SHENZHEN MENGKE ELECTRONICS TECHNOLOGY CO.,LTD

SOT-23-3L Plastic-Encapsulate MOSFETS

MK3406A N-Channel 30-V(D-S) MOSFET

V(BR)DSS	RDS(on)MAX	ID
30 V	65mΩ@10V	3.6A
	90mΩ@4.5V	

FEATURE

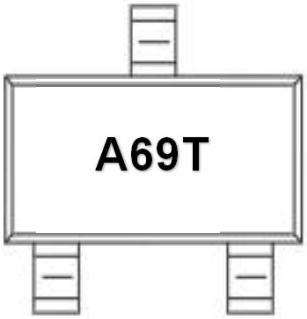
※ TrenchFET Power MOSFET

APPLICATION

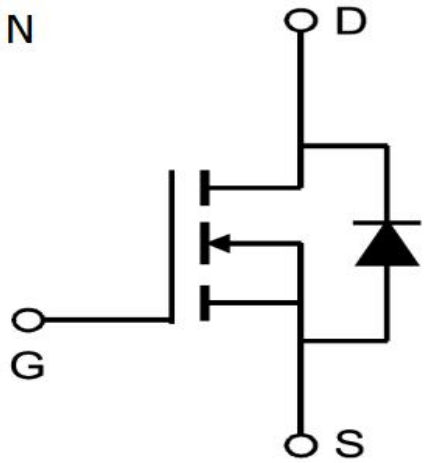
※ Load Switch for Portable Devices

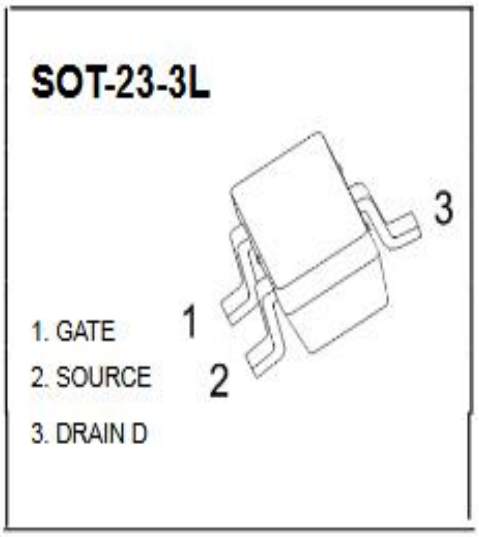
※ DC/DC Converter

MARKING



Equivalent Circuit





Maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	**VDS**	30	V
Gate-Source Voltage	**VGS**	±20	
Continuous Drain Current	**ID**	3.6	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

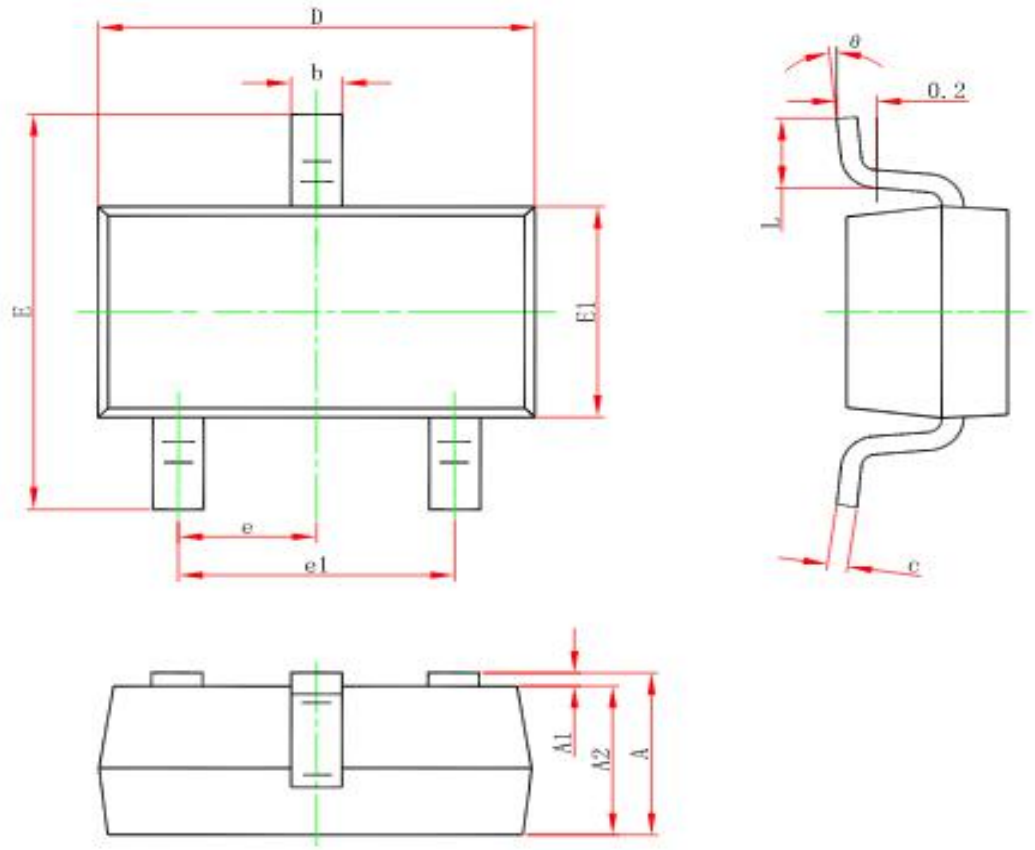
Static Electrical Characteristics (Ta = 25 ℃ Unless Otherwise Noted)

