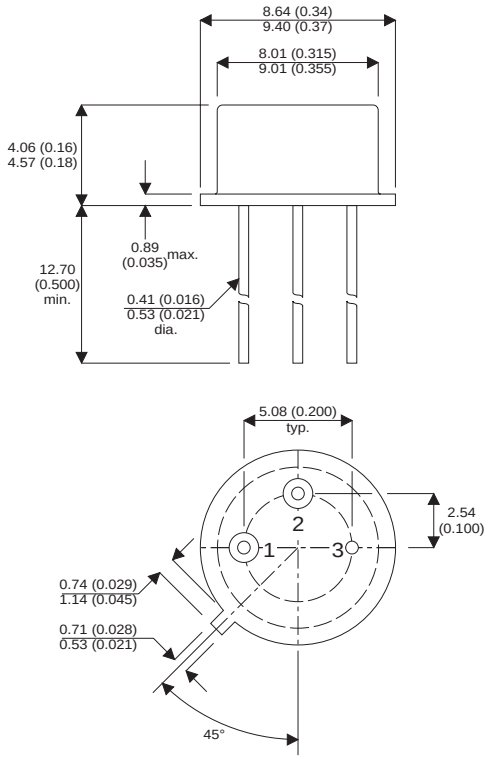
2N6788
IRFF120

MECHANICAL DATA
Dimensions in mm (inches)



TO39 Package (TO-205AF)

Underside View

Pin 1 - Source Pin 2 - Gate Pin 3 - Drain and Case

N–CHANNEL POWER MOSFET ENHANCEMENT MODE

FEATURES

- **AVALANCHE ENERGY RATING**
- **SIMPLE DRIVE REQUIREMENTS**
- **HERMETICALLY SEALED**

APPLICATIONS

- **FAST SWITCHING**
- **MOTOR CONTROLS**
- **POWER SUPPLIES**

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

V_{DS}	Drain Source Voltage	100V
I_D @T_{case} = 25°C	Continuous Drain Current	6.0A
I_D @T_{case} = 100°C	Continuous Drain Current	3.5A
I_{DM}	Pulsed Drain Current [1]	24A
V_{GS}	Gate Source Voltage	±20V
P_D@ T_{case} = 25°C	Maximum Power Dissipation	20W
$R_{\theta J\text{-}C}$	Thermal Resistance Junction To Case	6.25°C/W
$R_{\theta J\text{-}A}$	Thermal Resistance Junction To Ambient	175°C/W
T_J, T_{stg}	Operating and Storage Temperature Range	-55 to +150°C
Lead Temperature	($\frac{1}{16}$" from case for 10 secs)	300°C

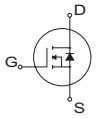
Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered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

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

Document Number 5513
Issue 1

2N6788
IRFF120

ELECTRICAL CHARACTERISTICS (T_{case} = 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 = 1.0mA	100			V
$V_{GS(th)}$*	Gate Threshold Voltage	V_{DS} = V_{GS}	I_D = 250µA	2.0		4.0	
I_{GSSF}	Gate Body Leakage Forward	V_{GS} = 20V				100	nA
I_{GSSR}	Gate Body Leakage Reverse	V_{GS} = -20V				-100	
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 80V.	V_{GS} =0			25	µA
			T_C = 125°C			250	
$R_{DS(on)}$*	Static Drain Source On-State Resistance	V_{GS} = 10V	I_D = 3.5A			0.30	Ω
		V_{GS} = 10V	I_D = 6.0A			0.345	
gfs*	Forward Transconductance	V_{DS} = 15V	I_{DS} = 3.5A	1.5			S (℧)
	DYNAMIC CHARACTERISTICS						
C_{iss}	Input Capacitance	V_{GS} = 0	V_{DS} = 25V		350		pF
C_{oss}	Output Capacitance	f = 1MHz			150		
C_{rss}	Reverse Transfer Capacitance				24		
$t_{d(on)}$	Turn–On Delay Time	V_{DD} = 50V	I_D = 6.0A			40	ns
t_r	Rise Time	R_G = 7.5Ω	V_{GS} = 10V			70	
$t_{d(off)}$	Turn–Off Delay Time	(MOSFET switching times are essentially				40	
t_f	Fall Time	independent of operating temperature.)				70	
Q_g	Total Gate Charge	V_{GS} = 10V	I_D = 6.0A	7.7		17	nC
Q_{gs}	Gate To Source Charge	V_{DS} = 50V		0.7		4.0	
Q_{gd}	Gate To Drain (“Miller”) Charge			2.0		7.7	
	BODY– DRAIN DIODE RATINGS & CHARACTERISTICS						
I_S	Continuous Source Current (Body Diode)	Modified MOS POWER symbol showing the intergal P-N junction rectifier. 				6.0	A
I_{SM}	Source Current (Body Diode)					24	
V_{SD}	Diode Forward Voltage*	I_S = 6.0A	V_{GS} = 0			1.8	V
		T_J = 25°C					
t_{rr}	Reverse Recovery Time	I_F = 6.0A	T_J = 25°C			240	ns
Q_{RR}	Reverse Recovery Charge	d_i / d_t = 100A/µs	V_{DD} = 50V			2.0	µC

Notes

* Pulse Test: Pulse Width ≤ 300µs, δ ≤ 2%

Semelab Plc 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.

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

Document Number 5513
Issue 1