SHENZHEN MENGKE ELECTRONICS TECHNOLOGY CO.,LTD

SOT-23-3L Plastic-Encapsulate MOSFETS

MK3402A N-Channel 30-V(D-S) MOSFET

V(BR)DSS	RDS(on)MAX	ID
30 V	55mΩ@10V	4A
	70mΩ@4.5V	
	110mΩ@2.5V	

FEATURE

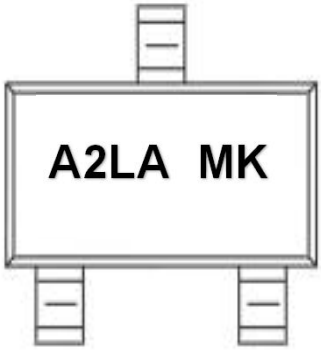
※ TrenchFET Power MOSFET

APPLICATION

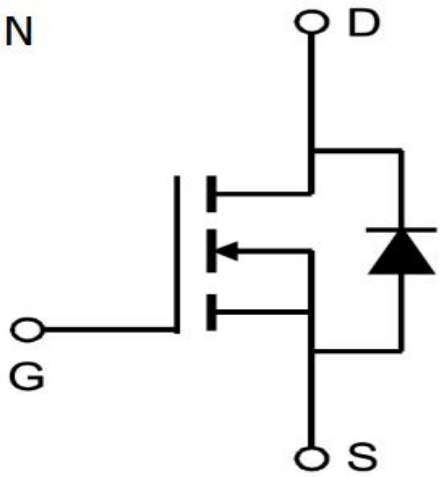
※ Load Switch for Portable Devices

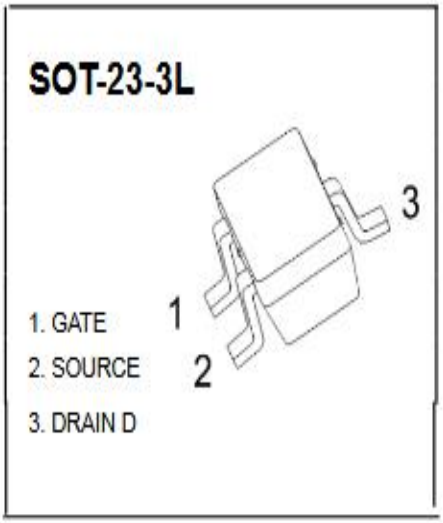
※ DC/DC Converter

MARKING



Equivalent Circuit





Maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	**VDS**	30	V
Gate-Source Voltage	**VGS**	±12	
Continuous Drain Current	**ID**	4	A
Pulsed Diode Curren	**IDM**	15	
Continuous Source-Drain Current(Diode Conduction)	**IS**	0.8	
Power Dissipation	**PD**	1.4	W
Thermal Resistance from Junction to Ambient (t≤5s)	**RθJA**	125	℃/W
Operating Junction	**TJ**	150	℃
Storage Temperature	**TSTG**	-55~+150	℃

