KEEN SIDE electronics

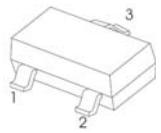
IRLML5103

SOT-23 Plastic-Encapsulate MOSFETS

P-Channel 30-V(D-S) MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
-30 V	0.6Ω@-10V	-0.76A
	1 Ω@-4.5V	

SOT-23



1. GATE
2. SOURCE
3. DRAIN

FEATURE

- TrenchFET Power MOSFET

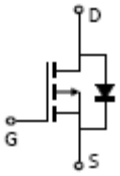
APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

MARKING

D****

Equivalent Circuit



Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	I_D	-0.76	A
Continuous Source-Drain Diode Current	I_S	-0.83	
Maximum Power Dissipation	P_D	0.54	W
Thermal Resistance from Junction to Ambient(t≤5s)	$R_{\theta JA}$	357	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-50 ~+150	

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1	-1.6	-3	
Gate-Source Leakage	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-30V, V_{GS} =0V			-1	μA
Drain-Source On-State Resistance[a]	$R_{DS(on)}$	V_{GS} =-10V, I_D =-0.6A			0.6	Ω
		V_{GS} =-4.5V, I_D =-0.3A			1	
Forward Transconductance[a]	g_{fs}	V_{DS} =-5V, I_D =-0.6A	1			S
Dynamic[b]						
Input Capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V,f =1MHz		400		pF
Output Capacitance	C_{oss}			80		
Reverse Transfer Capacitance	C_{rss}			50		
Total Gate Charge	Q_g	V_{DS} =-15V,V_{GS} =-10V,I_D =-1.9A		4	8	nC
		V_{DS} =-15V,V_{GS} =-4.5V,I_D=-1.9A		2	4	
Gate-Source Charge	Q_{gs}			0.6		
Gate-Drain Charge	Q_{gd}			1		
Gate Resistance	R_g	f =1MHz	1.7	8.5	17	Ω
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-15V, R_L=10Ω, I_D =-1.5A, V_{GEN}=-10V,Rg=1Ω		4	8	ns
Rise Time	t_r			11	18	
Turn-Off Delay Time	$t_{d(off)}$			11	18	
Fall Time	t_f			8	16	
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-15V, R_L=10Ω, I_D =-1.5A, V_{GEN}=-4.5V,Rg=1Ω		36	44	
Rise Time	t_r			37	45	
Turn-Off Delay Time	$t_{d(off)}$			12	18	
Fall Time	t_f			9	14	
Drain-source Body diode characteristics						
Continuous Source-Drain Diode Current	I_S	T_C=25℃			-0.76	A
Pulse Diode Forward Current[a]	I_{SM}				-10	
Body Diode Voltage	V_{SD}	I_S=-1.5A		-0.8	-1.2	V

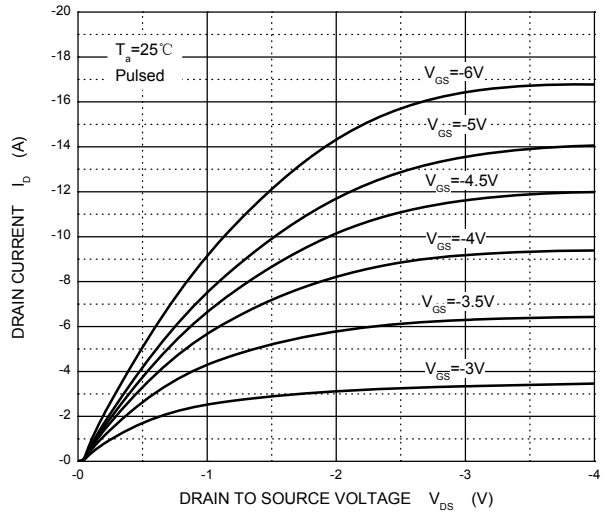
Notes :

a. Pulse Test : Pulse Width ≤300μs, Duty Cycle ≤2%.

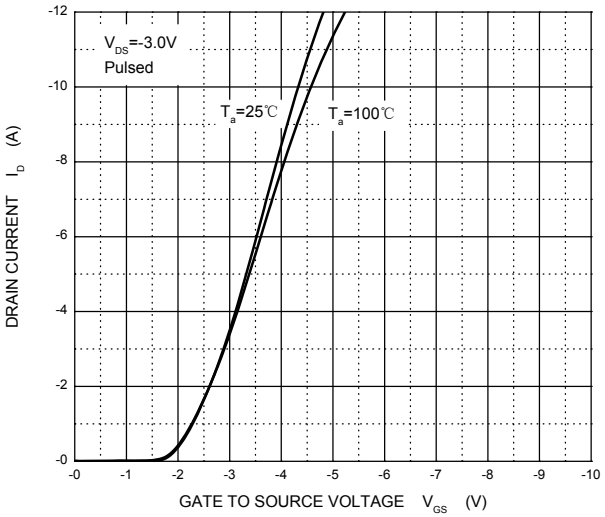
b. Guaranteed by design, not subject to production testing.

