DMG2301LK

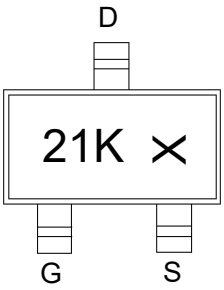
-20V/-2.4A P-Channel MOSFET

Features

- Lead Free Product is Acquired
- Surface Mount Package
- P-Channel Switch with Low $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive

Application

- Load/Power Switching
- Interfacing, Logic Switching
- Battery Management for Ultra Small Portable Electronics



21K: Device code
X : Code

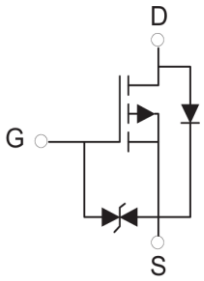
Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
-20V	136mΩ@-4.5V	-2.4A
	183mΩ@-2.5V	



SOT-23 top view



Schematic diagram

Pb-Free RoHS Halogen-Free

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

Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{DS}	Drain-Source Breakdown Voltage		-20	V
V_{GS}	Gate-Source Voltage		±12	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_S	Diode Continuous Forward Current	Tc=25°C	-2.4	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	Tc=25°C	-8	A
I_D	Continuous Drain Current	Tc=25°C	-2.4	A
P_D	Maximum Power Dissipation	Tc=25°C	0.84	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		150	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
DMG2301LK	SOT-23	21K	3,000	45,000	180,000	7"reel

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Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	**Parameter**	**Condition**	**Min**	**Typ**	**Max**	**Unit**
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
$BV_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V，I_D=-250μA	-20	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-16V，V_{GS}=0V	--	--	-10	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±10V，V_{DS}=0V	--	--	±10	μA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}，I_D=-250μA	-0.3	-0.6	-1.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS}=-4.5V，I_D=-1.0A	--	136	160	mΩ
		V_{GS}=-2.5V，I_D=-1.0A	--	183	210	mΩ
		V_{GS}=-1.8V，I_D=-0.2A	--	229	298	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C_{ISS}	Input Capacitance	V_{DS}=-6V，V_{GS}=0V， f=1MHz	--	156	--	pF
C_{OSS}	Output Capacitance		--	36	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	28	--	pF
Switching Characteristics						
Q_g	Total Gate Charge	V_{DS}=-6V，I_D=-2.2A，	--	3.4	--	nC
Q_{gs}	Gate Source Charge		--	0.3	--	nC
Q_{gd}	Gate Drain Charge		--	0.4	--	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=-6V，I_D=-1A， V_{GS}=-4.5V，R_G=6Ω	--	3.2	--	nS
t_r	Turn-on Rise Time		--	7.4	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	11	--	nS
t_f	Turn-Off Fall Time		--	10.5	--	nS
Source- Drain Diode Characteristics						
V_{SD}	Forward on voltage	Tj=25°C，Is=-1.0A	--	--	-1.2	V

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Typical Operating Characteristics

