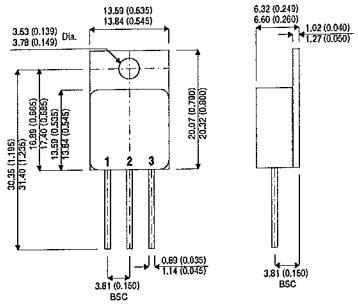
SEME LAB

IRFM254
IRFN254

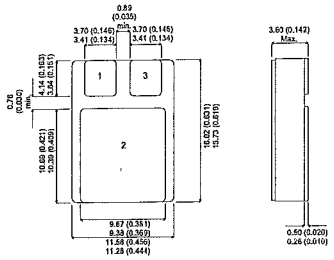
MECHANICAL DATA
Dimensions in mm (inches)



IRFM254

TO–254AA – Isolated Metal Package

Pin 1 – Drain Pin 2 – Source Pin 3 – Gate



IRFN254

SMD 1 Package (TO276AB)

Pin 1 – Gate Pin 2 – Drain Pin 3 – Source

N–CHANNEL POWER MOSFET

V_{DSS}	250V
$I_{D(cont)}$	23A
$R_{DS(on)}$	0.14Ω

FEATURES

- N–CHANNEL MOSFET
- LOW $R_{DS(ON)}$
- FAST SWITCHING
- HERMETIC ISOLATED TO-254 PACKAGE
- CERAMIC SURFACE MOUNT PACKAGE OPTION

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

V_{GS}	Gate – Source Voltage		±20V
I_D	Continuous Drain Current	@ V_{GS} = 10V , T_C = 25°C	23A
		@ V_{GS} = 10V , T_C = 100°C	15A
I_{DM}	Pulsed Drain Current		92A
P_D	Max. Power Dissipation (TO257) @ T_C = 25°C		150W
	Linear Derating Factor (TO257)		1.2W/°C
P_D.	Max. Power Dissipation (SMD 1) @ T_C = 25°C		100W
	Linear Derating Factor (SMD 1)		0.8W/°C
dv / dt	Peak Diode Recovery [1]		4.8 V/ns
$R_{\theta JC}$	Thermal Resistance Junction – Case (TO257)		0.83°C / W
$R_{\theta JC}$	Thermal Resistance Junction – Case (SMD1)		1.25°C / W
T_J , T_{STG}	Operating Junction and Storage Temperature Range		–55 to 150°C

1) $I_{SD} \leq 23A$, $di/dt \leq 180A / \mu S$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 150°C$

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

Document Number 3295
Issue 1

SEME LAB

IRFM254
IRFN254

ELECTRICAL CHARACTERISTICS (T_J = 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	250			V
ΔBV_{DSS} / ΔT_J	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I_D = 1mA		0.39		V/°C
$R_{DS(on)}$	Static Drain – Source On–State Resistance [2]	V_{GS} = 10V I_D = 14A			0.14	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS} I_D = 250µA	2		4	V
g_{fs}	Forward Transconductance [2]	V_{DS} ≥ 50V I_{DS} = 14A	11			S(℧)
I_{DSS}	Drain to Source Leakage Current	V_{GS} = 0 V_{DS} = 250V			25	µA
		V_{DS} = 200V 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		2700		pF
C_{oss}	Output Capacitance	V_{DS} = 25V		620		
C_{rss}	Reverse Transfer Capacitance	f = 1MHz		180		
Q_g	Total Gate Charge	V_{GS} = 10V			140	nC
Q_{gs}	Gate – Source Charge	I_D = 23A			24	
Q_{gd}	Gate – Drain ("Miller") Charge	V_{DS} = 200V			71	
$t_{d(on)}$	Turn– On Delay Time	V_{DD} = 125V		15		ns
t_r	Rise Time	I_D = 23A		63		
$t_{d(off)}$	Turn–Off Delay Time	R_G = 6.2Ω		74		
t_f	Fall Time	R_D = 5.4Ω		50		
	SOURCE – DRAIN DIODE CHARACTERISTICS					
I_S	Continuous Source Current				23	A
I_{SM}	Pulse Source Current [1]				92	
V_{SD}	Diode Forward Voltage [2]	I_S = 23A T_J = 25°C			1.8	V
t_{rr}	Reverse Recovery Time [2]	V_{GS} = 0		370	560	ns
Q_{rr}	Reverse Recovery Charge [2]	I_F = 23A T_J = 25°C		4.6	6.9	µC
t_{on}	Forward Turn–On Time	d_i / d_t ≤ 100A/µs V_{DD} ≤ 50V		Negligible		

Notes

1) Repetitive Rating – Pulse width limited by Maximum Junction Temperature
2) Pulse Test: Pulse Width ≤ 300µs, δ ≤ 2%.

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

Document Number 3295
Issue 1