BORN SEMICONDUCTOR

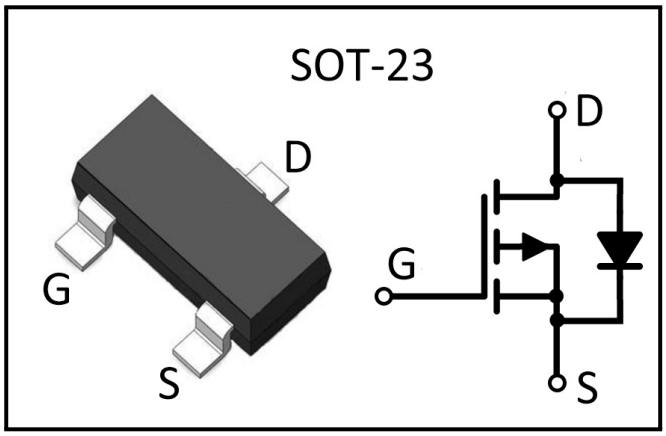
IRLML6402

P-Channel MOSFET

Features

- V_{DS}=-20V
- I_D=-3.7A
- $R_{DS(ON)}$ @V_{GS}=-4.5V, TYP=50mΩ
- $R_{DS(ON)}$ @V_{GS}=-2.5V, TYP=80mΩ

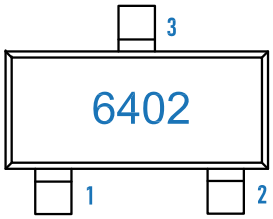
Package



Description

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- SOT-23 for Surface Mount Package.

Marking



Ordering information

Order code	Package	Marking	Base qty	Delivery mode
IRLML6402	SOT-23	6402	3K	Tape and reel

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

Symbol	Parameter		Value	Unit
BV_{DS}	Drain-Source Voltage		-20	V
V_{GS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current		-3.7	A
I_{DM}	Pulsed Drain Current		-15	A
P_D	Maximum Power Dissipation	T_A = 25°C	1.1	W
T_J	Junction		150	°C
T_{stg}	Storage Temperature		-55 to + 150	°C

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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	-20	–	–	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -20V, V_{GS} = 0V	–	–	-1	uA
		V_{GS} = 0V,V_{DS} =-20V,T_A=70°C	–	–	-25	
I_{GSS}	Gate Body Leakage	V_{GS} = ±12V,V_{DS} =0V	–	–	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = -250uA	-0.4	–	-1.2	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS} = -4.5V, I_D = -3.7A	–	50	65	mΩ
		V_{GS} = -2.5V, I_D = -3.1A	–	80	135	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = -10V,	–	600	–	pF
C_{oss}	Output Capacitance	V_{GS} = 0V,	–	120	–	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS} = -10V,I_D =-3.7A	–	8	–	ns
$t_{d(off)}$	Turn-Off Delay Time	R_{GEN} = 6Ω,	–	60	–	
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_S = -1.0A,V_{GS} = 0V,	–	–	-1.2	V