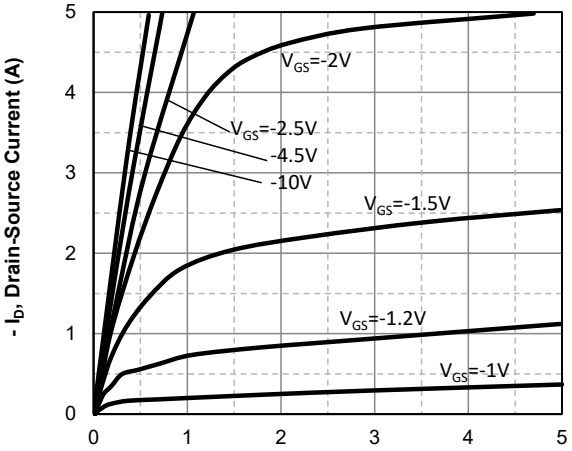


Fig1. Typical Output Characteristics

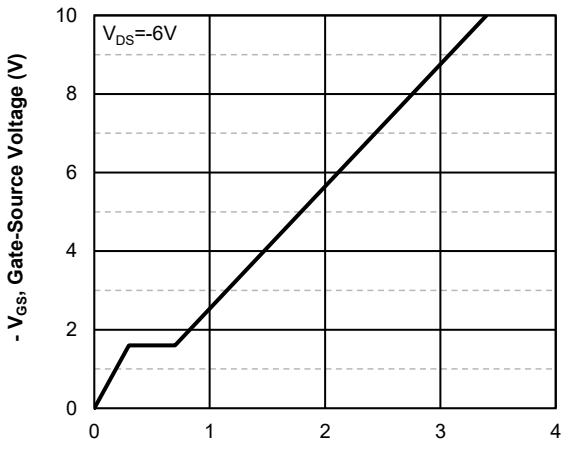


Fig2. Typical Gate Charge Vs.Gate-Source Voltage

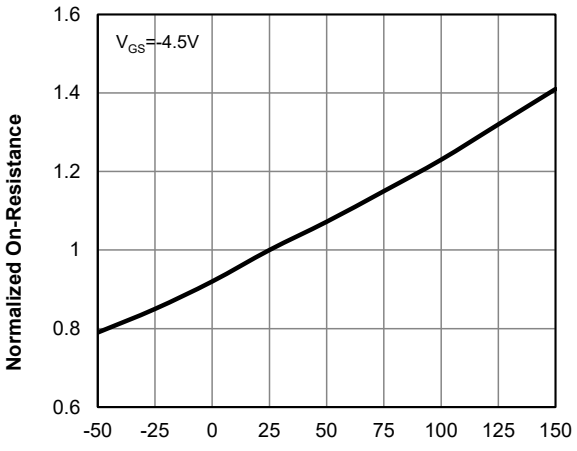


Fig3. Normalized On-Resistance Vs. Temperature

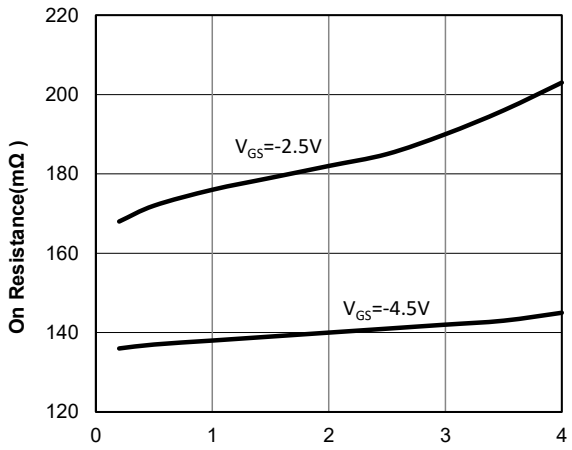


Fig4. On Resistance Vs.Drain-Source Current

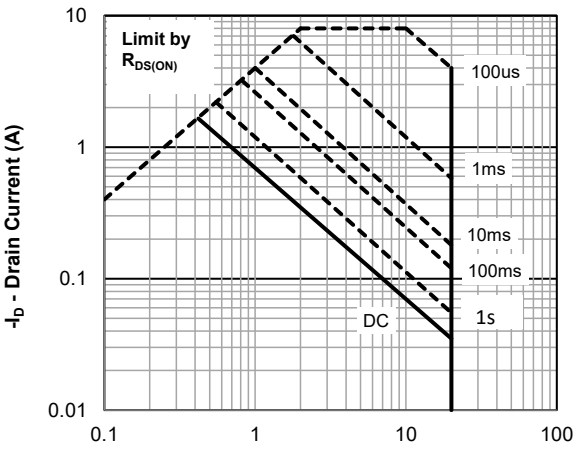


Fig5. Maximum Safe Operating Area

