

N-Channel MOSFET

Features

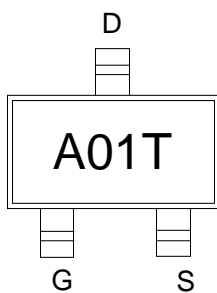
- Trench Power LV MOSFET technology
- High Power and current handing capability

Application

- PWM application
- Load switch

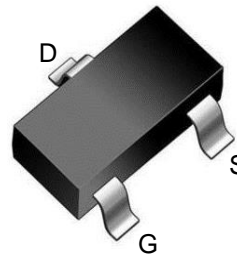
Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
30V	50m Ω @10V	4A
	60m Ω @4.5V	

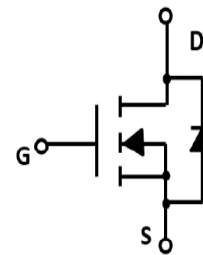


A01T: Device code

Marking and pin assignment



SOT-23 top view

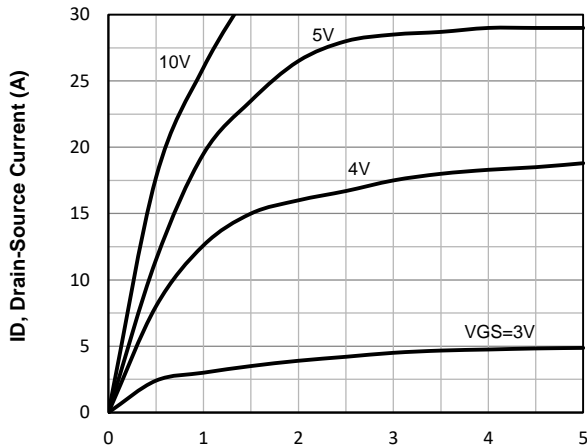


Schematic diagram

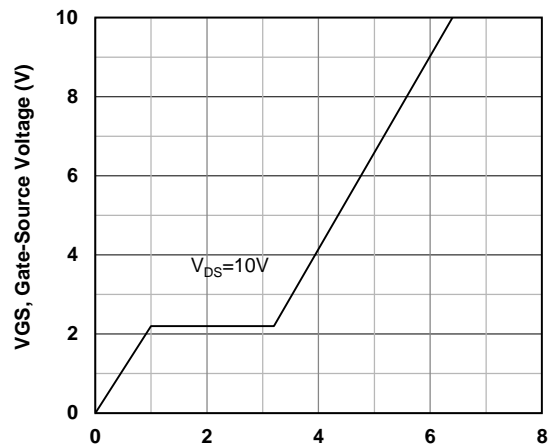
Absolute Maximum Ratings (TA=25°C unless otherwise noted)				
Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{DS}	Drain-Source Breakdown Voltage		30	V
V_{GS}	Gate-Source Voltage		± 20	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_S	Diode Continuous Forward Current	$T_c=25^\circ\text{C}$	4	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$	15	A
I_D	Continuous Drain Current@GS=10V	$T_c=25^\circ\text{C}$	4	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$	1	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient>(*1 in2 Pad of 2-oz Copper), Max.)		125	°C/W

Electrical Characteristics (T_J=25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	VGS=0V, ID=250μA	30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	VDS=30V, VGS=0V	--	--	1.0	μA
I _{GSS}	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	VDS=VGS, ID=250μA	1.0	1.5	2.2	V
R _{DS(on)}	Drain-Source On-State Resistance	VGS=10V, ID=4A	--	32	50	mΩ
		VGS=4.5V, ID=3A	--	41	60	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	VDS=15V, VGS=0V, f=1MHz	--	275	--	pF
C _{OSS}	Output Capacitance		--	43	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	33	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	VDS=15V, ID=4A, VGS=10V	--	6.6	--	nC
Q _{gs}	Gate Source Charge		--	1.4	--	nC
Q _{gd}	Gate Drain Charge		--	2	--	nC
t _{d(on)}	Turn-on Delay Time	VDD=15V, RL=3.6Ω, VGS=4.5V, RG=6Ω	--	3.3	--	nS
t _r	Turn-on Rise Time		--	14.8	--	nS
t _{d(off)}	Turn-Off Delay Time		--	12	--	nS
t _f	Turn-Off Fall Time		--	3.1	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25°C, I _S =4A,	--	--	1.2	V

