

30V/5.8A N-Channel MOSFET

Features

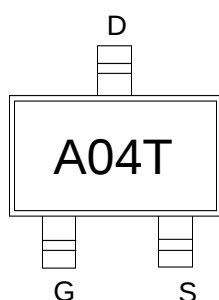
- Trench Power LV MOSFET technology
- High density cell design for low $R_{DS(ON)}$
- High Speed switching

Application

- Battery protection
- Load switch
- Power management

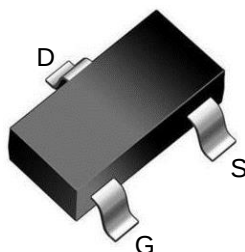
Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
30V	25m Ω @10V	5.8A
	35m Ω @4.5V	

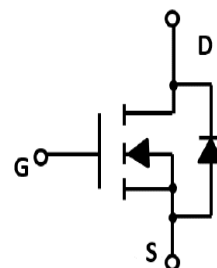


A04T: Device code

Marking and pin assignment



SOT-23 top view



Schematic diagram



Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Rating	Unit
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Common Ratings ($T_C=25^{\circ}\text{C}$ Unless Otherwise Noted)

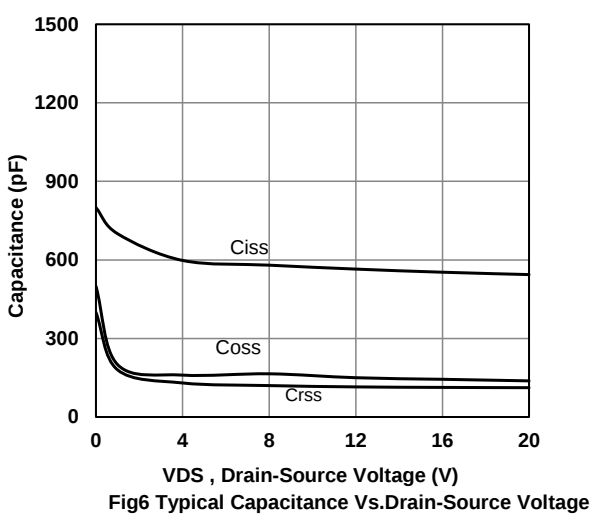
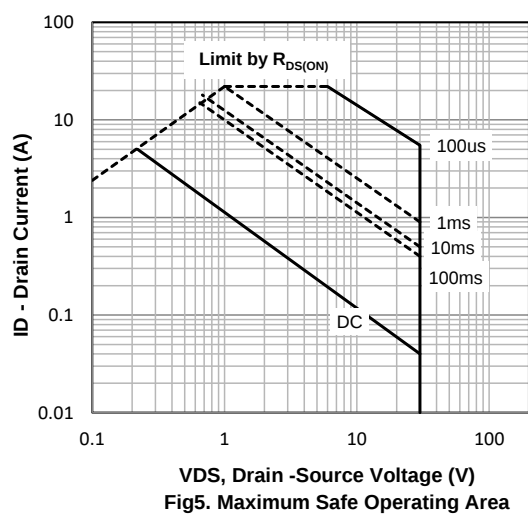
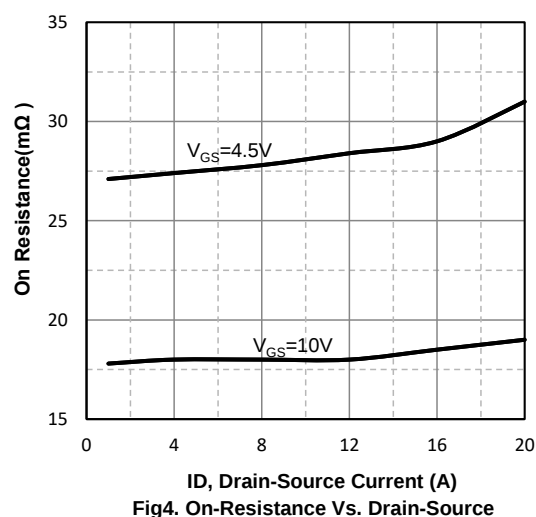
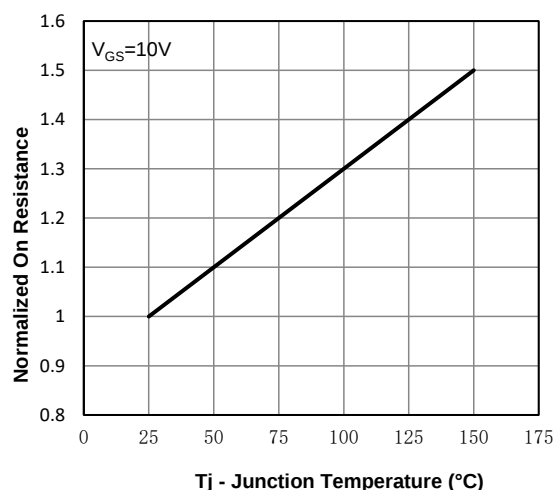
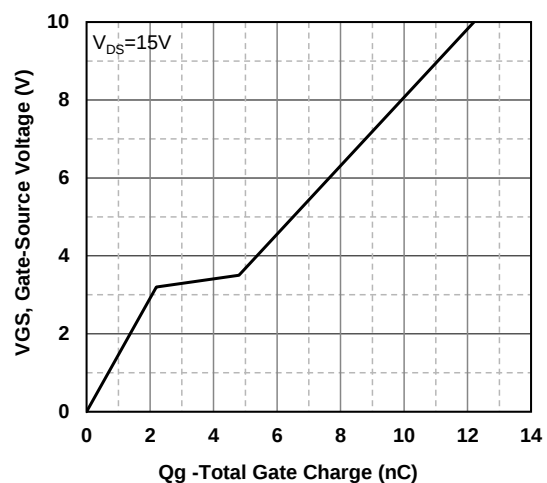
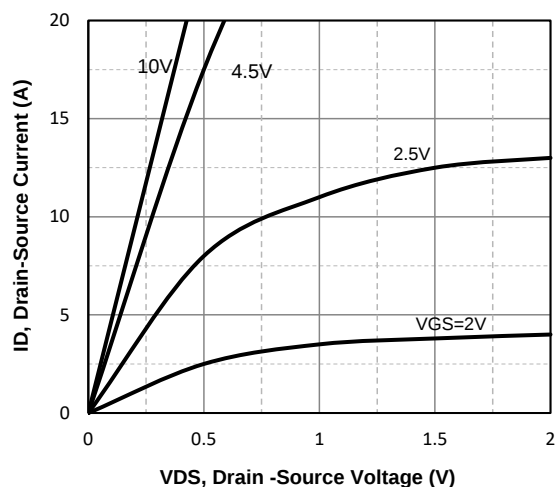
V _{DS}	Drain-Source Breakdown Voltage		30	V
V _{GS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-50 to 155	°C
I _S	Diode Continuous Forward Current	Tc=25°C	5.8	A

