AO3406

N-Channel MOSFET

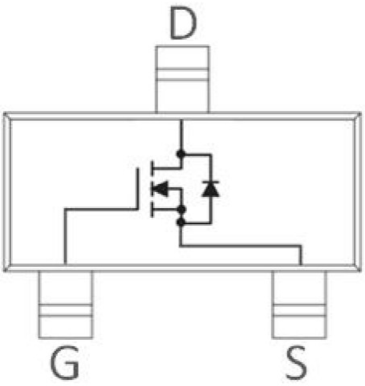
FEATURES

- ✧Epoxy meets UL 94 V-0 flammability rating
- ✧High density cell design for low RDS(ON)
- ✧Rugged and reliable
- ✧Trench Power LV MOSFET technology
- ✧ Marking: A69T

APPLICATIONS

- ✧Battery management
- ✧High speed switch
- ✧Low power DC to DC converter

PIN CONFIGURATION



Package: SOT-23

ABSOLUTE MAXIMUM RATING (Tamb=25°C)

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current	3.6	A
I_{DM}	Drain Current-Pulsed	14	A
P_D	Total Power Dissipation	350	mW
T_J & T_{stg}	Junction Temperature and Storage Temperature	-55 to 150	°C
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient (t≤5s)	357	°C/W

ELECTRICAL CHARACTERISTICS (Tamb=25°C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
$V_{(BR)DSS}$	Drain-Source Voltage Breakdown Voltage	V_{GS}=0V, I_D=250uA	30			V
$V_{GS(th)}$	Gate-Threshold Voltage	V_{DS}=VGS, I_D=250uA	1.0	1.6	2.2	V
I_{GSS}	Gate-Body Leakage	V_{DS}=0V, V_{GS}=±20V			100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V			1	μA
$R_{DS(on)}$	Drain-Source On-Resistance①	V_{GS}=10V, I_D=3.5A V_{GS}=4.5V, I_D=2.8A		32 48	60 75	mΩ
g_{FS}	Forward Tranconductance①	V_{DS}=4.5V, I_D=2.5A	2.5			S
V_{SD}	Diode Forward Voltage	I_S=3A			1.0	V

Dynamic Characteristics (Tamb=25°C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
Ciss	Input Capacitance②	V_{DS}=15V V_{GS}=0V f=1MHZ		287		pF
Coss	Output Capacitance②			40		
Crss	Reverse Transfer Capacitance②			30		

Switching Characteristics (Tamb=25°C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
$t_{d(on)}$	Turn on Delay Time	V_{GS}=5V, V_{DS}=10V, R_L=2.7Ω,R_{GEN}=6Ω		5.5	6.5	nS
t_r	Turn-on Rise Time			2.5		
$t_{d(off)}$	Turn off Delay Time			18.5		
t_f	Turn-off Fall Time			15.5		

Note:

① Pulse test: Pulse width≤300μS, duty cycle≤0.5%.

② These parameters have no way to verify.