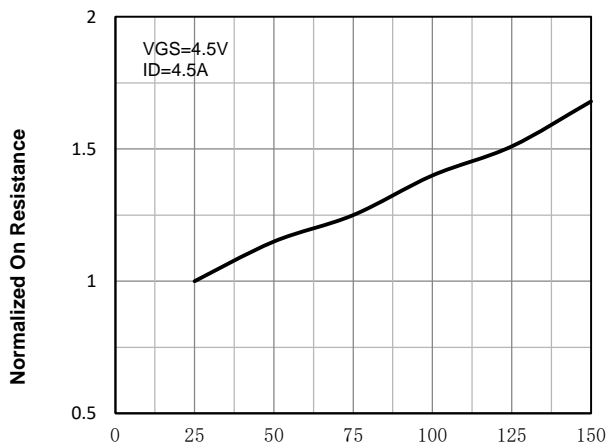
Typical Operating Characteristics



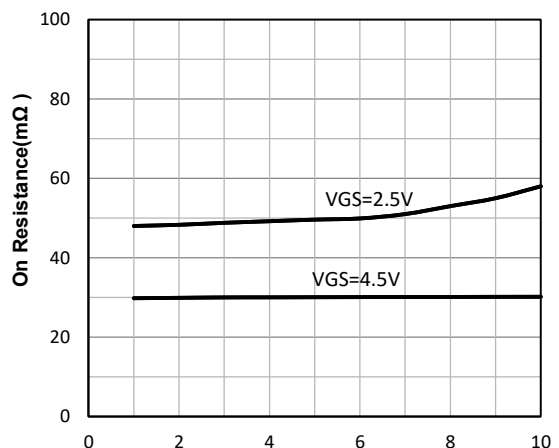
VDS, Drain -Source Voltage (V)
Fig1. Typical Output Characteristics



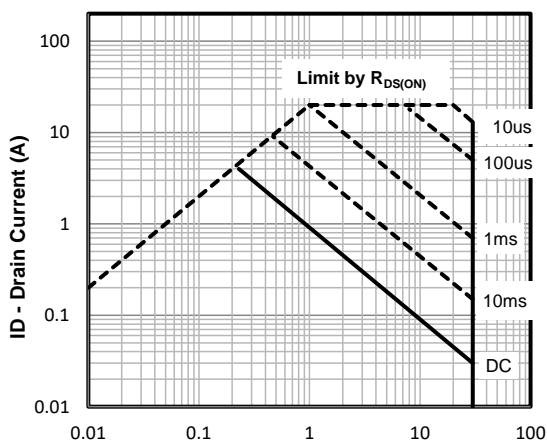
Qg -Total Gate Charge (nC)
Fig2. Typical Gate Charge Vs. Gate-Source Voltage



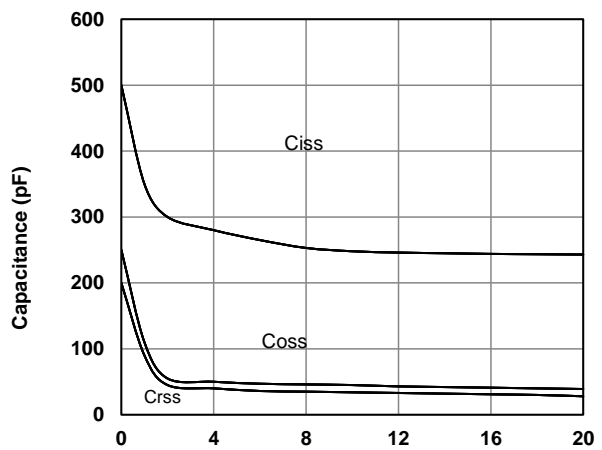
Tj - Junction Temperature (°C)
Fig3. Normalized On-Resistance Vs. Temperature



