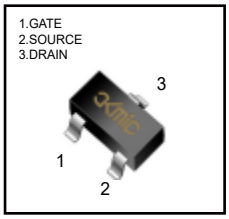
Description

The IRLML2246TRPBF-AK is the high cell density trenched P-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.

General Features

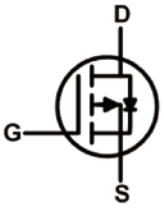
- V_{DSS}=-20V I_D =-2.5A
- $R_{DS(ON)}$ < 98mΩ @ V_{GS}=±12V



SOT23

Applications

- Green Device Available
- Super Low Gate Charge
- Excellent Cdv/dt effect decline
- Advanced high cell density Trench technology



Equivalent Circuit

Ordering information

Product ID	Pack	Marking	Qty(PCS)
IRLML2246TRPBF-AK	SOT23	A1SHB S1	3000

Absolute Maximum Ratings (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-Source Voltage	-20	V
V_{GS}	Continuous Gate-Source Voltage	±12	V
I_D@TA=25℃	Continuous Drain Current, V_{GS}@ -4.5V[1]	-2.5	A
I_D@TA=70℃	Continuous Drain Current, V_{GS}@ -4.5V[1]	-1.4	A
I_{DM}	Pulsed Drain Current[2]	-8	A
P_D@TA=25℃	Power Dissipation[3]	0.8	W
T_J,T_{STG}	Operation Junction and Storage Temperature Range	-55 to 150	℃
$R_{\theta JA}$	Thermal Resistance Junction-ambient[1]	156	℃/W
$R_{\theta JC}$	Thermal ResistanceJunction-Case[1]	---	℃/W

Electrical Characteristics (T_A=25℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250μA	-20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-20V,V_{GS}= 0V	---	---	-1.0	μA
I_{GSS}	Gate -Source leakage current	V_{GS}=±12V, V_{DS}=0V	---	---	±100	nA
ON CHARACTERISTICS						
$V_{GS(th)}$	Gate-threshold voltage	V_{DS}=V_{GS}, I_D=-250μA	-0.4	-0.7	-1.0	V
$R_{DS(on)}$	Drain-Source On-Resistance(note2)	V_{GS}=-4.5V, I_D=-2A	---	98	120	mΩ
		V_{GS}=-2.5V, I_D=-1A	---	129	180	
Dynamic characteristics						
C_{iss}	Input Capacitance	V_{DS}=-10V,V_{GS}=0V,f=1MHz	---	185	---	pF
C_{oss}	Output Capacitance		---	35	---	
C_{rss}	Reverse Transfer Capacitance		---	25	---	
Q_g	TotalGateCharge	V_{DS}=-10V,I_D=-2A, V_{GS}=-4.5V	---	2.2	---	nC
Q_{gs}	Gate-SourceCharge		---	0.5	---	
Q_{gd}	Gate-Drain(“Miller”)Charge		---	0.5	---	
SWITCHING CHARACTERISTICS						
$T_{d(on)}$	Turn-on delay time	V_{DD}=-10V,R_L=5Ω, R_{GEN}=3Ω,V_{GS}=-4.5V,	---	10	---	ns
T_r	Rise time		---	30	---	
$T_{d(off)}$	Turn-off delay time		---	63	---	
T_f	Fall time		---	50	---	
DRAIN-SOURCEDIODECHARACTERISTICSANDMAXIMUMRATINGS						
I_S	Maximum Continuous Drain to Source Diode Forward Current		---	---	-2	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		---	---	-8	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS}=0V,I_S=-2A	---	---	-1.2	V

Notes:

