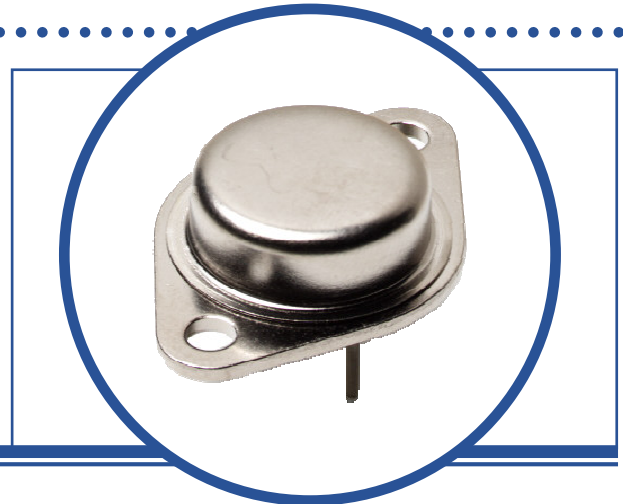


N-CHANNEL POWER MOSFET

IRF450

- Hermetically Sealed TO-3 Metal Package
- Simple Drive Requirements
- Screening Options Available



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

V _{DS}	Drain – Source Voltage		500V
V _{GS}	Gate – Source Voltage		±20V
I _D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	13A
I _D	Continuous Drain Current	$T_C = 100^\circ\text{C}$	8A
I _{DM}	Pulsed Drain Current ⁽²⁾		52A
P _D	Total Power Dissipation at	$T_C = 25^\circ\text{C}$	150W
		Derate Above 25°C	1.2W/°C
T _J	Junction Temperature Range		-55 to +150°C
T _{stg}	Storage Temperature Range		-55 to +150°C

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
R _{θJC}	Thermal Resistance, Junction To Case	0.83	°C/W
R _{θJA}	Thermal Resistance, Junction To Ambient	30	

INTERNAL PACKAGE INDUCTANCE

Symbols	Parameters	Typ.	Units
L _D	Internal Drain Inductance	5	nH
L _S	Internal Source Inductance	13	

Notes

- (1) Pulse Width ≤ 300us, δ ≤ 2%
 (2) Repetitive Rating: Pulse Width limited by max. junction temperature.

N-CHANNEL POWER MOSFET IRF450

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 = 250 μA	500			V
R _{DS(on)} ⁽¹⁾	Static Drain-Source On-State Resistance	V _{GS} = 10V I _D = 7A			0.4	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} I _D = 250μA	2		4	V
g _{fs} ⁽¹⁾	Forward Transconductance	V _{DS} ≥ 15V I _D = 7A	6			S(Ω)
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 500V V _{GS} = 0			250	μA
		V _{DS} = 400V T _C = 125°C			1000	
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		2700		pF
C _{oss}	Output Capacitance	V _{DS} = 25V		600		
C _{rss}	Reverse Transfer Capacitance	f = 1.0MHz		240		
Q _g	Total Gate Charge	V _{GS} = 10V		82		nC
Q _{gs}	Gate-Source Charge	I _D = 16A		40		
Q _{gd}	Gate-Drain Charge	V _{DS} = 0.8 BV _{DSS}		42		
t _{d(on)}	Turn-On Delay Time	V _{DD} = 250V			35	ns
t _r	Rise Time	I _D = 12A			190	
t _{d(off)}	Turn-Off Delay Time				170	
t _f	Fall Time	R _G = 2.35Ω			130	

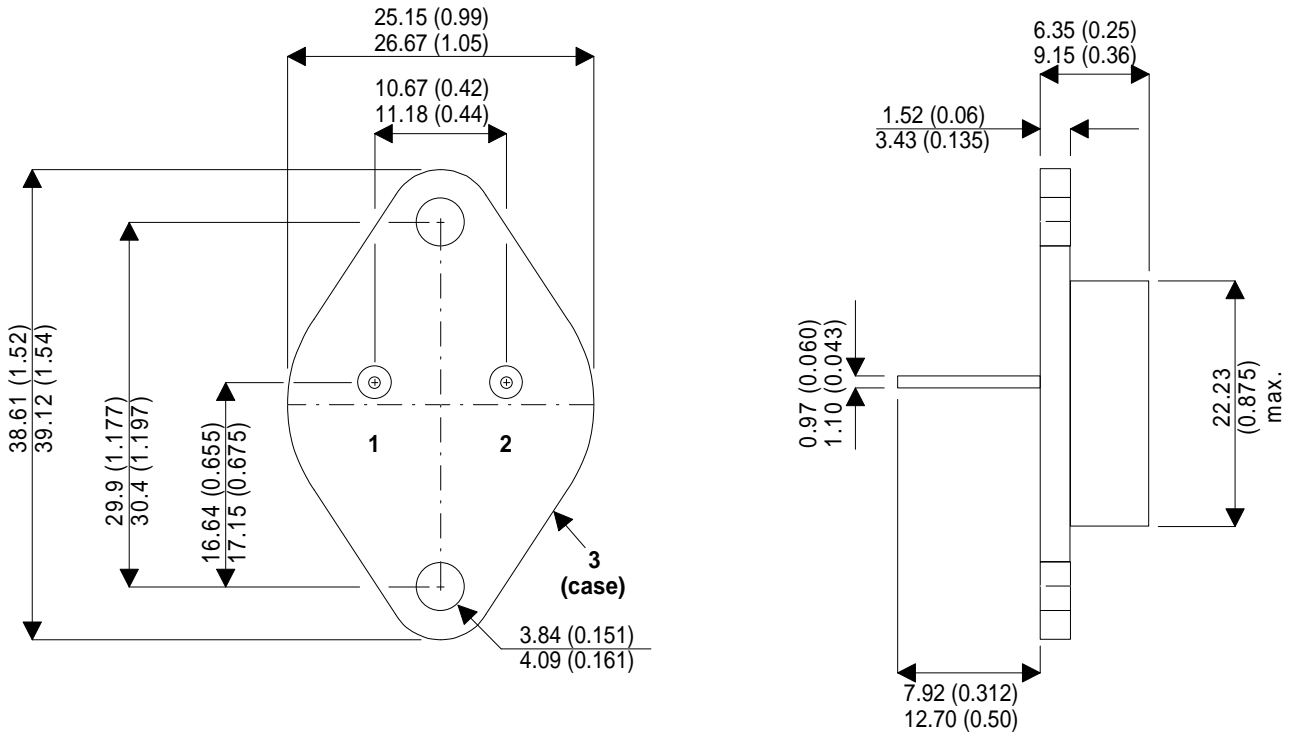
SOURCE-DRAIN DIODE CHARACTERISTICS

I _S	Continuous Source Current				13	A
I _{SM} ⁽¹⁾	Pulse Source Current				52	
V _{SD} ⁽¹⁾	Diode Forward Voltage	I _S = 13A T _J = 25°C V _{GS} = 0			1.4	V
T _{rr}	Reverse Recovery Time	I _S = 13A T _J = 150°C		1300		ns
Q _{rr} ⁽¹⁾	Reverse Recovery Charge	V _{DD} ≤ 50V di/dt = 100A/μs		7.4		μC

N-CHANNEL POWER MOSFET IRF450

MECHANICAL DATA

Dimensions in mm (inches)



TO3 (TO204-AA)

Pin 1 - Gate

Pin 2 - Source

Case - Drain