ELECTRICAL CHARACTERISTICS CURVE

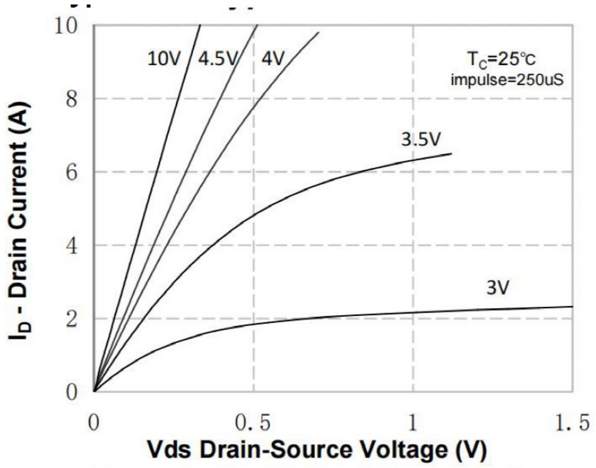


Figure 1. On-Region Characteristics

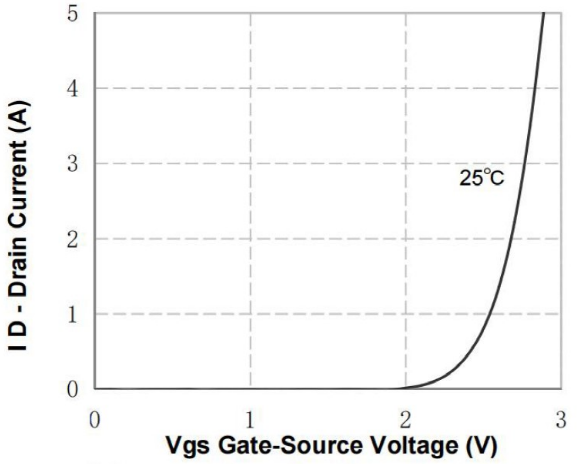


Figure 2. Transfer Characteristics

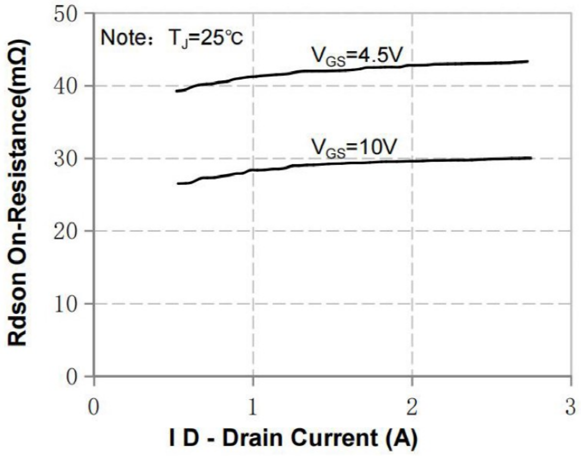


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

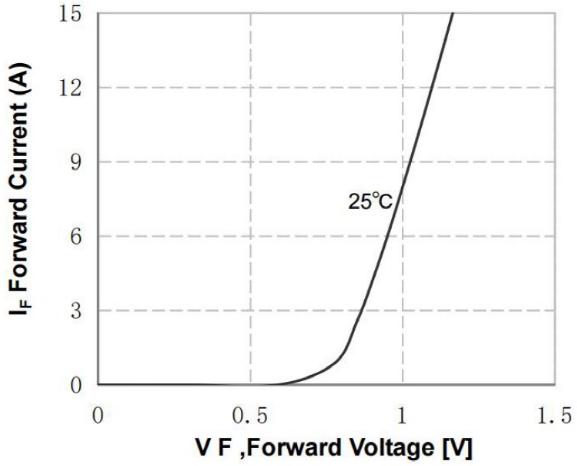


Figure 4. Body Diode Forward Voltage Variation with Source Current

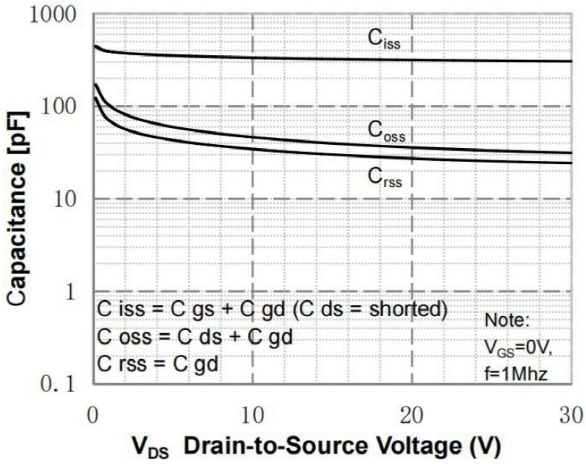


Figure 5. Capacitance Characteristics

