BORN SEMICONDUCTOR

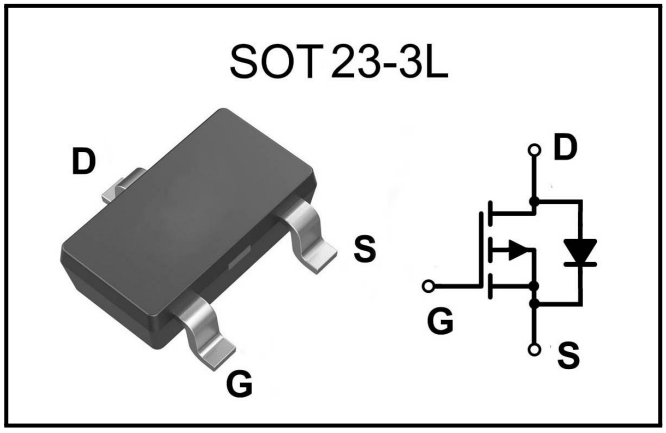
IRLML6401

P-Channel MOSFET

Features

- V_{DS}=-12V
- I_D=-4.3A
- $R_{DS(ON)}$ @V_{GS}=-4.5V, MAX=50mΩ
- $R_{DS(ON)}$ @V_{GS}=-2.5V, MAX=85mΩ

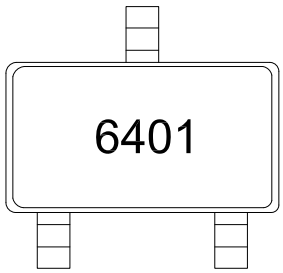
Package



Description

- Fast switching
- High Density Cell Design For Ultra Low On-Resistance
- SOT-23-3L for Surface Mount Package.

Marking



Ordering information

Order code	Package	Marking	Base qty	Delivery mode
IRLML6401	SOT-23-3L	6401	3K	Tape and reel

Absolute Maximum Ratings (@T_A=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
BV_{DS}	Drain-Source Voltage	-12	V
V_{GS}	Gate-Source Voltage	±8	V
I_D	Continuous Drain Current	-4.3	A
I_{DM}	Pulsed Drain Current	-13	A
P_D	Maximum Power Dissipation	1.3	W
R_{thJA}	hermal Resistance.Junction- to-Ambient	100	°C/W
T_J	Junction Temperature	150	°C
T_{stg}	Junction and Storage Temperature Range	-55 to + 150	°C

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Revision: 2022-Jan-1-A

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P-Channel MOSFET

Electrical Characteristics @T_A=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
BV_{DS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D =-250uA	-12	–	–	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -12V, V_{GS} = 0V	–	–	-1	uA
		V_{GS} = 0V,V_{DS} =-9.6V,T_J=55°C	–	–	-25	
I_{GSS}	Gate Body Leakage	V_{GS} = ±8V,V_{DS} =0V	–	–	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = -250uA	-0.4	–	-0.95	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS} = -4.5V, I_D = -4.3A	–	35	50	mΩ
		V_{GS} = -2.5V, I_D = -2.5A	–	45	85	
		V_{GS} = -1.8V, I_D = -2A	–	–	125	
g_{fs}	Forward Transconductance	V_{DS} = -10V, I_D = -4.3A	8.6	–	–	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = -10V,	–	830	–	pF
C_{oss}	Output Capacitance	V_{GS} = 0V,	–	180	–	
C_{rss}	Reverse Transfer Capacitance	f = 1.0MHZ	–	125	–	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS} = -6V,I_D =-1.0A	–	11	–	ns
$t_{d(off)}$	Turn-Off Delay Time	R_{GEN} = 6Ω,	–	250	–	
t_{rr}	Turn-Off Fall Time	I_F =-1.3A,di/dt=100A/μS	–	22	33	
Drain-Source Diode Characteristics						
I_S	Max. Diode Forward Current		–	–	1.3	A
V_{SD}	Diode Forward Voltage	I_S = -1.3A,V_{GS} = 0V,	–	–	-1.2	V

Note(1) :Pulse test: pulse width <= 300us, duty cycle≤ 2%

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P-Channel MOSFET

Typical Performance Characteristics(T_J = 25 °C, unless otherwise noted)

