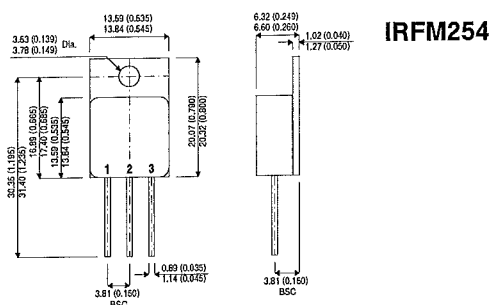


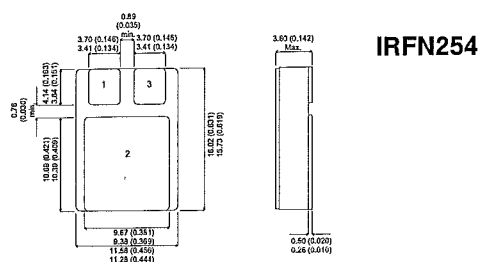
MECHANICAL DATA

Dimensions in mm (inches)



TO-254AA – Isolated Metal Package

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



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

V_{GS}	Gate – Source Voltage		$\pm 20\text{V}$
I_D	Continuous Drain Current	@ $V_{GS} = 10\text{V}$, $T_C = 25^\circ\text{C}$	23A
		@ $V_{GS} = 10\text{V}$, $T_C = 100^\circ\text{C}$	15A
I_{DM}	Pulsed Drain Current		92A
P_D	Max. Power Dissipation (TO257) @ $T_C = 25^\circ\text{C}$		150W
	Linear Derating Factor (TO257)		1.2W/°C
$P_{D\cdot}$	Max. Power Dissipation (SMD 1) @ $T_C = 25^\circ\text{C}$		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) $I_{SD} \leq 23\text{A}$, $di/dt \leq 180\text{A} / \mu\text{S}$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 150^\circ\text{C}$

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS					
BV_{DSS} Drain – Source Breakdown Voltage	$V_{GS} = 0$ $I_D = 250\mu\text{A}$	250			V
ΔBV_{DSS} Temperature Coefficient of Breakdown Voltage	Reference to 25°C $I_D = 1\text{mA}$		0.39		V/ $^\circ\text{C}$
$R_{DS(on)}$ Static Drain – Source On–State Resistance ²	$V_{GS} = 10\text{V}$ $I_D = 14\text{A}$			0.14	Ω
$V_{GS(th)}$ Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = 250\mu\text{A}$	2		4	V
g_{fs} Forward Transconductance ²	$V_{DS} \geq 50\text{V}$ $I_{DS} = 14\text{A}$	11			S(σ)
I_{DSS} Drain to Source Leakage Current	$V_{GS} = 0$ $V_{DS} = 250\text{V}$			25	μA
	$V_{DS} = 200\text{V}$ $T_J = 125^\circ\text{C}$			250	
I_{GSS} Forward Gate – Source Leakage	$V_{GS} = 20\text{V}$			100	nA
I_{GSS} Reverse Gate – Source Leakage	$V_{GS} = -20\text{V}$			-100	
DYNAMIC CHARACTERISTICS					
C_{iss} Input Capacitance	$V_{GS} = 0$		2700		pF
C_{oss} Output Capacitance	$V_{DS} = 25\text{V}$		620		
C_{riss} Reverse Transfer Capacitance	$f = 1\text{MHz}$		180		
Q_g Total Gate Charge	$V_{GS} = 10\text{V}$			140	nC
Q_{gs} Gate – Source Charge	$I_D = 23\text{A}$			24	
Q_{gd} Gate – Drain (“Miller”) Charge	$V_{DS} = 200\text{V}$			71	
$t_{d(on)}$ Turn– On Delay Time	$V_{DD} = 125\text{V}$		15		ns
t_r Rise Time	$I_D = 23\text{A}$		63		
$t_{d(off)}$ Turn–Off Delay Time	$R_G = 6.2\Omega$		74		
t_f Fall Time	$R_D = 5.4\Omega$		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	$I_S = 23\text{A}$ $T_J = 25^\circ\text{C}$			1.8	V
t_{rr} Reverse Recovery Time ²	$V_{GS} = 0$		370	560	ns
Q_{rr} Reverse Recovery Charge ²	$I_F = 23\text{A}$ $T_J = 25^\circ\text{C}$		4.6	6.9	
t_{on} Forward Turn–On Time	$d_i / d_t \leq 100\text{A}/\mu\text{s}$ $V_{DD} \leq 50\text{V}$		Negligible		

Notes

- 1) Repetitive Rating – Pulse width limited by Maximum Junction Temperature
- 2) Pulse Test: Pulse Width $\leq 300\mu\text{s}$, $\delta \leq 2\%$.

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.