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	1		2	V
Gate-source leakage	**IGSS**	VDS =0V, VGS = ±20V			±100	nA
Zero gate voltage drain current	**IDSS**	VDS = 24V, VGS =0V			1	μA
Drain-source on-state resistancea	**RDS(on)**	VGS = 10V, ID = 3.5A		31.5	65	mΩ
		VGS = 4.5V, ID = 2.8A		43	90	mΩ
Forward transconductancea	**gfs**	VDS = 4.5V, ID = 3.6A		7		S
Diode forward voltage	**VSD**	IS=1A,VGS=0V		0.8	1.3	V
Dynamic						
Input capacitance	**Ciss**	VDS = 15V,VGS =0V, f=1MHz		288		pF
Output capacitance	**Coss**			57		pF
Reverse transfer capacitanceb	**Crss**			39		pF
Total gate charge	**Qg**	VDS = 15V,VGS = 10V, ID = 3.6A		6.5		nC
Gate-source charge	**Qgs**			1.2		nC
Gate-drain charge	**Qgd**			1.6		nC
Gate resistance	**Rg**	f=1MHz		3	6	Ω
Switchingb						
Turn-on delay time	**td(on)**	VDS= 15V RL=3Ω, ID ≈ 1A, VGEN= 10V,Rg=3Ω		4.6		ns
Rise time	**tr**			1.9		ns
Turn-off delay time	**td(off)**			20.1		ns
Fall time	**tf**			2.7		ns
Drain-source body diode characteristics						
Continuous Source-Drain Diode Current	**IS**	Tc=25℃			1.3	A
Body Diode Reverse Recovery Time	**Trr**	IF= 3.6A, dI/dt=100A/μs		10.2		ns
Body Diode Reverse Recovery Charge	**Qrr**	IF= 3.6A, dI/dt=100A/μs		3.5		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：

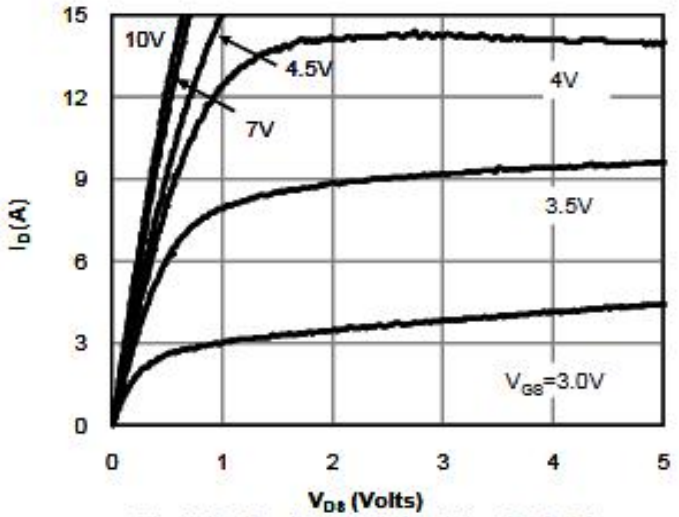


Fig 1: On-Region Characteristics (Note E)