1.Repetitive Rating: Pulse Width Limitedby Maximum Junction Temperature

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

Typical Characteristics

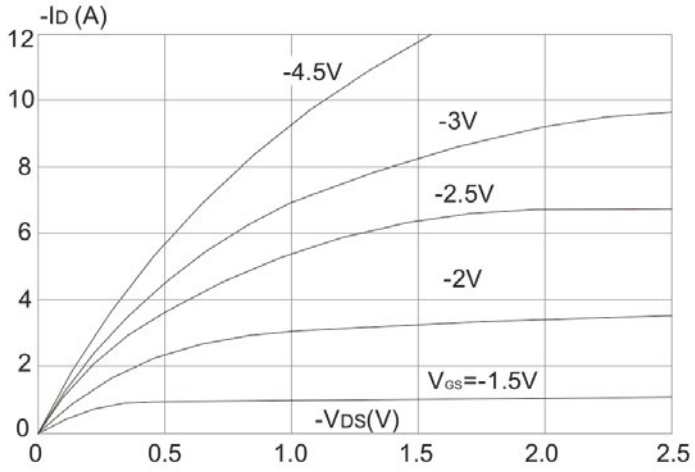


Figure1: Output Characteristics

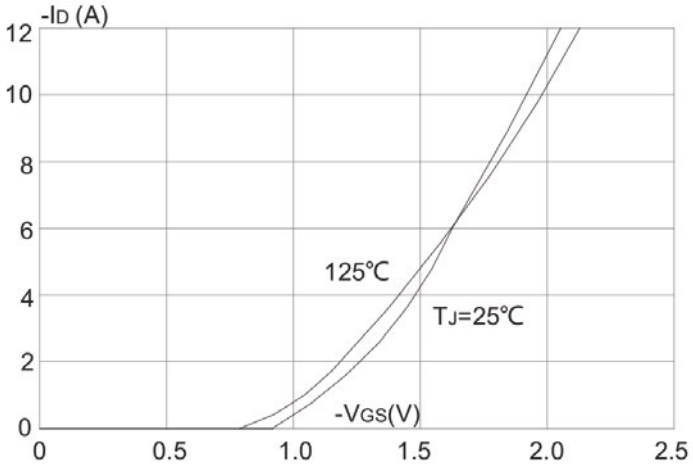


Figure 2: Typical Transfer Characteristics

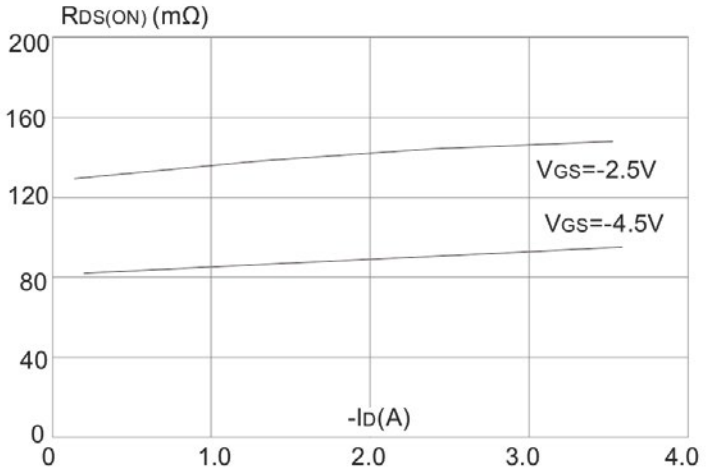


Figure 3:On-resistance vs. Drain Current

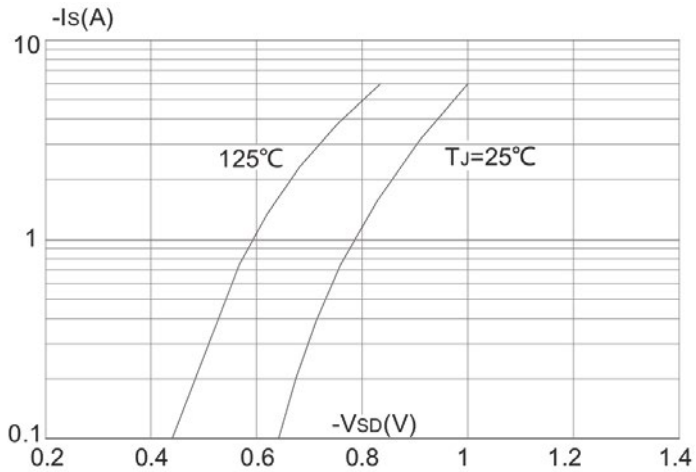


