AP3400EI

30V N-Channel Enhancement Mode MOSFET

Description

The AP3400EI uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

General Features

V_{DS} = 30V I_D =3.0A

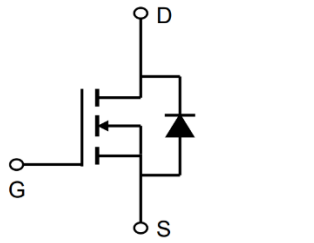
$R_{DS(ON)}$ <98mΩ @ V_{GS}=4.5V （**Type:80mΩ**）

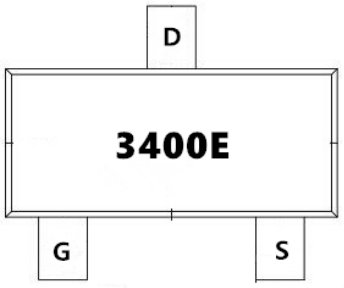
Application

Lithium battery protection

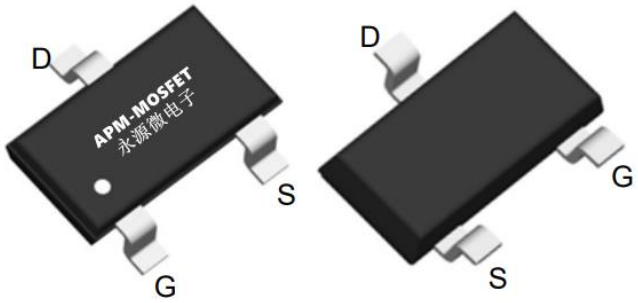
Wireless impact

Mobile phone fast charging





Top View Bottom View



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
AP3400EI	SOT23L	3400E	3000

Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±12	V
I_D@T_A=25℃	Continuous Drain Current, V_{GS} @ 4.5V[1]	3.0	A
I_D@T_A=70℃	Continuous Drain Current, V_{GS} @ 4.5V[1]	1.8	A
I_{DM}	Pulsed Drain Current[2]	9.6	A
P_D@T_A=25℃	Total Power Dissipation[3]	1	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
$R_{\theta JA}$	Thermal Resistance Junction-ambient [1]	125	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case[1]	80	℃/W

Electrical Characteristics (T_J=25℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BVDSS	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	30	34	---	V
RDS(ON)	Static Drain-Source On-Resistance[2]	V_{GS}=4.5V , I_D=3A	---	80	98	mΩ
		V_{GS}=2.5V , I_D=2A	---	95	110	
VGS(th)	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	0.5	0.85	1.2	V
IDSS	Drain-Source Leakage Current	V_{DS}=30V , V_{GS}=0V , T_J=25℃	---	---	1	uA
		V_{DS}=30V , V_{GS}=0V , T_J=55℃	---	---	5	
IGSS	Gate-Source Leakage Current	V_{GS}=±12V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=5V , I_D=3A	---	10.5	---	S
Q_g	Total Gate Charge (4.5V)	V_{DS}=15V , V_{GS}=4.5V , I_D=3A	---	4.6	---	nC
Qgs	Gate-Source Charge		---	0.7	---	
Qgd	Gate-Drain Charge		---	1.5	---	
Td(on)	Turn-On Delay Time	V_{DD}=10V , V_{GS}=4.5V , R_G=3.3Ω I_D=3A	---	1.6	---	ns
T_r	Rise Time		---	42	---	
Td(off)	Turn-Off Delay Time		---	14	---	
T_f	Fall Time		---	7	---	
Ciss	Input Capacitance	V_{DS}=15V , V_{GS}=0V , f=1MHz	---	310	---	pF
Coss	Output Capacitance		---	49	---	
Crss	Reverse Transfer Capacitance		---	35	---	
IS	Continuous Source Current[1,4]	V_G=V_D=0V , Force Current	---	---	3.6	A
VSD	Diode Forward Voltage[2]	V_{GS}=0V , I_S=1A , T_J=25℃	---	---	1.2	V

Note :

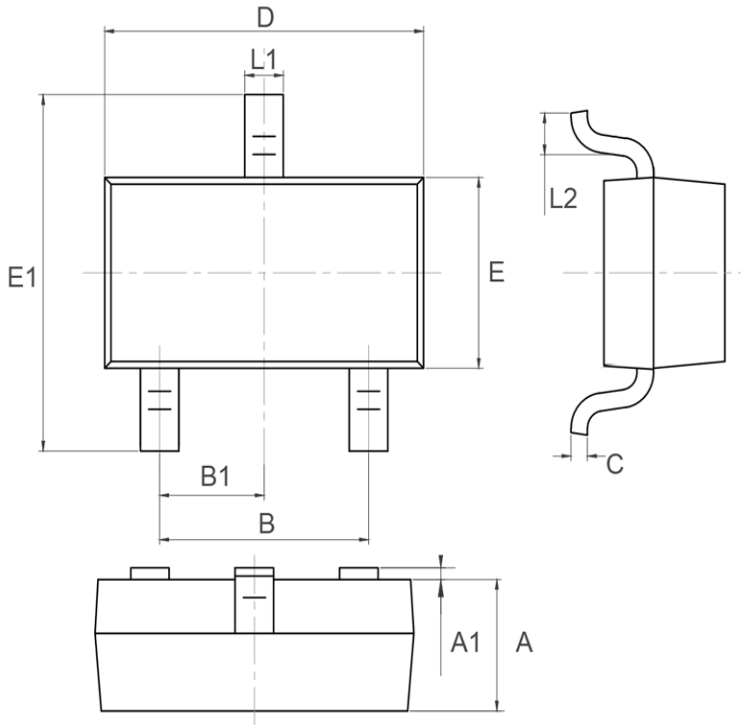
1、The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.

2、The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

3、The power dissipation is limited by 150℃ junction temperature

4、The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Package Mechanical Data-SOT23L-Single



Symbol	Dim in mm		
	Min	Typ	Max
A	0.9	1	1.1
A1	0	0.05	0.1
B	1.8	1.9	2
B1	0.95TYP		
C	0.08	0.115	0.15
D	2.8	2.9	3
E	1.2	1.3	1.4
E1	2.25	2.4	2.55
L1	0.3	0.4	0.5
L2	0.2	0.35	0.5

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Edition	Date	Change
REV1.0	2020/9/11	Initial release