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

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

Figure 1 :Typical Output Characteristics

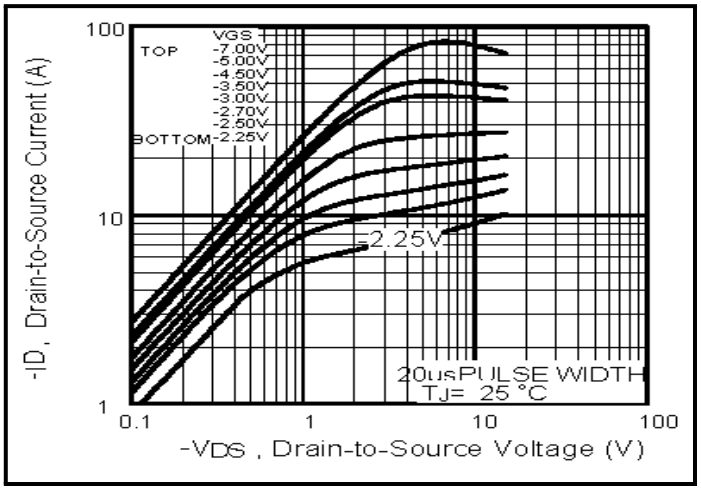


Figure 2 :Typical Output Characteristics

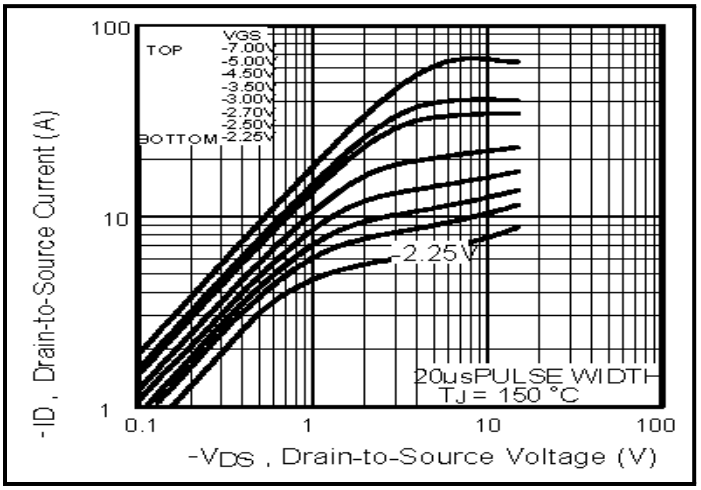