Typical Characteristics

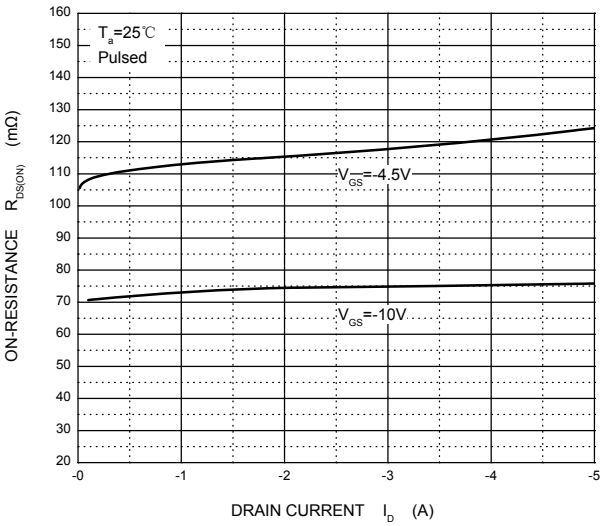
Output Characteristics



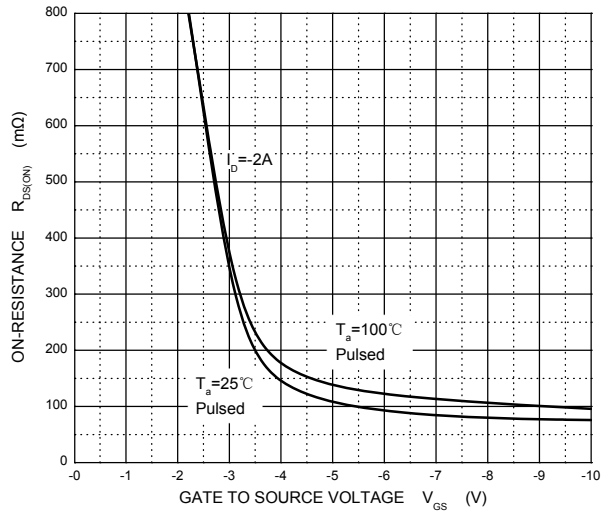
Transfer Characteristics



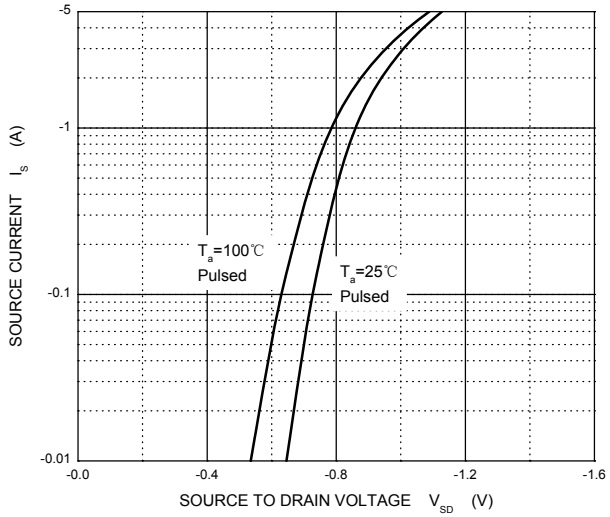
$R_{DS(ON)}$ —— I_D



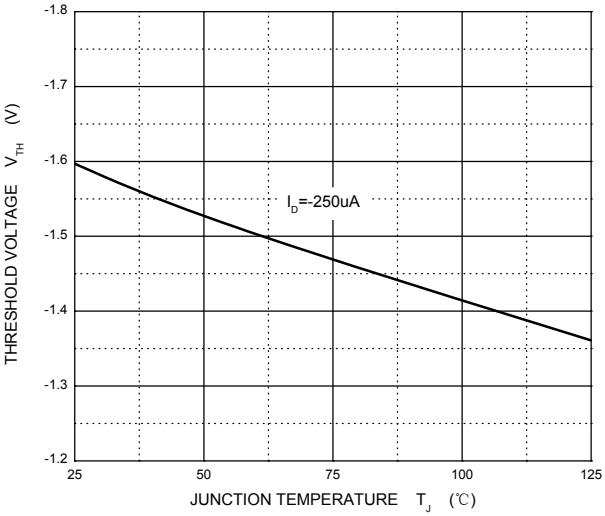
$R_{DS(ON)}$ —— V_{GS}



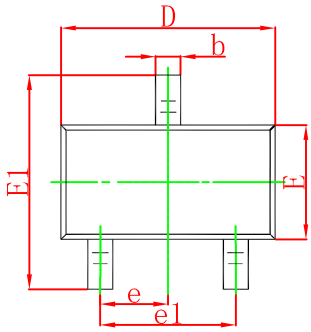
I_S —— V_{SD}

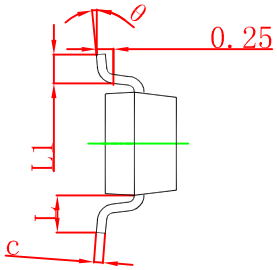


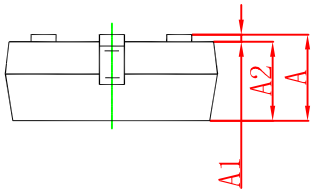
Threshold Voltage



SOT-23 Package Outline Dimensions

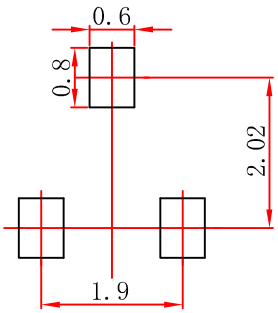






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.