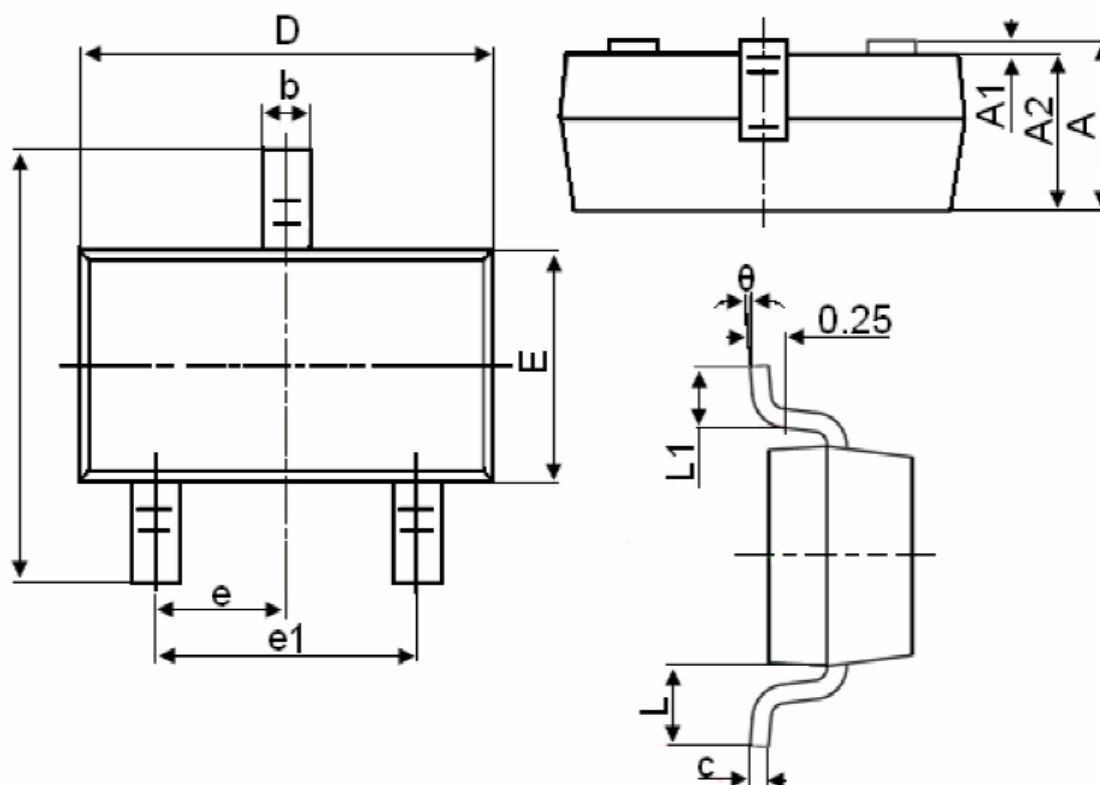
Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}\text{C}$	23	A
I_D	Continuous Drain Current@ $V_{GS}=10\text{V}$	$T_C=25^{\circ}\text{C}$	5.8	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}\text{C}$	1.2	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient>(*1 in2 Pad of 2-oz Copper), Max.)		104	$^{\circ}\text{C/W}$

Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25℃ (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	uA
I _{GSS}	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	VDS=VGS, ID=250μA	1	1.5	2.5	V
R _{DS(on)}	Drain-Source On-State Resistance	VGS=10V, ID=5.8A	--	19	25	mΩ
		VGS=4.5V, ID=4.8A	--	27	35	mΩ
		VGS=3.7V, ID=2.0A	--	38	60	mΩ
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
C _{ISS}	Input Capacitance	VDS=15V, VGS=0V, f=1MHz	--	525	--	pF
C _{OSS}	Output Capacitance		--	78	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	70	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	VDS=15V, ID=5.8A, VGS=10V	--	12.2	--	nC
Q _{gs}	Gate Source Charge		--	2.4	--	nC
Q _{gd}	Gate Drain Charge		--	2.3	--	nC
t _{d(on)}	Turn-on Delay Time	VDD=15V, ID=5.8A, VGS=10V, RG=3Ω	--	5	--	nS
t _r	Turn-on Rise Time		--	28	--	nS
t _{d(off)}	Turn-Off Delay Time		--	13	--	nS
t _f	Turn-Off Fall Time		--	21	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25℃, Is=3A,	--	--	1.2	V

Typical Operating Characteristics



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°