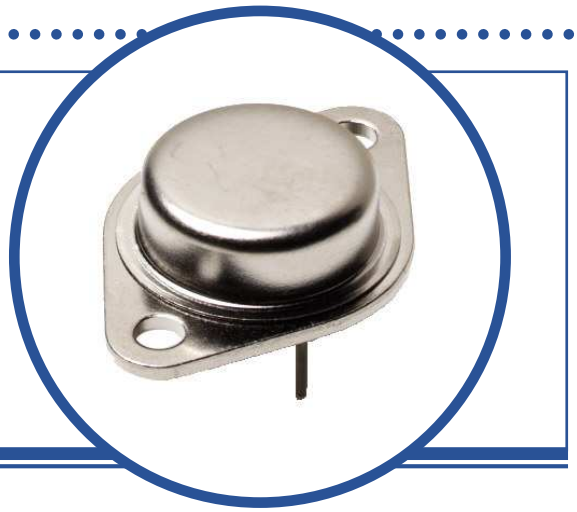
N-CHANNEL POWER MOSFET

TT electronics
Semelab Limited

IRF330 / 2N6760

- Power MOSFET Transistor
  In A Hermetic Metal TO-3 Package
- High Input Impedance / RDS(on) < 1.0Ω
- Designed For Switching, Power Supply,
  Motor Control and Amplifier Applications
- Screening Options Available



ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise stated)

V_{DS}	Drain – Source Voltage		400V
V_{GS}	Gate – Source Voltage		±20V
I_D	Continuous Drain Current	T_C = 25°C	5.5A
I_D	Continuous Drain Current	T_C = 100°C	3.5A
I_{DM}	Pulsed Drain Current (1)		22A
P_D	Total Power Dissipation at	T_C = 25°C	75W
		Derate Above 25°C	0.6W/°C
E_{AS}	Single Pulse Avalanche Energy (2)		1.7mJ
I_{AR}	Avalanche Current (1)		5.5A
dv/dt	Peak Diode Recovery (3)		4V/ns
T_J	Junction Temperature Range		-55 to +150°C
T_{stg}	Storage Temperature Range		-55 to +150°C
T_L	Lead Temperature (1.6mm (0.063") from case for 10sec)		300°C

THERMAL PROPERTIES

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

INTERNAL PACKAGE INDUCTANCE

Symbols	Parameters	Typ.	Units
$L_S + L_D$	Total Inductance	6.1	nH

Notes
(1) Repetitive Rating: Pulse width limited by maximum junction temperature
(2) @V_{DD} = 50V, Peak I_L = 5.5A, Starting T_J = 25°C
(3) @ I_{SD} ≤ 5.5A, di/dt ≤ 90A/µs, V_{DD} ≤ BV_{DSS}, T_J ≤ 150°C, Suggested R_G = 7.5Ω
(4) Pulse Width ≤ 300us, δ ≤ 2%

SEMELAB
A subsidiary of TT electronics plc.

Semelab Limited Coventry Road, Lutterworth, Leicestershire, LE17 4JB
Telephone +44 (0) 1455 556565 Fax +44 (0) 1455 552612 Email: sales@semelab-tt.com Website: http://www.semelab-tt.com

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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	400			V
$\frac{\Delta B_{VDSS}}{\Delta T_J}$	Temperature Coefficent of Breakdown Voltage	Reference to 25°C	I_D = 1.0mA		0.46		V/°C
$R_{DS(on)}$	Static Drain-Source On-State Resistance	V_{GS} = 10V	I_D = 3.5A (4)			1.0	Ω
		V_{GS} = 10V	I_D = 5.5A (4)			1.22	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}	I_D = 250µA	2		4	V
g_{fs}	Forward Transconductance	V_{DS} ≥ 15V	I_{DS} = 3.5A (4)	2.9			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		620		pF
C_{oss}	Output Capacitance	V_{DS} = 25V		200		
C_{rss}	Reverse Transfer Capacitance	f = 1.0MHz		75		
Q_g	Total Gate Charge	V_{GS} = 10V		17	39	nC
Q_{gs}	Gate-Source Charge	I_D = 5.5A		2	6	
Q_{gd}	Gate-Drain Charge	V_{DS} = 0.5BV_{DSS}		8	20	
$t_{d(on)}$	Turn-On Delay Time	V_{DD} = 200V			30	ns
t_r	Rise Time	I_D = 5.5A			40	
$t_{d(off)}$	Turn-Off Delay Time				80	
t_f	Fall Time	R_G = 7.5Ω			35	