MOSFET ELECTRICAL CHARACTERISTICS

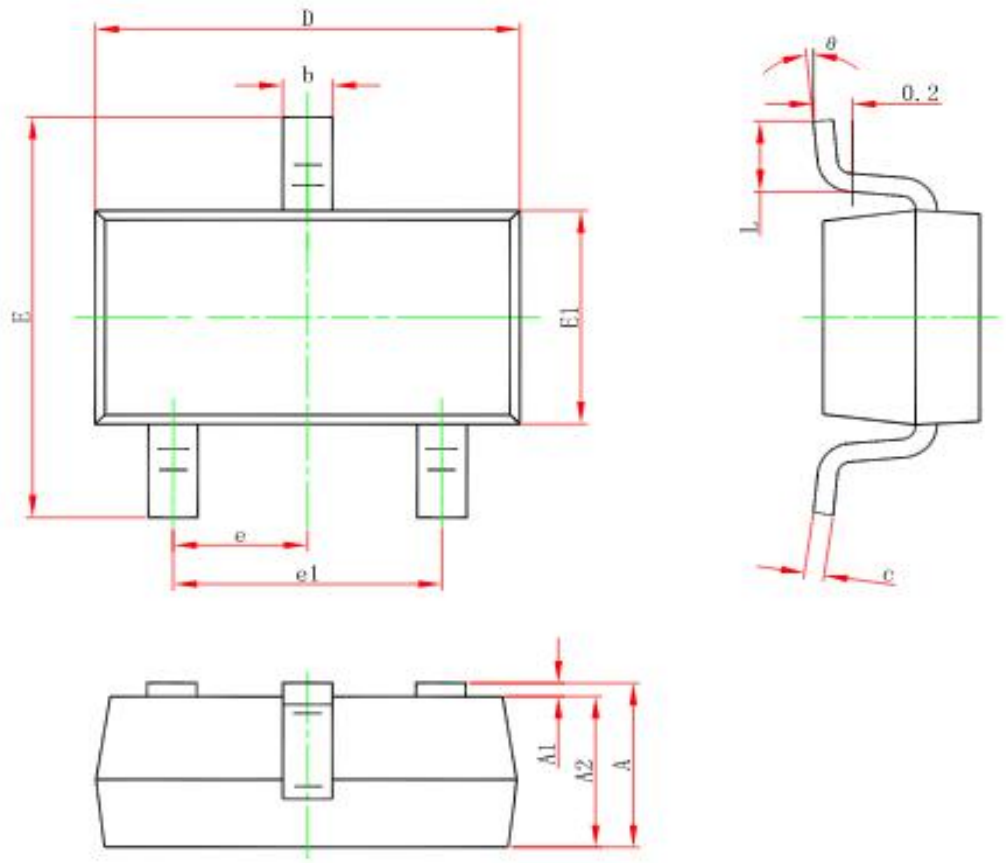
Static Electrical Characteristics (Ta = 25 ℃ Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	**V(BR)DSS**	VGS = 0V, ID = 250μA	30			V
Gate-source threshold voltage	**VGS(th)**	VDS =VGS, ID = 250μA	0.6		1.4	V
Gate-source leakage	**IGSS**	VDS =0V, VGS = ±12V			±100	nA
Zero gate voltage drain current	**IDSS**	VDS = 30V, VGS =0V			1	μA
Drain-source on-state resistancea	**RDS(on)**	VGS = 10V, ID = 4A		38	55	mΩ
		VGS = 4.5V, ID = 3A		44	70	mΩ
		VGS = 2.5V, ID = 1A		52	110	mΩ
Forward transconductancea	**gfs**	VDS = 4.5V, ID = 4A	8			S
Diode forward voltage	**VSD**	IS=1A,VGS=0V		0.7	1.3	V
Dynamic						
Input capacitance	**Ciss**	VDS = 15V,VGS =0V, f=1MHz		390		pF
Output capacitance	**Coss**			54.5		pF
Reverse transfer capacitanceb	**Crss**			41		pF
Total gate charge	**Qg**	VDS = 15V,VGS = 10V, ID = 4A		11	14	nC
Gate-source charge	**Qgs**			1.3		nC
Gate-drain charge	**Qgd**			2.8		nC
Gate resistance	**Rg**	f=1MHz			3.6	Ω
Switchingb						
Turn-on delay time	**td(on)**	VDS= 15V RL=10Ω, ID ≈ 1A, VGEN= 10V, Rg=6Ω		3.3		ns
Rise time	**tr**			1		ns
Turn-off delay time	**td(off)**			21.7		ns
Fall time	**tf**			2.1		ns
Drain-source body diode characteristics						
Continuous Source-Drain Diode Current	**IS**	Tc=25℃			1.2	A
Body Diode Reverse Recovery Time	**trr**	IF=4A, dI/dt=100A/us		12		ns
Body Diode Reverse Recovery Charge	**Qrr**	IF=4A, dI/dt=100A/us		6.3		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.

