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	$V_{GS} = 10\text{V}$		19.8	29.5	nC
$Q_{gs}$	Gate – Source Charge	$V_{DS} = 0.5BV_{DS}$		2.2	4.6	
$Q_{gd}$	Gate – Drain ("Miller") Charge	$I_D = 2.5\text{A}$		5.5	19.7	
$t_{d(on)}$	Turn–On Delay Time	$I_D = 2.5\text{A}$			30	ns
$t_r$	Rise Time	$V_{DS} = 0.5BV_{DS}$			30	
$t_{d(off)}$	Turn–Off Delay Time	$R_G = 7.5\Omega$			55	
$t_f$	Fall Time				30	
<b>SOURCE – DRAIN DIODE CHARACTERISTICS</b>						
$I_S$	Continuous Source Current				2.5	A
$I_{SM}$	Pulse Source Current <sup>2</sup>	$I_S = 2.5\text{A}$	$V_{GS} = 0$		11	
$V_{SD}$	Diode Forward Voltage	$I_F = 1.5\text{A}$	$T_J = 25^{\circ}\text{C}$		1.4	V
$t_{rr}$	Reverse Recovery Time	$I_F = 2.5\text{A}$	$T_J = 25^{\circ}\text{C}$		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	$\mu\text{C}$
$t_{on}$	Forward Turn–On Time				Negligible	

### Notes

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