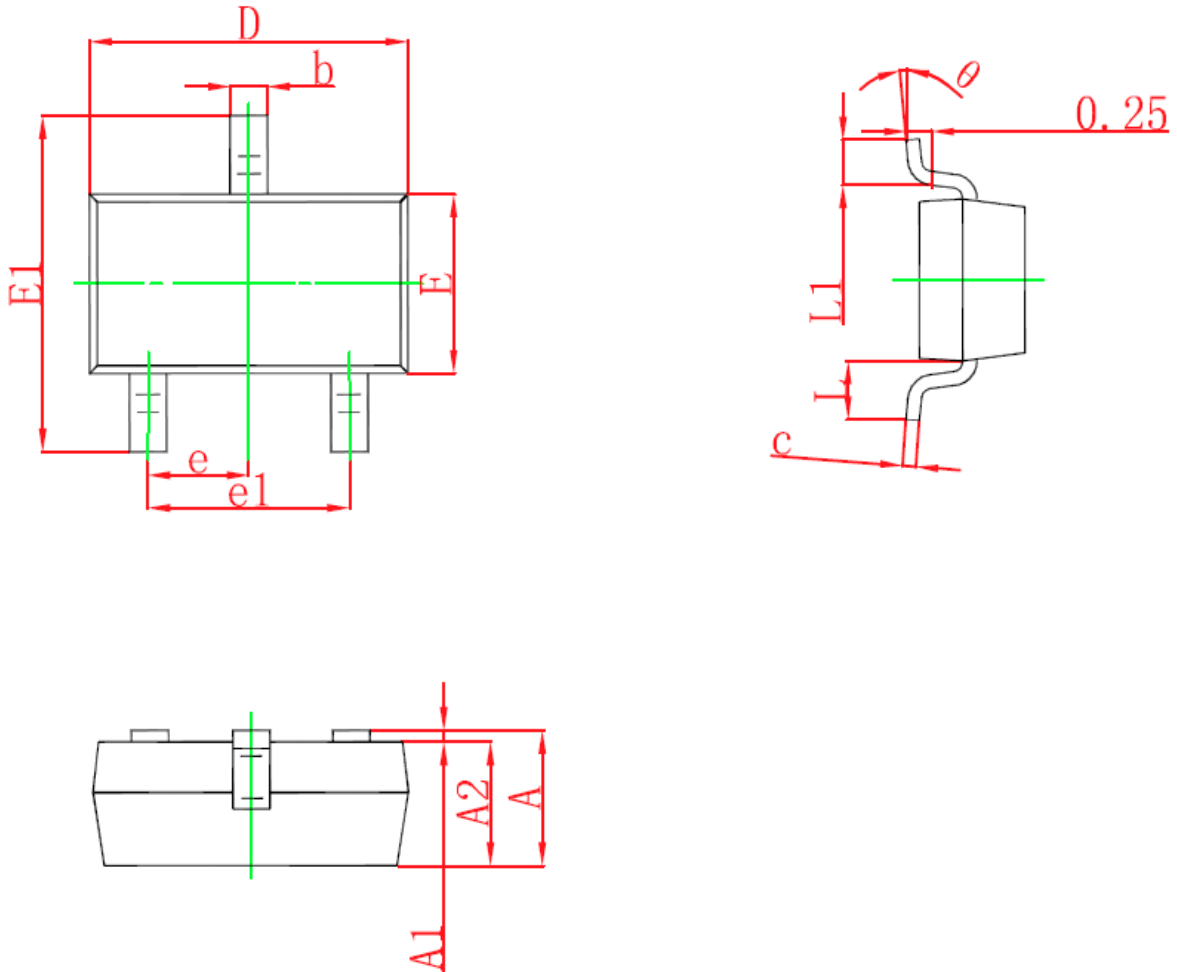
ID, Drain-Source Current (A)
Fig4. On-Resistance Vs. Drain-Source Current



VDS, Drain -Source Voltage (V)
Fig5. Maximum Safe Operating Area



VDS, Drain-Source Voltage (V)
Fig6 Typical Capacitance Vs. Drain-Source Voltage

SOT-23 Package information


Symbol	Dimensions in Millimeters(mm)		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	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°