Figure 1 :Typical Output Characteristics

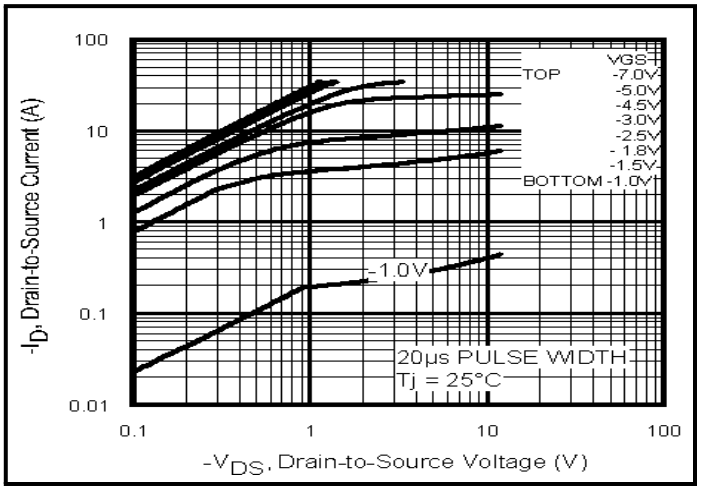


Figure 2 :Typical Transfer Characteristics

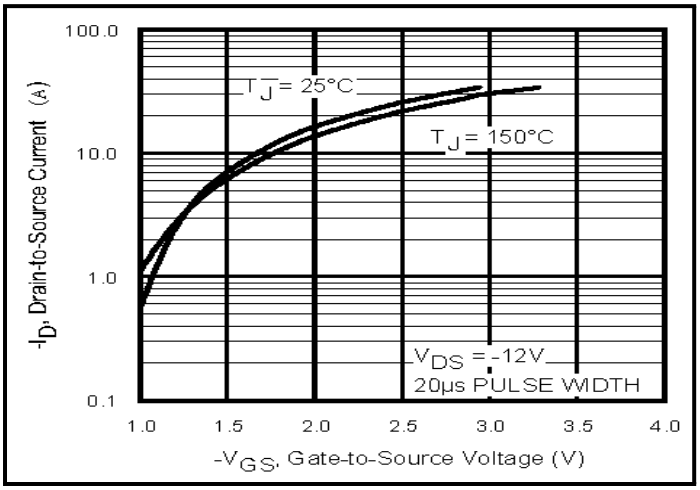


Figure 3 :Normalized On-Resistance Vs. Temperature

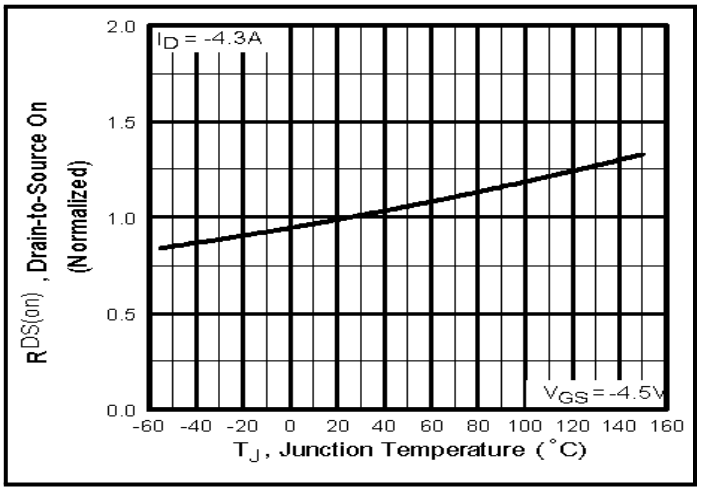


Figure 4 :Typical Source-Drain Diode Forward Voltage

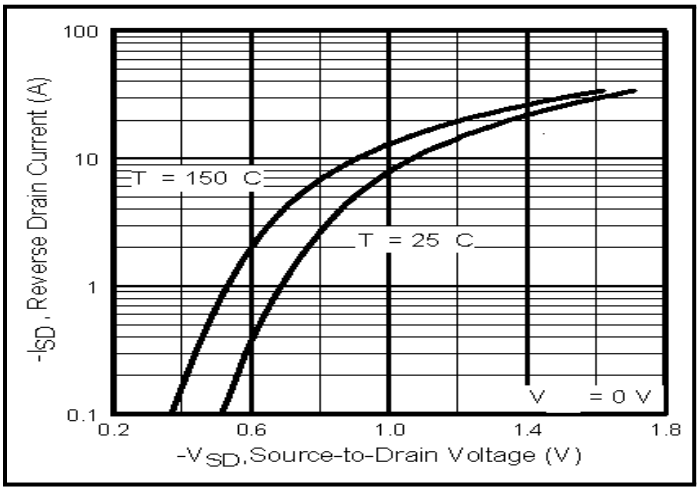


Figure 5 :Maximum Drain Current Vs.Case Temperature