Figure 4: Body Diode Characteristics

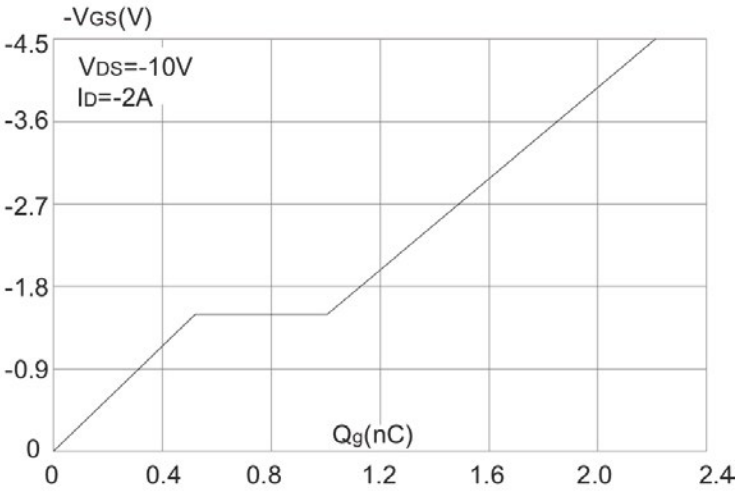


Figure 5: Gate Charge Characteristics

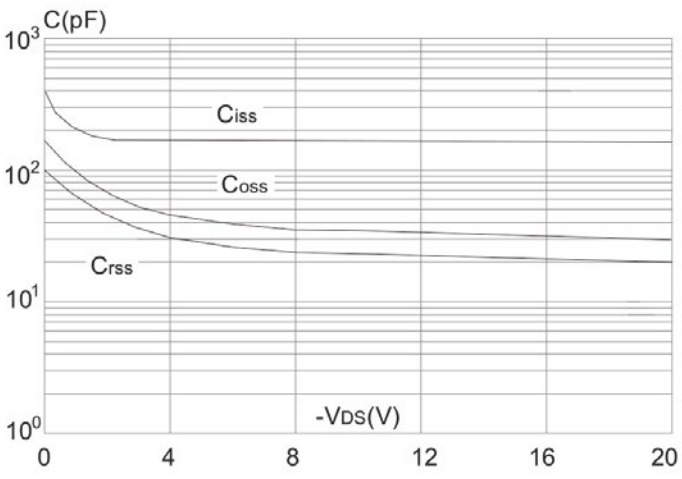


Figure 6: Capacitance Characteristics

Typical Characteristics

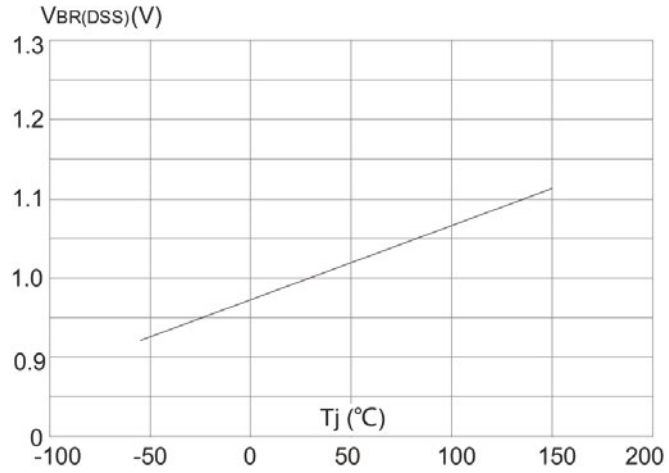


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

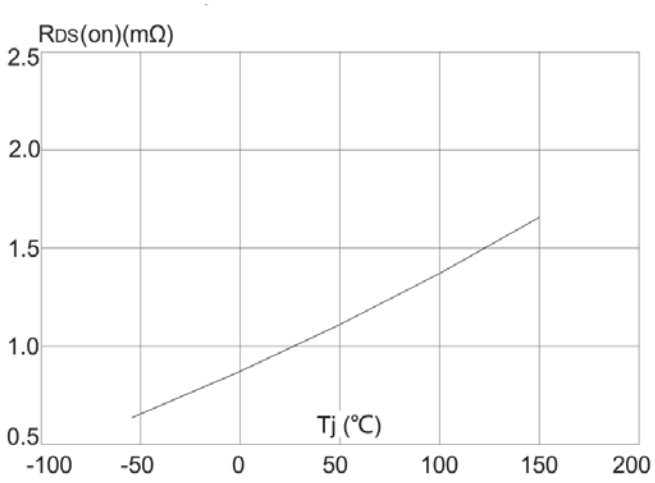


Figure 8: Normalized on Resistance vs. Junction Temperature