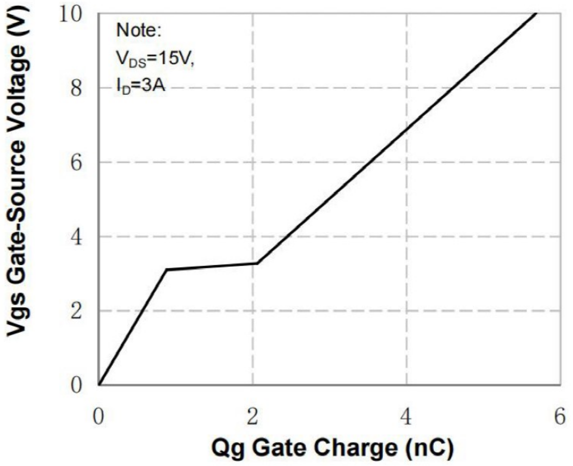


Figure 6. Gate Charge Characteristics

ELECTRICAL CHARACTERISTICS CURVE

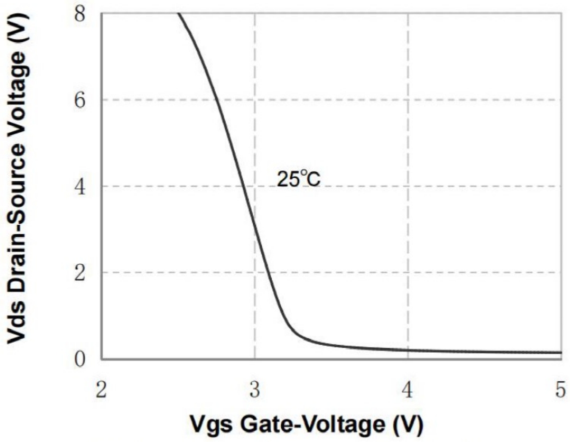


Figure 7. Vds Drain-Source Voltage vs Gate Voltage

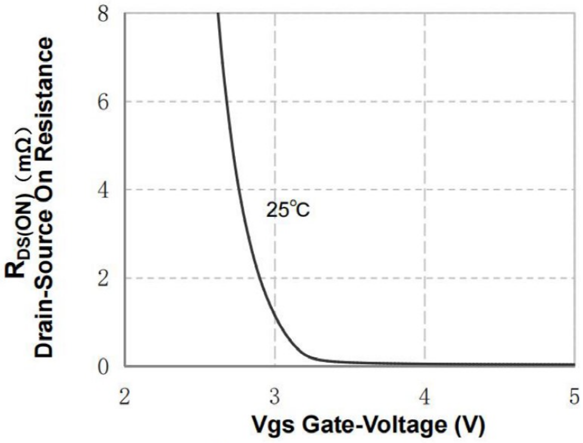


Figure 8. On-Resistance vs Gate Voltage

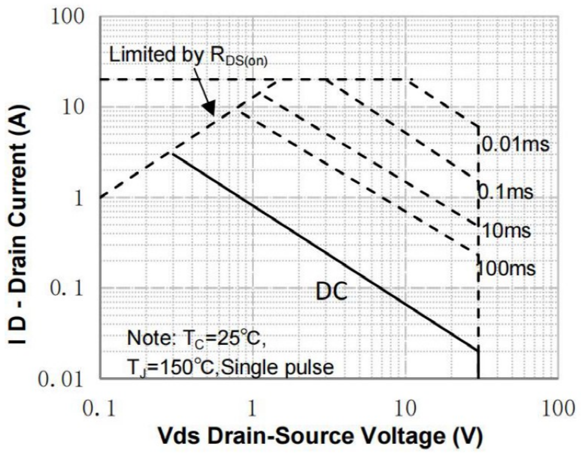


Figure 9. Maximum Safe Operating Area

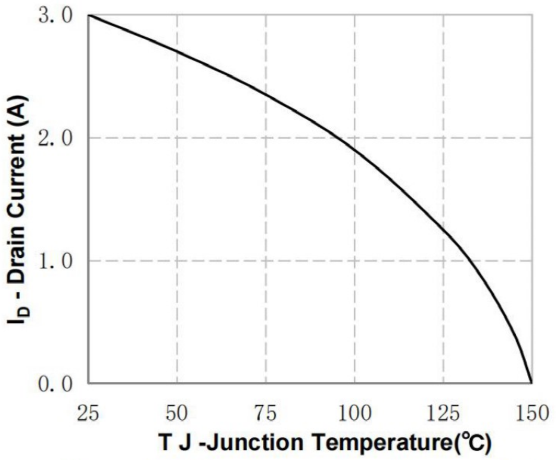


Figure 10. Maximum Continuous Drain Current vs Temperature