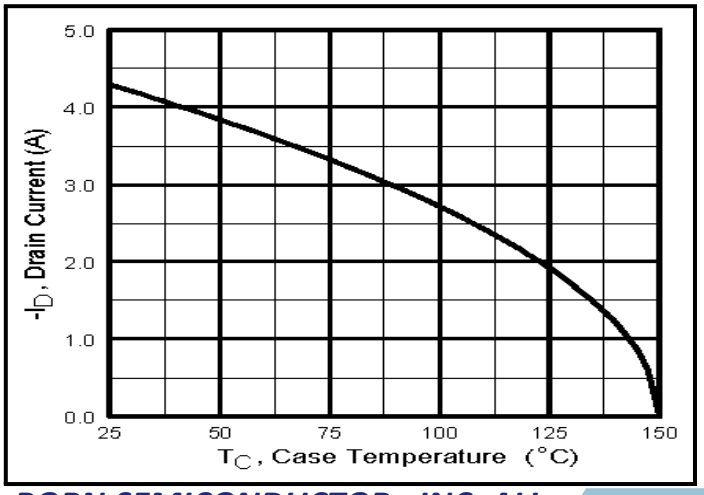
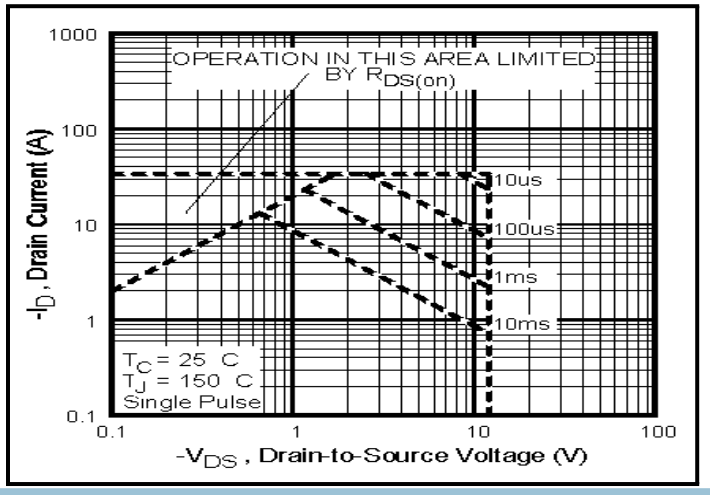


Figure 6 :Maximum Safe Operating Area



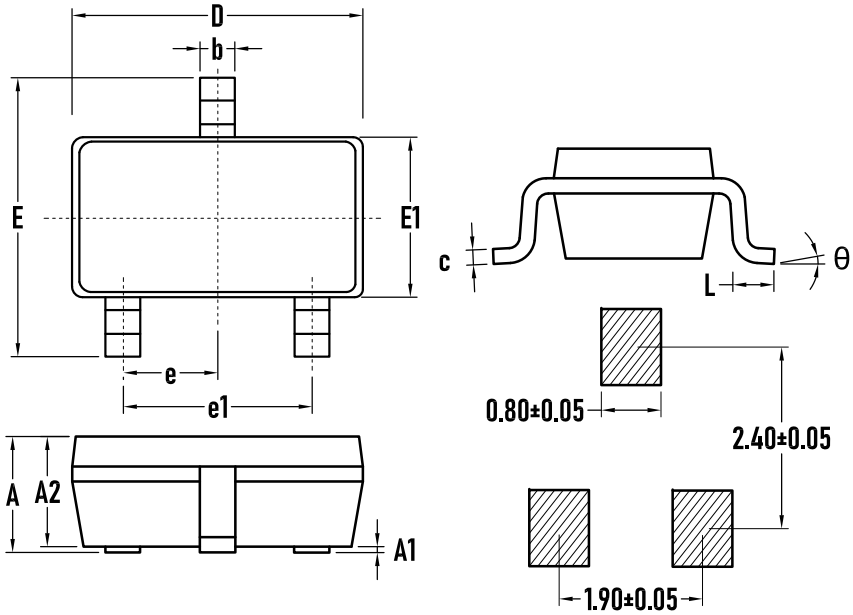
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IRLML6401

P-Channel MOSFET

Outline Drawing - SOT23-3L



SYMBOL	MILLIMETER		Inches	
	MIN.	MAX.	MIN.	MAX.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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