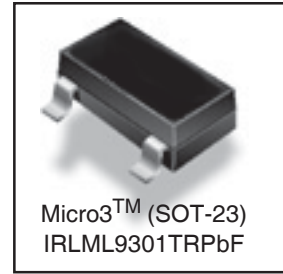
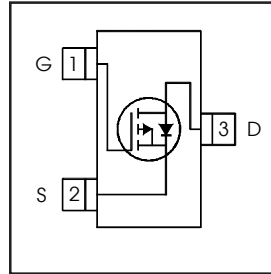


IRLML9301TRPbF

HEXFET® Power MOSFET

V_{DS}	-30	V
V_{GS Max}	± 20	V
R_{DS(on) max} (@ V _{GS} = -10V)	64	mΩ
R_{DS(on) max} (@ V _{GS} = -4.5V)	103	mΩ



Application(s)

- System/Load Switch

Features and Benefits

Features

Low R _{DS(on)} (≤ 64mΩ)
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

Lower switching losses
Multi-vendor compatibility
Easier manufacturing
Environmentally friendly
Increased reliability

Symbol	Parameter	Max.	Units
V _{DS}	Drain-Source Voltage	-30	V
I _D @ T _A = 25°C	Continuous Drain Current, V _{GS} @ 10V	-3.6	A
I _D @ T _A = 70°C	Continuous Drain Current, V _{GS} @ 10V	-2.9	
I _{DM}	Pulsed Drain Current	-15	
P _D @ T _A = 25°C	Maximum Power Dissipation	1.3	W
P _D @ T _A = 70°C	Maximum Power Dissipation	0.8	
	Linear Derating Factor	0.01	W/°C
V _{GS}	Gate-to-Source Voltage	± 20	V
T _J , T _{STG}	Junction and Storage Temperature Range	-55 to + 150	°C

Thermal Resistance


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

IRLML9301TRPbF

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	—	0.02	—	V/°C	Reference to $25^\circ\text{C}, I_D = -1\text{mA}$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	51	64	m Ω	$V_{GS} = -10V, I_D = -3.6A$ ②
		—	82	103		$V_{GS} = -4.5V, I_D = -2.9A$ 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	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	—	12	—	Ω	
g_{fs}	Forward Transconductance	5.0	—	—	S	$V_{DS} = -10V, I_D = -3.6A$
Q_g	Total Gate Charge	—	4.8	—	nC	$I_D = -3.6A$
Q_{gs}	Gate-to-Source Charge	—	1.2	—		$V_{DS} = -15V$
Q_{gd}	Gate-to-Drain ("Miller") Charge	—	2.5	—		$V_{GS} = -4.5V$ ②
$t_{d(on)}$	Turn-On Delay Time	—	9.6	—	ns	$V_{DD} = -15V$ ②
t_r	Rise Time	—	19	—		$I_D = -1A$
$t_{d(off)}$	Turn-Off Delay Time	—	16	—		$R_G = 6.8\Omega$
t_f	Fall Time	—	15	—		$V_{GS} = -4.5V$
C_{iss}	Input Capacitance	—	388	—	pF	$V_{GS} = 0V$
C_{oss}	Output Capacitance	—	93	—		$V_{DS} = -25V$
C_{rss}	Reverse Transfer Capacitance	—	65	—		$f = 1.0\text{KHz}$

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	—	—	-15		
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	—	14	21	ns	$T_J = 25^\circ\text{C}, V_R = -24V, I_F = -1.3A$
Q_{rr}	Reverse Recovery Charge	—	7.2	11	nC	$di/dt = 100A/\mu s$ ②