



**SOT-23 Plastic-Encapsulate MOSFETS**

**MKLML6402 P-Channel 20-V(D-S) MOSFET**

V(BR)DSS	RDS(on)MAX	ID
-20 V	65mΩ@-4.5V	-3.7A
	135mΩ@-2.5V	

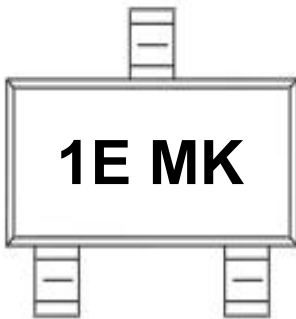
**FEATURE**

- TrenchFET Power MOSFET
- Ultra Low On-Resistance
- Available in Tape and Reel

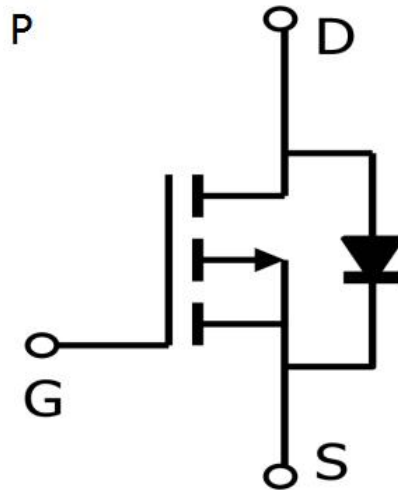
**APPLICATION**

- ※ Load Switch for Portable Devices
- ※ DC/DC Converter

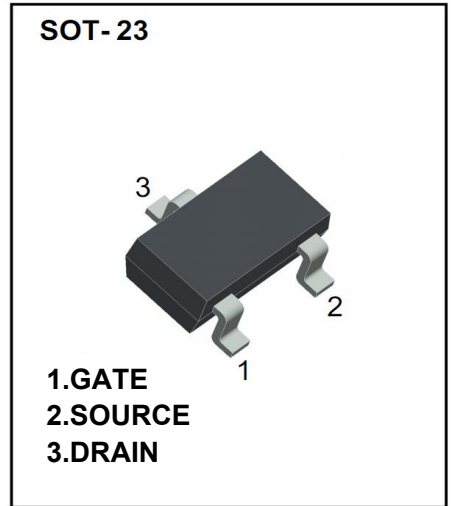
**MARKING**



**Equivalent Circuit**



**SOT-23**



**Maximum ratings ( Ta=25°C unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	-20	V
Gate-Source Voltage	VGS	±12	
Continuous Drain Current	ID	-3.7	A
Pulsed Diode Current	IDM	-22	
Power Dissipation	PD	1.4	W
Thermal Resistance from Junction to Ambient (t≤5s)	RθJA	100	°C/W
Operating Junction	TJ	150	°C
Storage Temperature	TSTG	-55~+150	



MOSFET ELECTRICAL CHARACTERISTICS

Static Electrical Characteristics (Ta = 25 °C Unless Otherwise Noted)