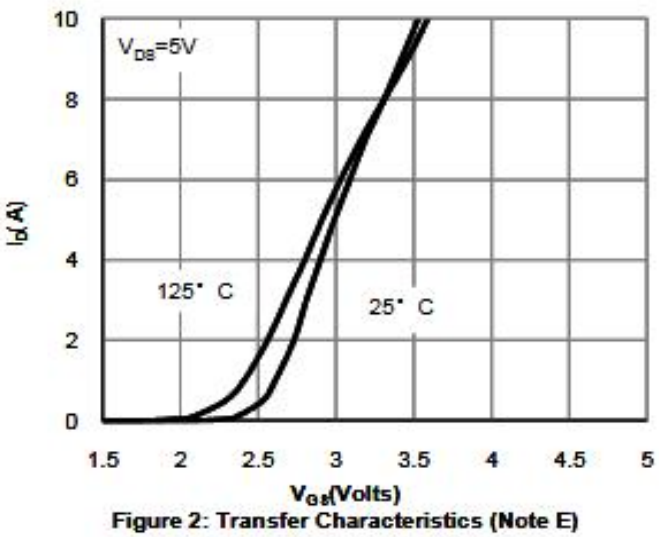


Figure 2: Transfer Characteristics (Note E)

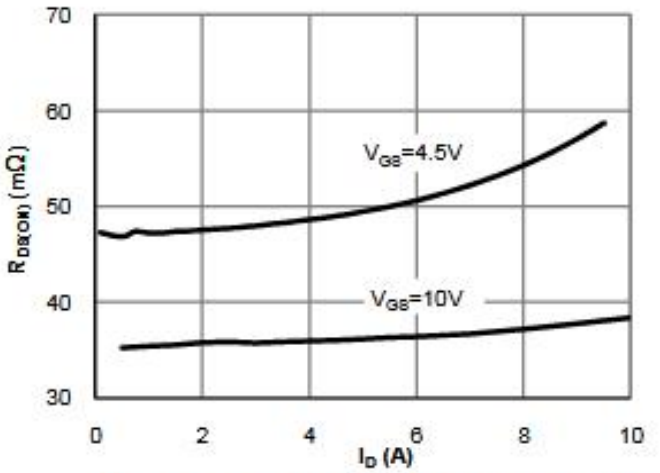


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

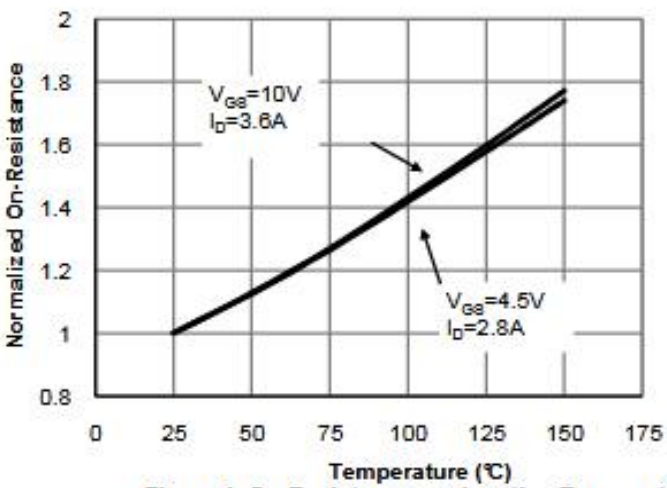


Figure 4: On-Resistance vs. Junction Temperature (Note E)

