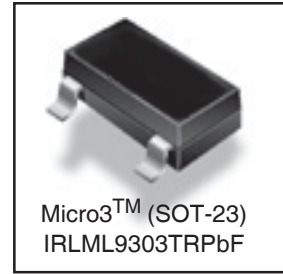
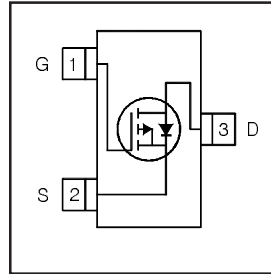


# IRLML9303TRPbF

HEXFET® Power MOSFET

<b>V<sub>DS</sub></b>	<b>-30</b>	<b>V</b>
<b>V<sub>GS Max</sub></b>	<b>± 20</b>	<b>V</b>
<b>R<sub>DS(on) max</sub></b> (@V <sub>GS</sub> = -10V)	<b>165</b>	<b>mΩ</b>
<b>R<sub>DS(on) max</sub></b> (@V <sub>GS</sub> = -4.5V)	<b>270</b>	<b>mΩ</b>



## Application(s)

- System/Load Switch

## Features and Benefits

### Features

Industry-standard pinout
Compatible with existing Surface Mount Techniques
RoHS compliant containing no lead, no bromide and no halogen
MSL1, Consumer qualification

results in

⇒

### Benefits

Multi-vendor compatibility
Easier manufacturing
Environmentally friendly
Increased reliability

## Absolute Maximum Ratings

Symbol	Parameter	Max.	Units
V <sub>DS</sub>	Drain-Source Voltage	-30	V
I <sub>D</sub> @ T <sub>A</sub> = 25°C	Continuous Drain Current, V <sub>GS</sub> @ 10V	-2.3	A
I <sub>D</sub> @ T <sub>A</sub> = 70°C	Continuous Drain Current, V <sub>GS</sub> @ 10V	-1.8	
I <sub>DM</sub>	Pulsed Drain Current	-12	
P <sub>D</sub> @ T <sub>A</sub> = 25°C	Maximum Power Dissipation	1.25	W
P <sub>D</sub> @ T <sub>A</sub> = 70°C	Maximum Power Dissipation	0.80	
	Linear Derating Factor	0.01	W/°C
V <sub>GS</sub>	Gate-to-Source Voltage	± 20	V
T <sub>J</sub> , T <sub>STG</sub>	Junction and Storage Temperature Range	-55 to + 150	°C

## Thermal Resistance

Symbol	Parameter	Typ.	Max.	Units
R <sub>θJA</sub>	Junction-to-Ambient ③	—	100	°C/W
R <sub>θJA</sub>	Junction-to-Ambient (t<10s) ④	—	99	

# IRLML9303TRPbF

## Electric Characteristics @ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	-30	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	-3.7	—	mV/°C	Reference to $25^\circ\text{C}, I_D = -1\text{mA}$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	135	165	mΩ	$V_{GS} = -10V, I_D = -2.3A$ ②
		—	220	270		$V_{GS} = -4.5V, I_D = -1.8A$ ②
$V_{GS(th)}$	Gate Threshold Voltage	-1.3	—	-2.4	V	$V_{DS} = V_{GS}, I_D = -10\mu A$
$I_{DSS}$	Drain-to-Source Leakage Current	—	—	1.0	μA	$V_{DS} = -24V, V_{GS} = 0V$
		—	—	150		$V_{DS} = -24V, V_{GS} = 0V, T_J = 125^\circ\text{C}$
$I_{GSS}$	Gate-to-Source Forward Leakage	—	—	-100	nA	$V_{GS} = -20V$
	Gate-to-Source Reverse Leakage	—	—	100		$V_{GS} = 20V$
$R_G$	Internal Gate Resistance	—	21	—	Ω	
$g_{fs}$	Forward Transconductance	2.3	—	—	S	$V_{DS} = -10V, I_D = -2.3A$
$Q_g$	Total Gate Charge	—	2.0	—	nC	$I_D = -2.3A$
$Q_{gs}$	Gate-to-Source Charge	—	0.57	—		$V_{DS} = -15V$
$Q_{gd}$	Gate-to-Drain ("Miller") Charge	—	1.2	—		$V_{GS} = -4.5V$ ②
$t_{d(on)}$	Turn-On Delay Time	—	7.5	—	ns	$V_{DD} = -15V$ ②
$t_r$	Rise Time	—	14	—		$I_D = -1.0A$
$t_{d(off)}$	Turn-Off Delay Time	—	9.0	—		$R_G = 6.8\Omega$
$t_f$	Fall Time	—	8.6	—		$V_{GS} = -4.5V$
$C_{iss}$	Input Capacitance	—	160	—	pF	$V_{GS} = 0V$
$C_{oss}$	Output Capacitance	—	39	—		$V_{DS} = -25V$
$C_{rss}$	Reverse Transfer Capacitance	—	25	—		$f = 1.0\text{KHz}$

## Source - Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$I_S$	Continuous Source Current (Body Diode)	—	—	-1.3	A	MOSFET symbol showing the integral reverse p-n junction diode.
$I_{SM}$	Pulsed Source Current (Body Diode) ①	—	—	-12		
$V_{SD}$	Diode Forward Voltage	—	—	-1.2	V	$T_J = 25^\circ\text{C}, I_S = -1.3A, V_{GS} = 0V$ ②
$t_{rr}$	Reverse Recovery Time	—	12	18	ns	$T_J = 25^\circ\text{C}, V_R = -24V, I_F = -1.3A$
$Q_{rr}$	Reverse Recovery Charge	—	5.3	8.0	nC	$di/dt = 100A/\mu s$ ②