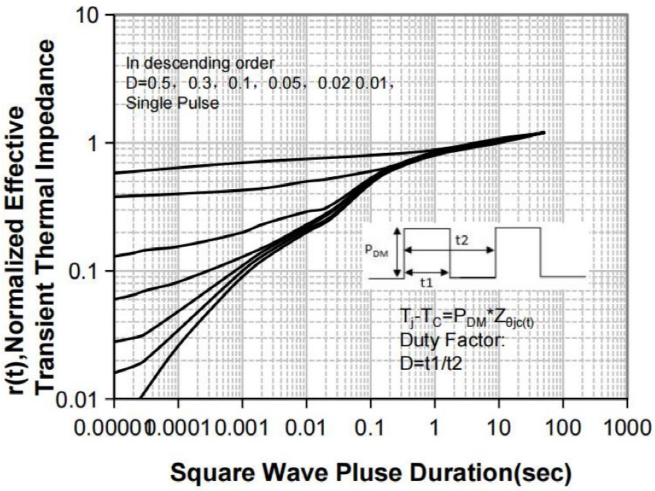
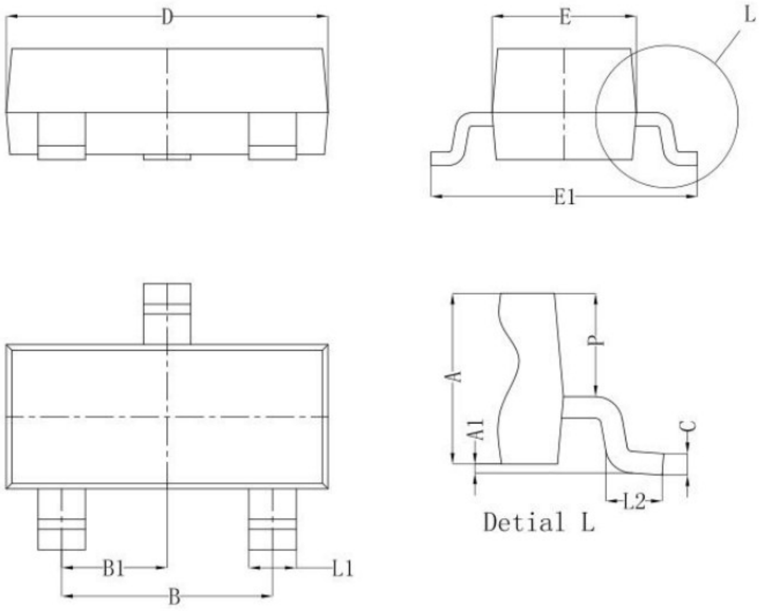


Figure 11. Transient Thermal Response Curve

SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dim in mm		
	Min	Nom	Max
A	0. 900	1. 000	1. 100
A1	0. 000	0. 050	0. 100
B	1. 800	1. 900	2. 000
B1	0. 950 TYP		
C	0. 100	0. 110	0. 120
D	2. 800	2. 900	3. 000
E	1. 250	1. 300	1. 350
E1	2. 250	2. 400	2. 550
L1	0. 350	0. 400	0. 500
L2	0. 200	0. 350	0. 450
P	0. 550	0. 575	0. 600