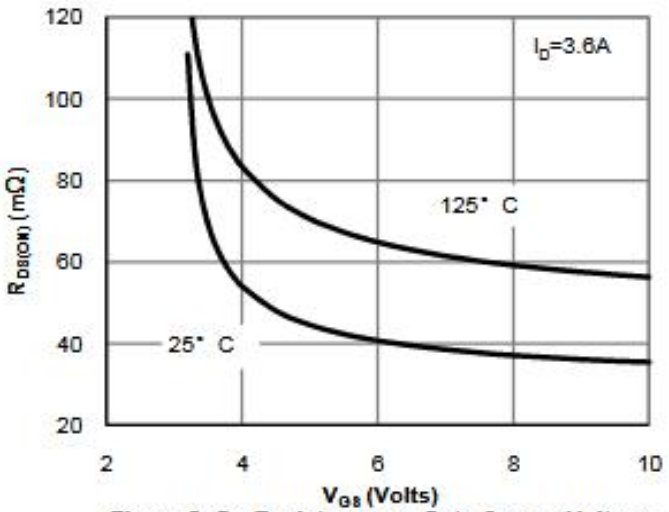


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

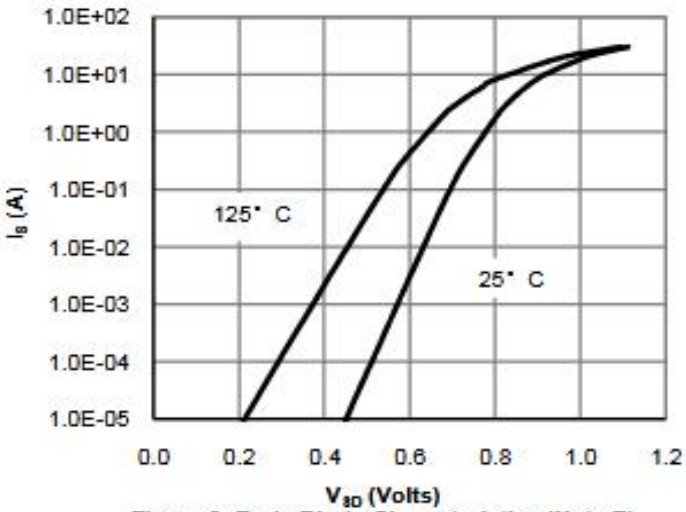


Figure 6: Body-Diode Characteristics (Note E)