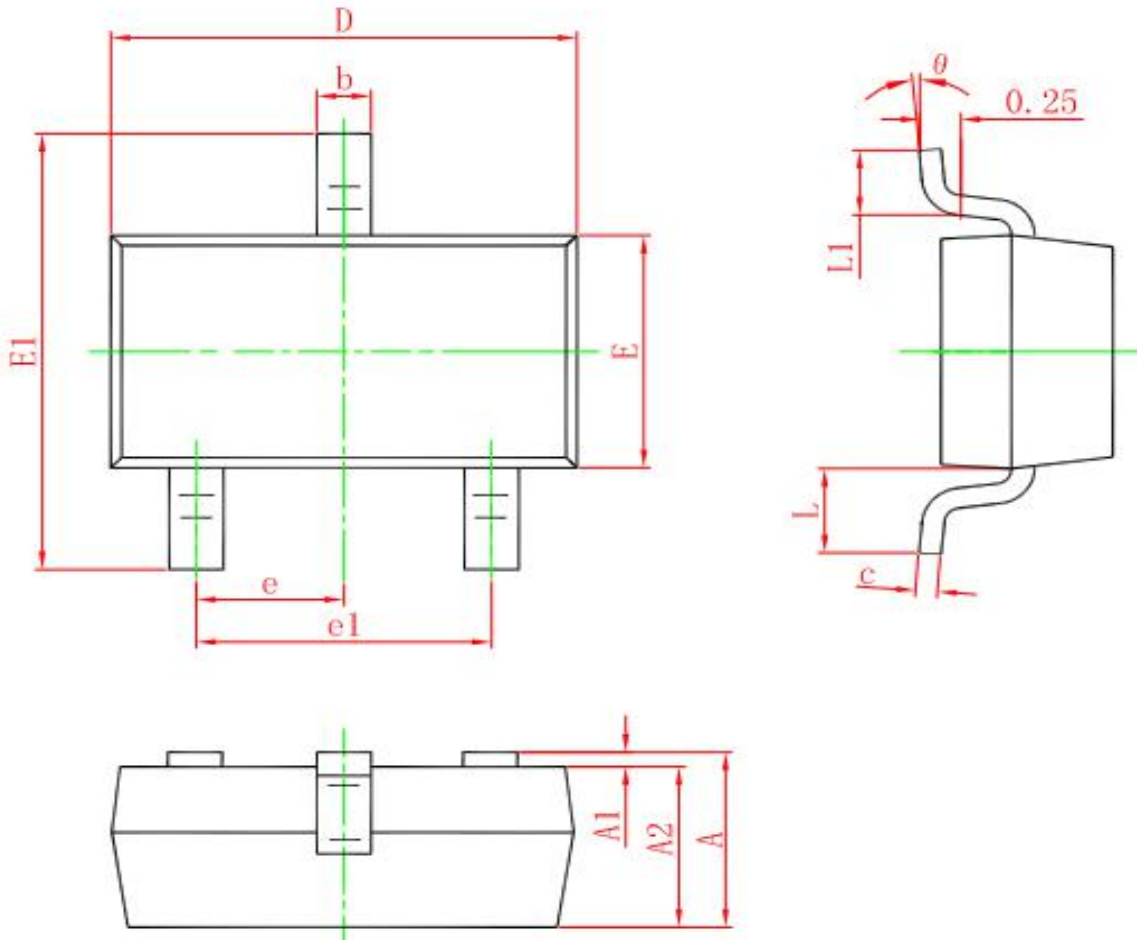
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-source breakdown voltage	V(BR)DSS	VGS = 0V, ID = -250μA	-20			V
Gate-source threshold voltage	VGS(th)	VDS = VGS, ID = -250μA	-0.4		-1.2	V
Gate-source leakage	IGSS	VDS = 0V, VGS = ±12V			±100	nA
Zero gate voltage drain current	IDSS	VDS = -20V, VGS = 0V			-1	μA
Drain-source on-state resistancea	RDS(on)	VGS = -4.5V, ID = -3.7A		50	65	mΩ
		VGS = -2.5V, ID = -3A		80	135	mΩ
Forward transconductancea	gfs	VDS = -4.5V, ID = -3.7A	6			S
Diode forward voltage	VSD	IS=-1A, VGS=0V		-0.8	-1.2	V
Continuous Source-Drain Diode Current	IS				-1.3	A
<b>Dynamic</b>						
Input capacitance	Ciss	VDS = -10V, VGS = 0V, f=1MHz		633		pF
Output capacitance	Coss			145		pF
Reverse transfer capacitanceb	Crss			110		pF
Total gate charge	Qg	VDS = -10V, VGS = -4.5V, ID = -3.7A		8.0		nC
Gate-source charge	Qgs			1.2		nC
Gate-drain charge	Qgd			2.8		nC
Gate resistance	Rg	f=1MHz		6.5		Ω
<b>Switchingb</b>						
Turn-on delay time	td(on)	VDS= -10V RL=6Ω, ID ≈ -1A, VGEN=- 4.5V, Rg=3Ω		12		ns
Rise time	tr			30		ns
Turn-off delay time	td(off)			60		ns
Fall time	tf			50		ns
Body Diode Reverse Recovery Time	Trr	IF= -3.7A, dI/dt=100A/μs		29		ns
Body Diode Reverse Recovery Charge	Qrr	IF= -3.7A, dI/dt=100A/μs		11		nC

**Note :**

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.



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°