Figure 3 :Typical Transfer Characteristics

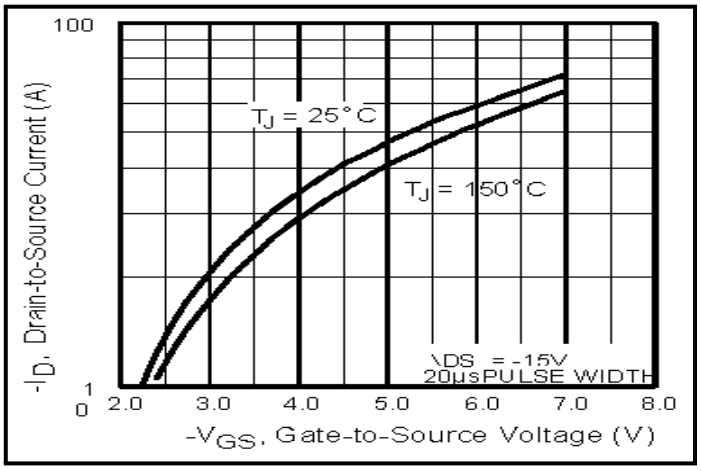


Figure 4 :Normalized On-Resistance

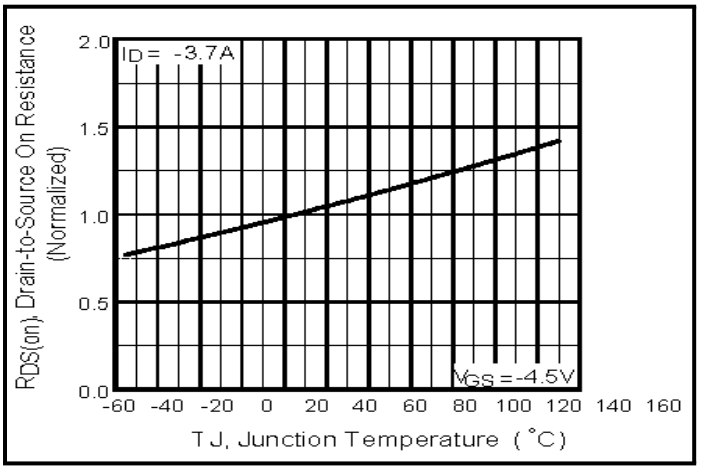


Figure 5 :Typical Capacitance Vs.Drain-to-Source Voltage

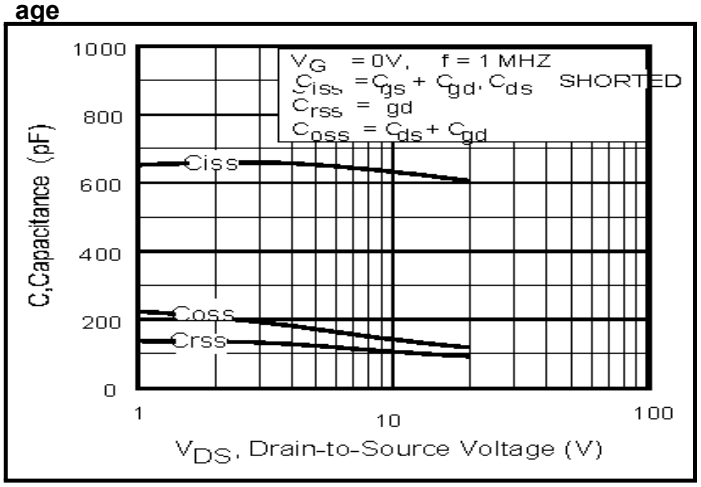
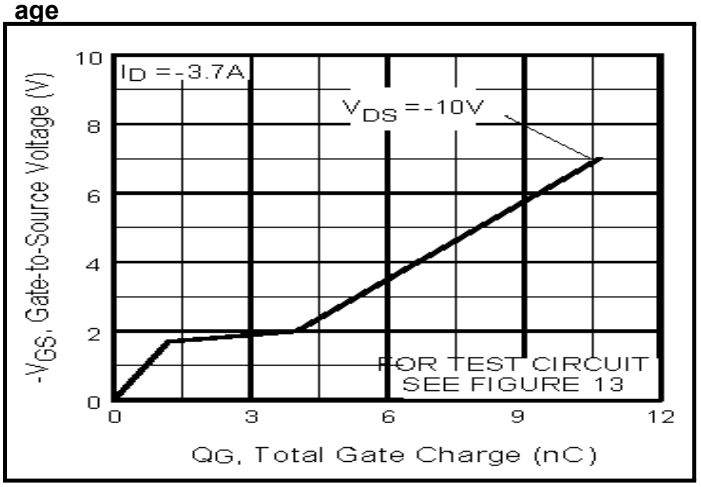