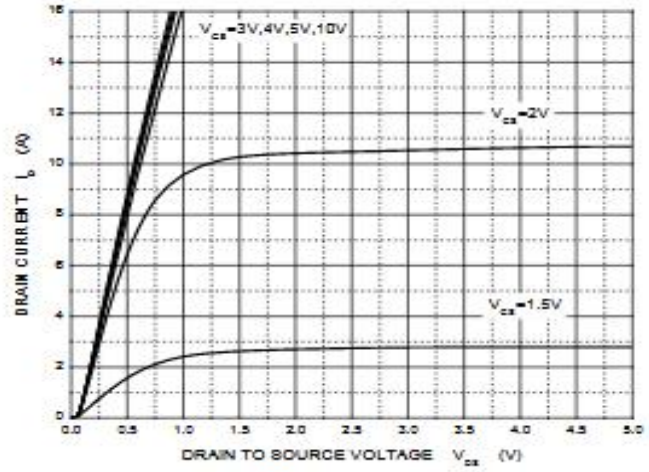
SOT-23-3L PACKAGE OUTLINE DIMENSIONS



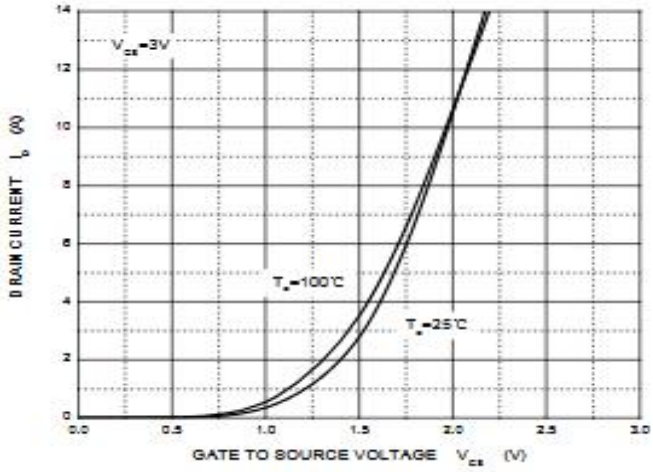
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Typical Characteristics：

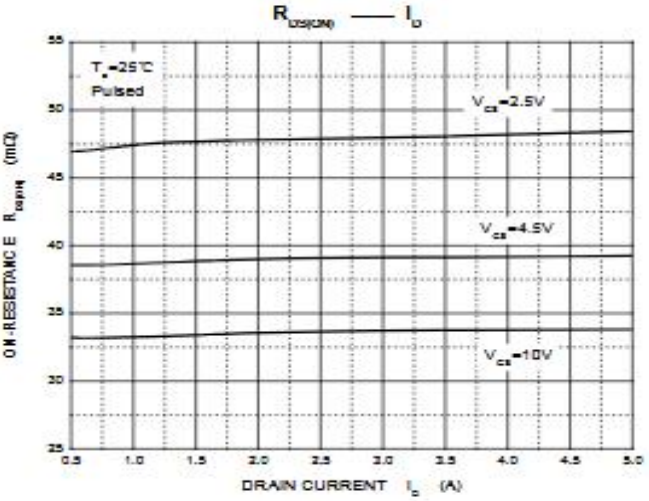
Output Characteristics



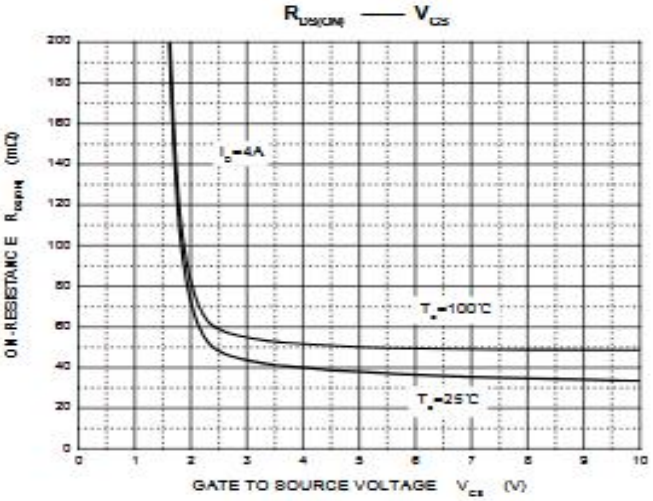
Transfer Characteristics



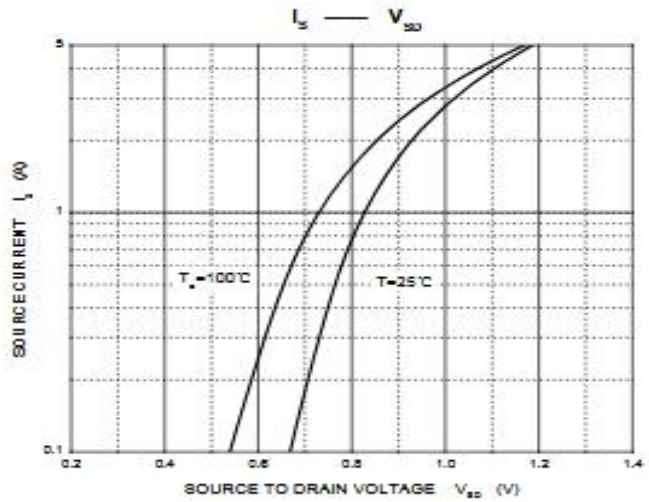
$R_{DS(ON)}$ —— I_D



$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}



Threshold Voltage