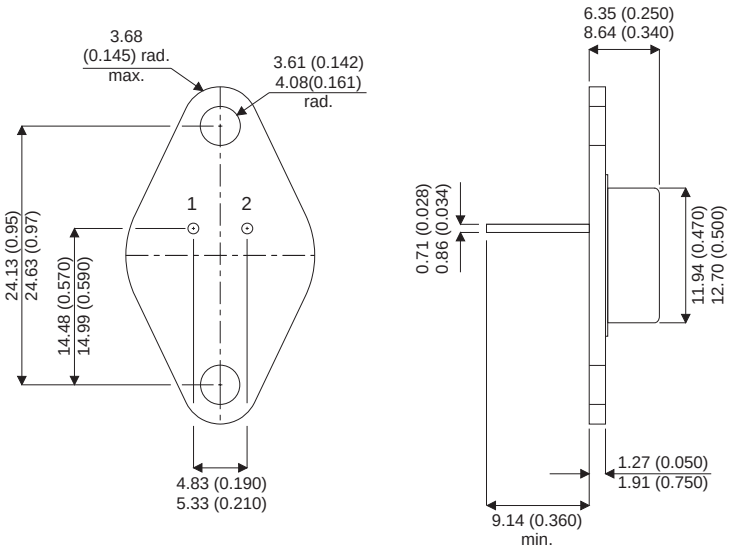
SEME LAB

IRFJ240

MECHANICAL DATA

Dimensions in mm (inches)



N–CHANNEL POWER MOSFET FOR HI–REL APPLICATIONS

V_{DSS}	200V
$I_{D(cont)}$	13A
$R_{DS(on)}$	0.18Ω

FEATURES

- HERMETICALLY SEALED TO-66 METAL PACKAGE
- SIMPLE DRIVE REQUIREMENTS
- SCREENING OPTIONS AVAILABLE

TO-66 METAL PACKAGE (TO213AA)

Underside View

Pin 1 = Gate Pin 2 = Source Case = Drain

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

V_{GS}	Gate – Source Voltage	±20V
I_D	Continuous Drain Current @ T_{case} = 25°C	13A
I_D	Continuous Drain Current @ T_{case} = 100°C	8A
I_{DM}	Pulsed Drain Current	50A
P_D	Power Dissipation @ T_{case} = 25°C	70W
	Linear Derating Factor	0.56W/°C
T_J , T_{stg}	Operating and Storage Temperature Range	–55 to 150°C
$R_{\theta JC}$	Thermal Resistance Junction to Case	1.8°C/W max.
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	50°C/W max.

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Document Number 5265
Issue 1

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ELECTRICAL CHARACTERISTICS (T_C = 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 = 250µA	200			V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I_D = 1mA		1.42		V/°C
$R_{DS(on)}$	Static Drain – Source On–State Resistance	V_{GS} = 10V I_D = 7A*		0.14	0.18	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS} I_D = 250µA	2		4	V
g_{fs}	Forward Transconductance	$V_{DS} \geq I_D \times R_{DS(on)}$ I_D = 7A*	6	9		S(℧)
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS} = 0 V_{DS} = 0.8BV_{DSS}			250	µA
		T_J = 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		1275		pF
C_{oss}	Output Capacitance	V_{DS} = 25V		500		
C_{rss}	Reverse Transfer Capacitance	f = 1MHz		160		
Q_g	Total Gate Charge	V_{GS} = 10V I_D = 16A		43	60	nC
Q_{gs}	Gate – Source Charge	V_{DS} = 0.8BV_{DSS}		16		
Q_{gd}	Gate – Drain (“Miller”) Charge			27		
$t_{d(on)}$	Turn–On Delay Time	V_{DD} = 75V		16	30	ns
t_r	Rise Time	I_D = 7A		27	60	
$t_{d(off)}$	Turn–Off Delay Time	Z_0 = 4.7Ω		40	80	
t_f	Fall Time			31	60	
	SOURCE – DRAIN DIODE CHARACTERISTICS					
I_S	Continuous Source Current				13	A
I_{SM}	Pulse Source Current				50	
V_{SD}	Diode Forward Voltage	I_S = 13A T_J = 25°C V_{GS} = 0			2	V
t_{rr}	Reverse Recovery Time	I_F = 13A T_J = 25°C			650	ns
Q_{rr}	Reverse Recovery Charge	$d_i / d_t \leq$ 100A/µs $V_{DD} \leq$ 50V			4.1	µC
	PACKAGE CHARACTERISTICS					
L_D	Internal Drain Inductance (from 6mm down drain lead pad to centre of die)			5.0		nH
L_S	Internal Source Inductance (from 6mm down source lead to centre of source bond pad)			12.5		

* Pulse width ≤ 300µs; Duty Cycle ≤ 2%

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