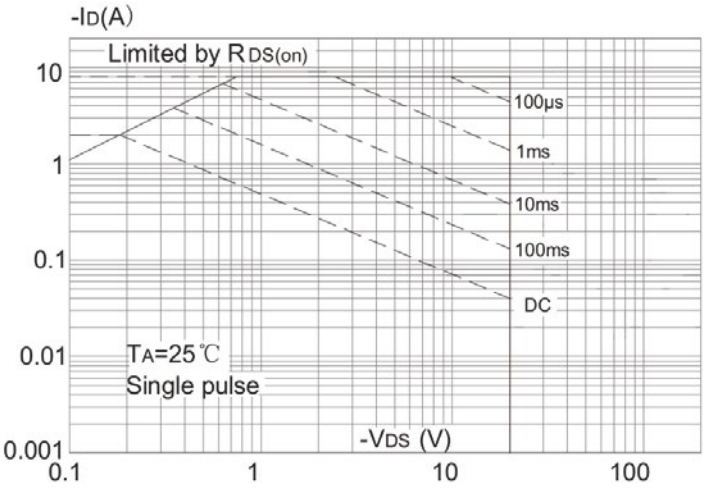


Figure 9: Maximum Safe Operating Area

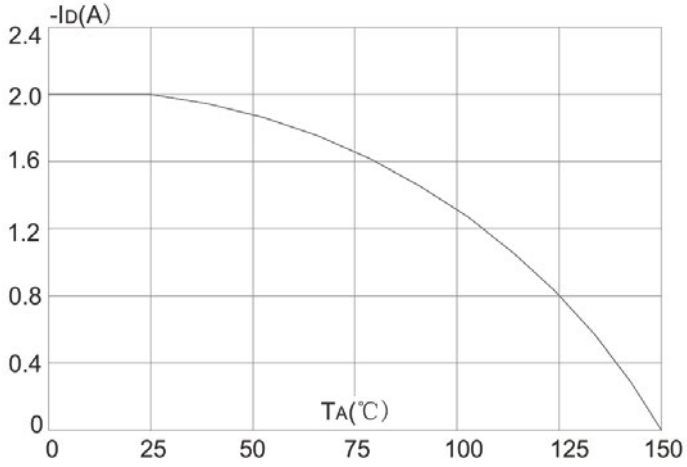


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

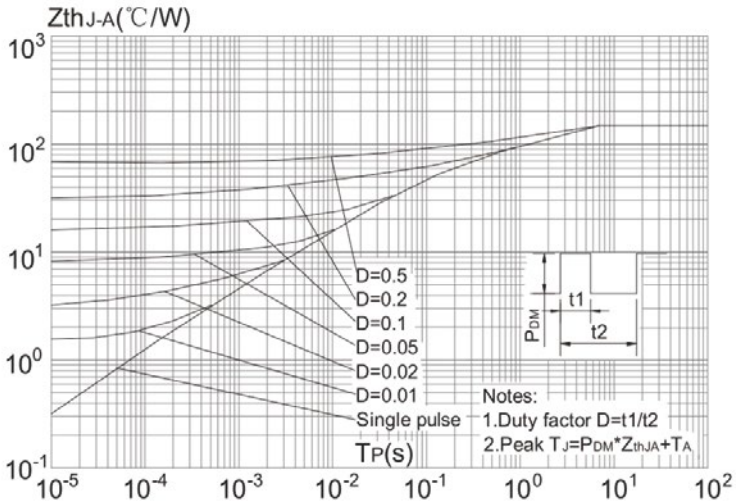
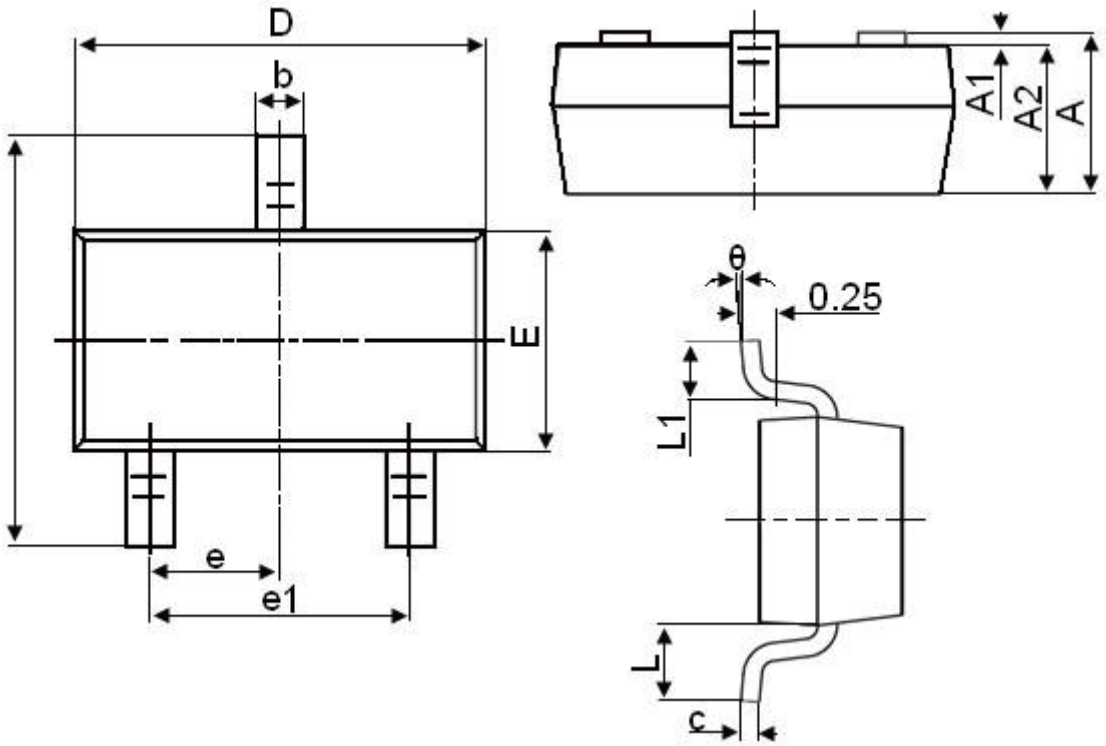


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

SOT23 Package Outline Dimensions



Symbol	Dimensions in Millimeters	
	mm	
	Min	Max
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°