



SOT-23 Plastic-Encapsulate MOSFETS

MKLML2502

N-Channel 20-V(D-S) MOSFET

V(BR)DSS	RDS(on)MAX	ID
20 V	45mΩ@ 4.5V	4.2A
	80mΩ@ 2.5V	

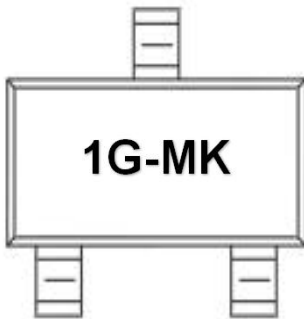
FEATURE

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

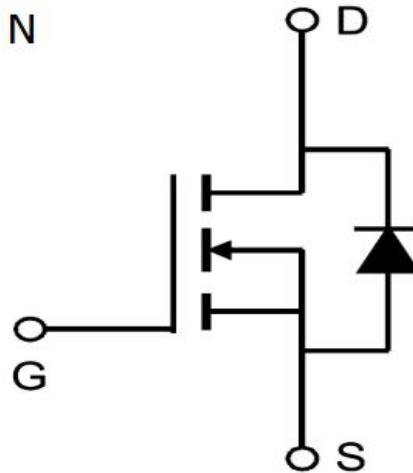
APPLICATION

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

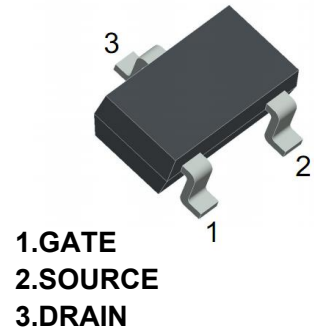
MARKING



Equivalent Circuit



SOT-23



- 1.GATE
- 2.SOURCE
- 3.DRAIN

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	4.2	A
Pulsed Diode Current	IDM	33	
Power Dissipation	PD	1.25	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)

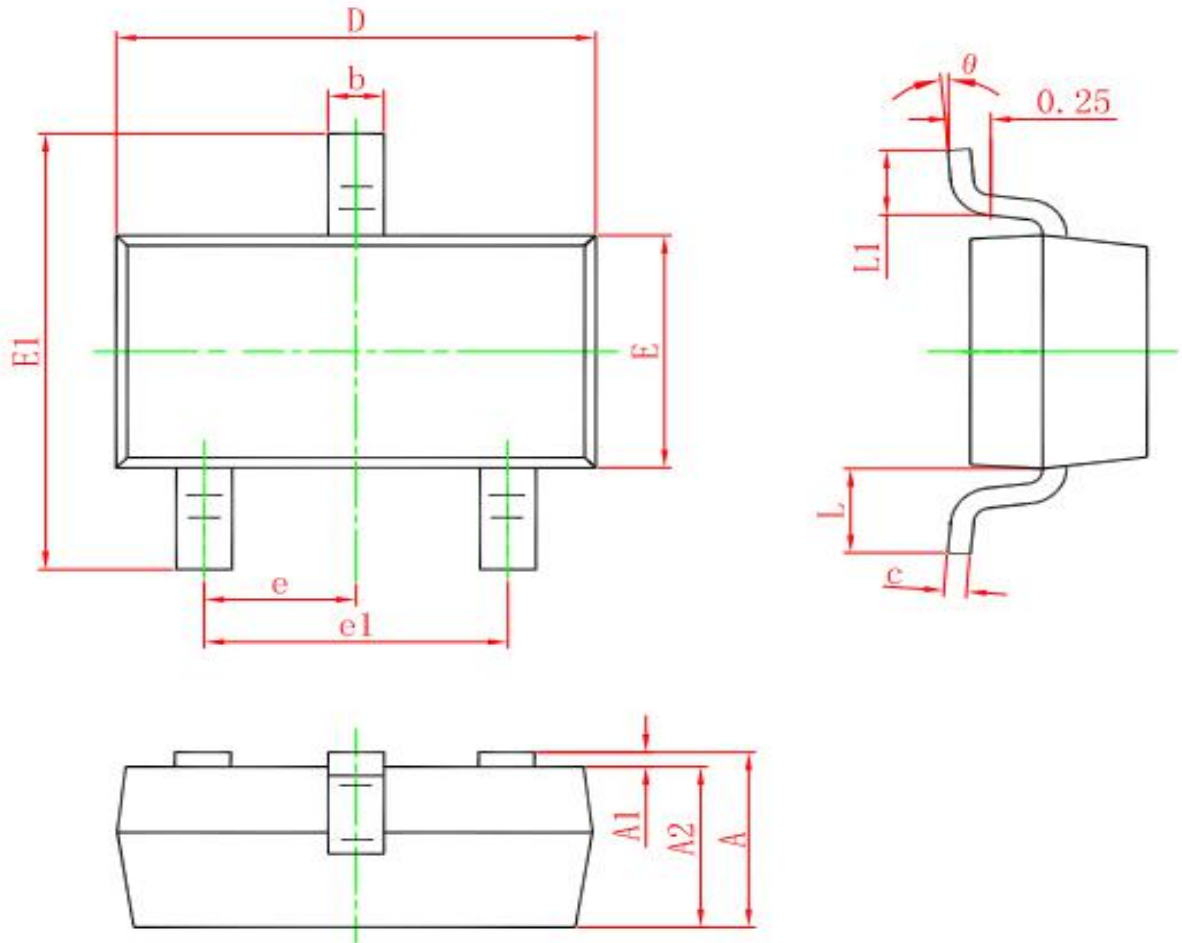
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	V(BR)DSS	VGS = 0V, ID = 250μA	20			V
Gate-source threshold voltage	VGS(th)	VDS =VGS, ID = 250μA	0.6		1.2	V
Gate-source leakage	IGSS	VDS =0V, VGS = ±12V			±100	nA
Zero gate voltage drain current	IDSS	VDS = 16V, VGS =0V			-1	μA
Drain-source on-state resistancea	RDS(on)	VGS = 4.5V, ID = 4.2A		35	45	mΩ
		VGS = 2.5V, ID = 3.6A		50	80	mΩ
Forward transconductancea	gfs	VDS = 4.5V, ID = 4.2A	5.8			S
Diode forward voltage	VSD	IS=1A, VGS=0V		-0.8	-1.2	V
Continuous Source-Drain Diode Current	IS				-1.3	A
Dynamic						
Input capacitance	Ciss	VDS = 15V, VGS =0V, f=1MHz		740		pF
Output capacitance	Coss			90		pF
Reverse transfer capacitanceb	Crss			66		pF
Total gate charge	Qg	VDS = 15V, VGS = 4.5V, ID = 4.2A		8.0		nC
Gate-source charge	Qgs			1.8		nC
Gate-drain charge	Qgd			1.7		nC
Gate resistance	Rg	f=1MHz		6.5		Ω
Switchingb						
Turn-on delay time	td(on)	VDS= 10V RL=6Ω, ID ≈ 1A, VGEN= 4.5V,Rg=3Ω		7.5		ns
Rise time	tr			10		ns
Turn-off delay time	td(off)			54		ns
Fall time	tf			26		ns
Body Diode Reverse Recovery Time	Trr	IF= 4.2A, dI/dt=100A/μs		16		ns
Body Diode Reverse Recovery Charge	Qrr	IF= 4.2A, dI/dt=100A/μs		8.6		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°