Figure 6 :Typical Gate Charge Vs.Gate-to-Source Voltage



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

Figure 7 :Typical Source-Drain Diode Forward Voltage

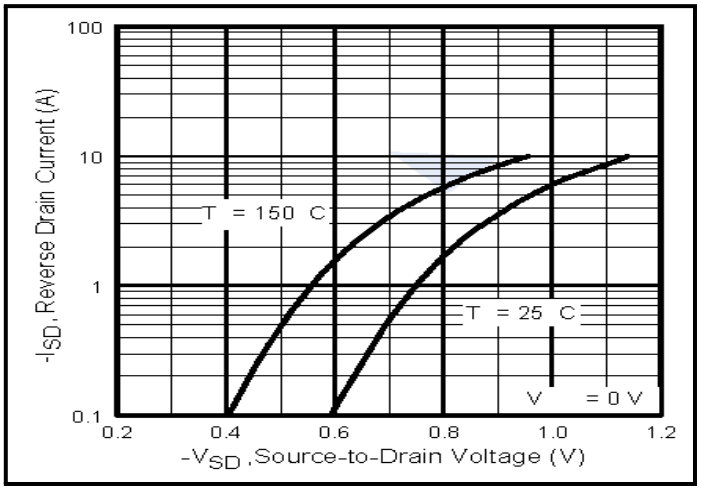


Figure 8 :Maximum Safe Operating Area

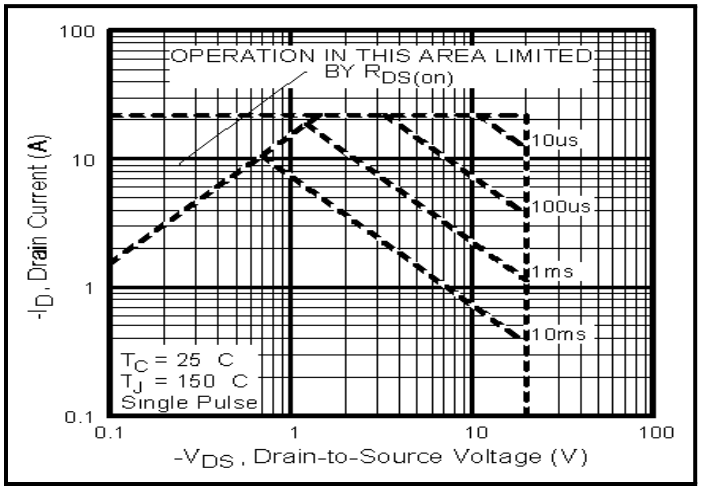


Figure 9 :Maximum Drain Current Vs. Case Temperature

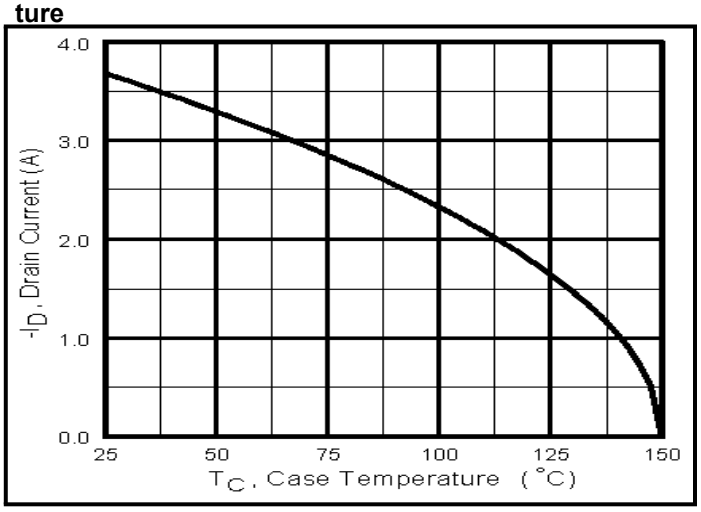
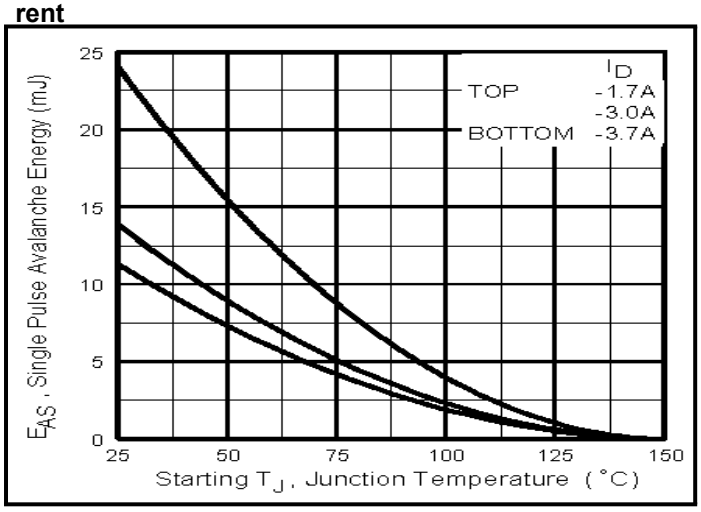


