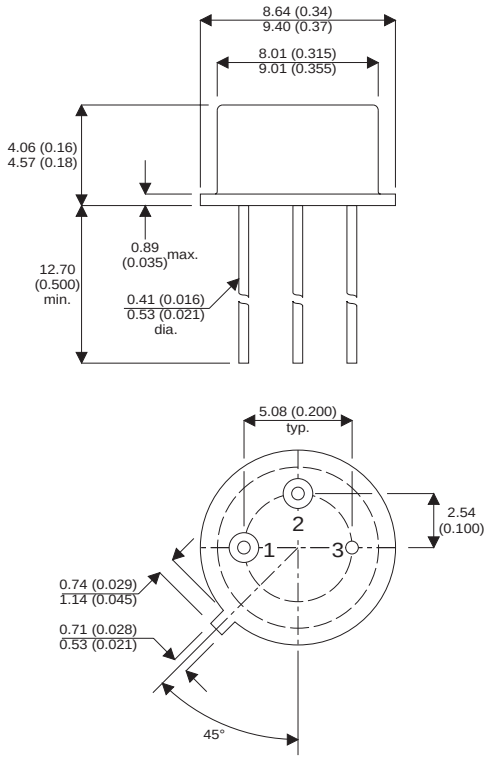
2N6788
IRFF120

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

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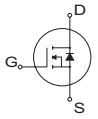
ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

	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%

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