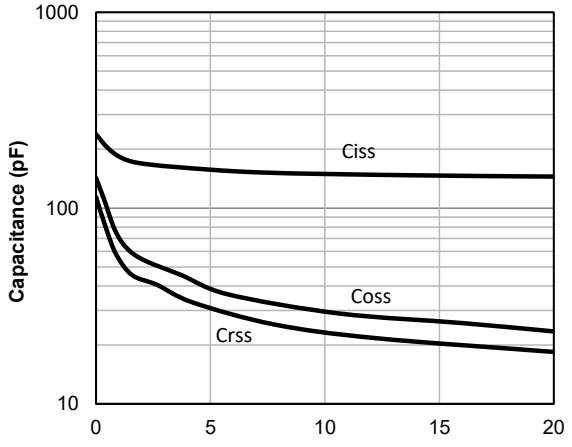
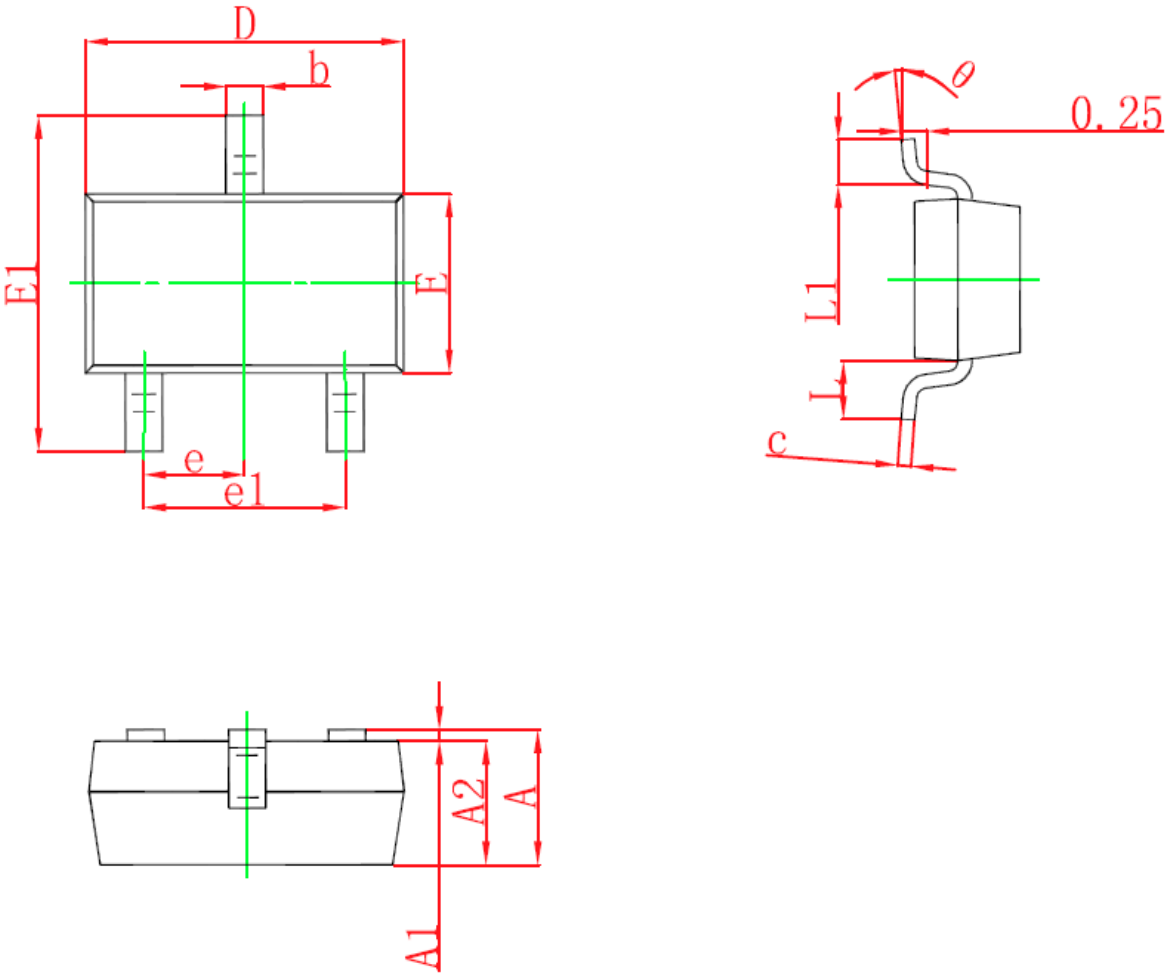


Fig6 Typical Capacitance Vs.Drain-Source Voltage

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SOT-23 Package information



Symbol	Dimensions in Millimeters(mm)		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	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

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