Figure 10 :Maximum Avalanche Energy Vs. Drain Current



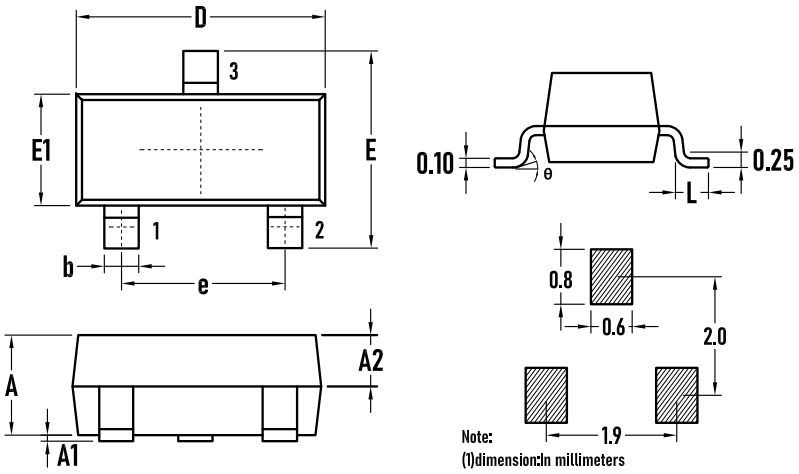
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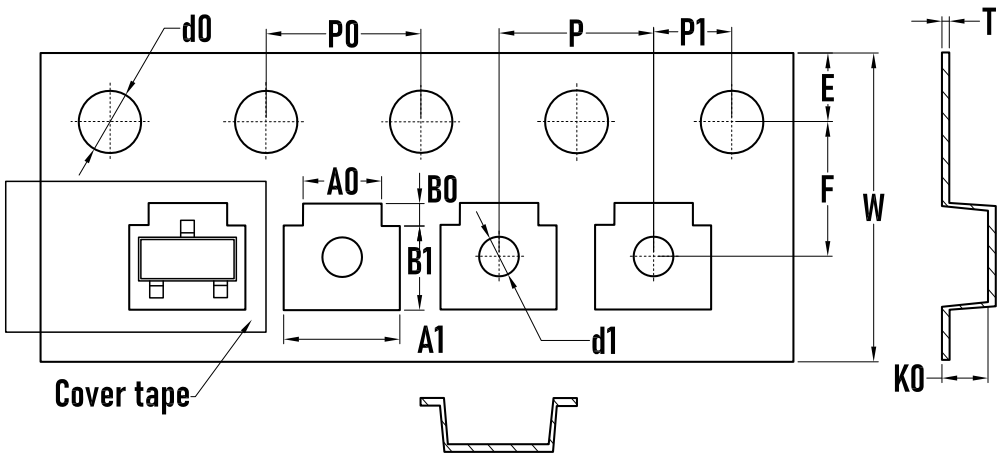
P-Channel MOSFET

Outline Drawing - SOT-23



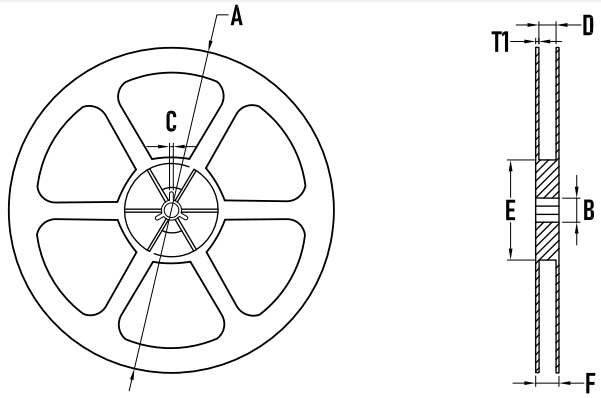
SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	0.90	1.00	1.10
A1	0.01	–	0.10
A2	0.50	0.60	0.70
D	2.80	2.90	3.00
b	0.25	0.35	0.45
E	2.10	2.30	2.50
E1	1.20	1.30	1.40
e	1.80	1.90	2.00
L	0.25	0.35	0.45
θ	0	–	8°

Packaging Tape - SOT-23



SYMBOL	MILLIMETER
A0	2.10±0.10
A1	3.10±0.10
B0	0.65±0.10
B1	2.75±0.10
d0	1.55±0.10
d1	1.00±0.05
E	1.75±0.10
F	3.50±0.10
K0	1.10±0.10
P	4.00±0.10
P0	4.00±0.10
P1	2.00±0.10
W	8.00±0.30
T	0.20 ±0.05

Packaging Reel



SYMBOL	MILLIMETER
A	177.8±0.2
B	3.1
C	13.50
D	9.6±0.3
E	75±0.2
F	12.3±0.3
T1	1.0±0.2
Quantity	3000PCS

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