Typical Characteristics：

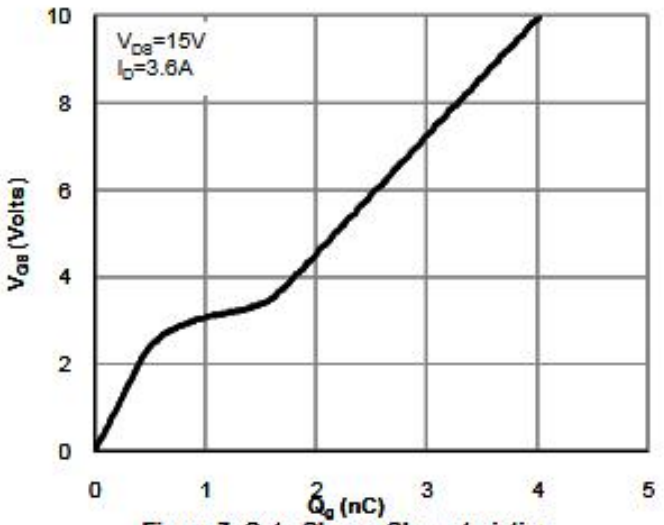


Figure 7: Gate-Charge Characteristics

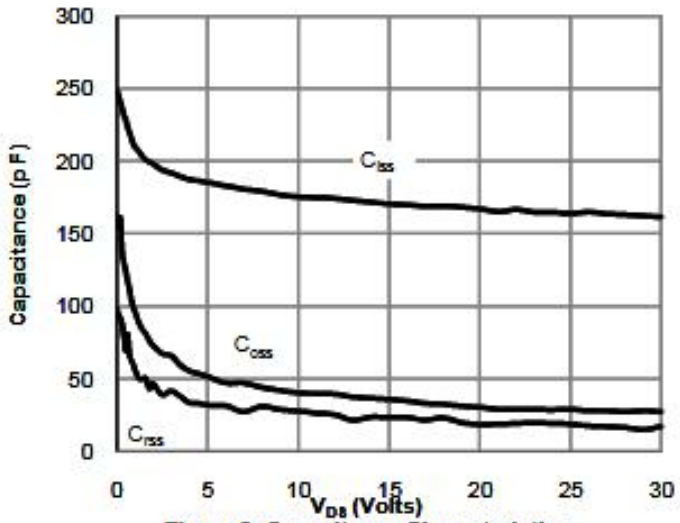


Figure 8: Capacitance Characteristics

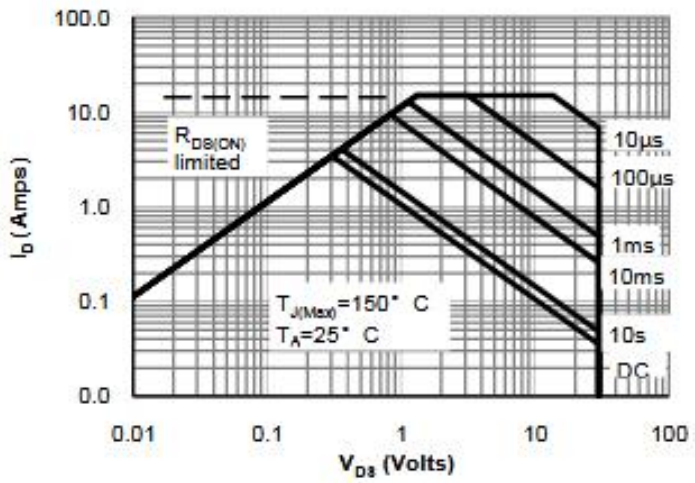


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

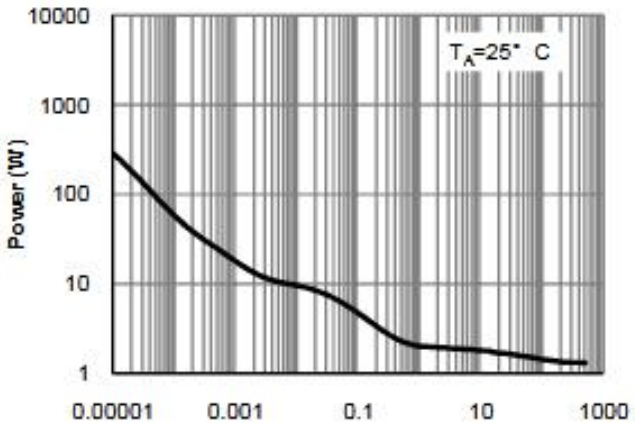


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

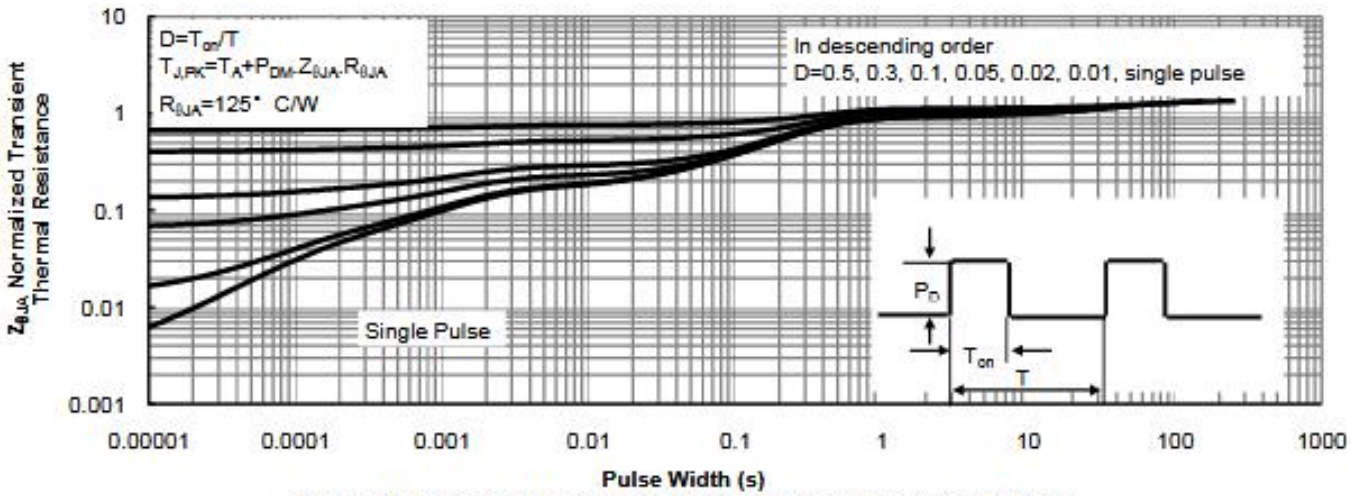


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)