

N-CHANNEL POWER MOSFET

IRF330 / 2N6760

- Power MOSFET Transistor
In A Hermetic Metal TO-3 Package
- High Input Impedance / $R_{DS(on)} < 1.0\Omega$
- Designed For Switching, Power Supply,
Motor Control and Amplifier Applications
- Screening Options Available



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

V _{DS}	Drain – Source Voltage	400V
V _{GS}	Gate – Source Voltage	$\pm 20\text{V}$
I _D	Continuous Drain Current $T_C = 25^\circ\text{C}$	5.5A
I _D	Continuous Drain Current $T_C = 100^\circ\text{C}$	3.5A
I _{DM}	Pulsed Drain Current ⁽¹⁾	22A
P _D	Total Power Dissipation at $T_C = 25^\circ\text{C}$	75W
	Derate Above 25°C	0.6W/ $^\circ\text{C}$
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 $^\circ\text{C}$
T _{stg}	Storage Temperature Range	-55 to +150 $^\circ\text{C}$
T _L	Lead Temperature (1.6mm (0.063”) from case for 10sec)	300 $^\circ\text{C}$

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
R _{θJC}	Thermal Resistance, Junction To Case	1.67	$^\circ\text{C/W}$

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 $^\circ\text{C}$
- (3) @ I_{SD} ≤ 5.5A, di/dt ≤ 90A/μs, V_{DD} ≤ BV_{DSS}, T_J ≤ 150 $^\circ\text{C}$, Suggested R_G = 7.5Ω
- (4) Pulse Width ≤ 300μs, δ ≤ 2%

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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
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient 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(Ω)
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	

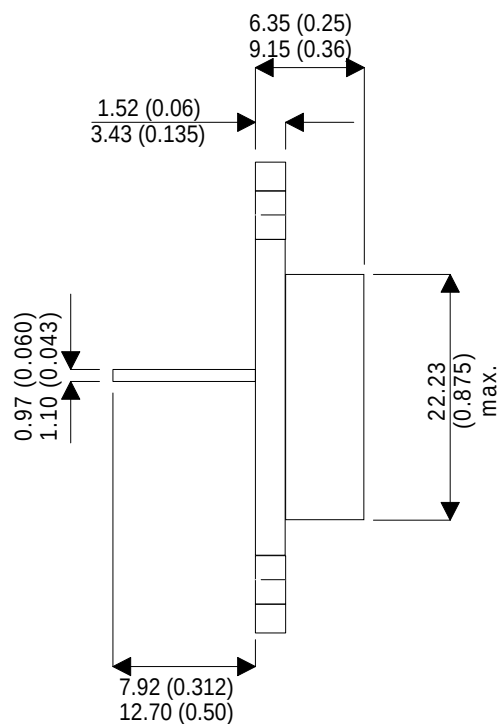
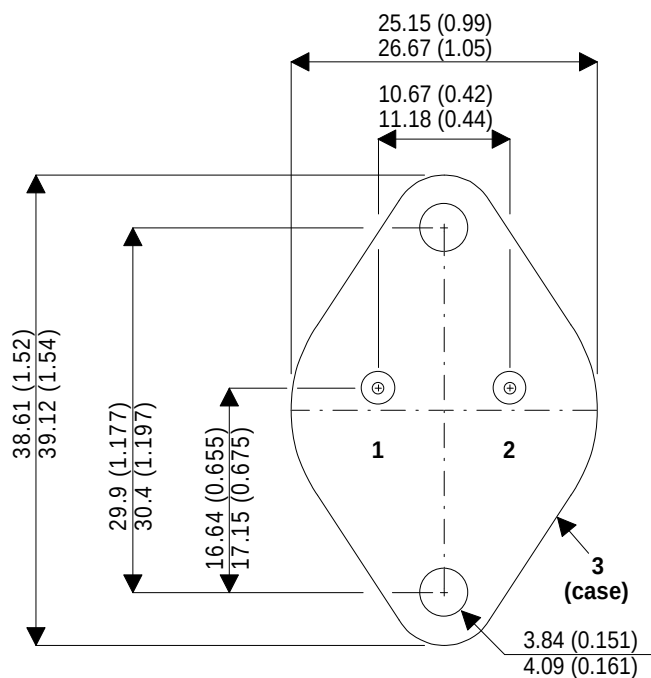
SOURCE-DRAIN DIODE CHARACTERISTICS

I _S	Continuous Source Current				5.5	A
I _{SM}	Pulse Source Current ⁽¹⁾				22	
V _{SD}	Diode Forward Voltage	I _S = 5.5A T _J = 25°C V _{GS} = 0 ⁽⁴⁾			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