SOURCE-DRAIN DIODE CHARACTERISTICS

I_S	Continuous Source Current				5.5	A
I_{SM}	Pulse Source Current (1)				22	
V_{SD}	Diode Forward Voltage	I_S = 5.5A V_{GS} = 0 (4)	T_J = 25°C		1.4	V
t_{rr}	Reverse Recovery Time	I_F = 5.5A	T_J = 25°C		700	ns
Q_{rr}	Reverse Recovery Charge	V_{DD} ≤ 50V	di/dt = 100A/µs (4)		6.2	µC

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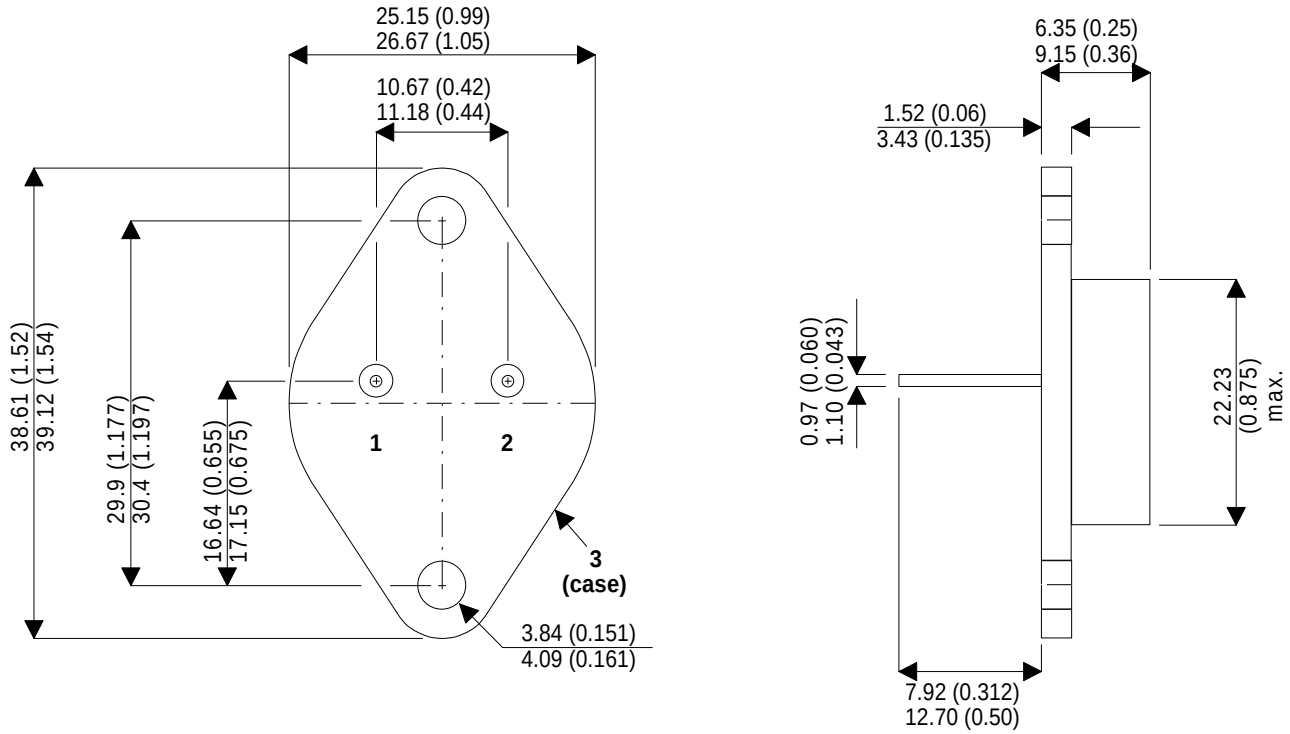
MECHANICAL DATA

Dimensions in mm (inches)



TO3 (TO-204AA)

Pin 1 - Gate Pin 2 - Source Case - Drain