AP2N06BI

60V N-Channel Enhancement Mode MOSFET

Description

The AP2N06BI uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

General Features

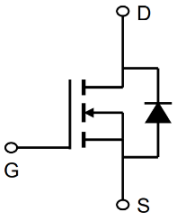
V_{DS}=60V I_D =2.0A

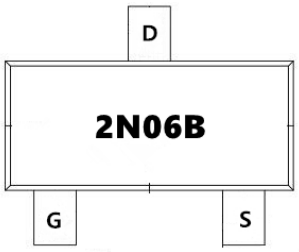
$R_{DS(ON)}$ < 185mΩ @ V_{GS}=10V **(Type：135mΩ)**

Application

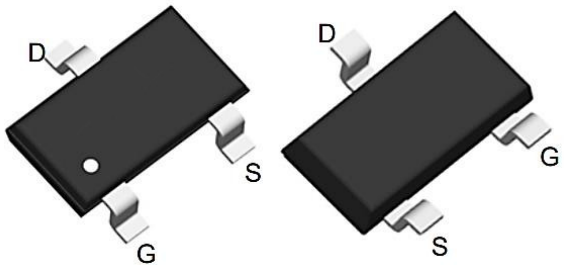
Load switch

Uninterruptible power supply





Top View Bottom View



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
AP2N06BI	SOT23L	2N06B	3000

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V[1]	2.0	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V[1]	1.1	A
I_{DM}	Pulsed Drain Current[2]	6	A
EAS	Single Pulse Avalanche Energy[3]	11	mJ
P_D@T_C=25℃	Total Power Dissipation[4]	42	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]	128	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case[1]	3	℃/W

Electrical Characteristics (T_A=25℃unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BVDSS	Drain-Source Breakdown Voltage	VGS=0V, ID=250μA	60	66		V
IDSS	Zero Gate Voltage Drain Current	VDS=60V,VGS=0V			1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V			±100	nA
		VGS=±10V, VDS=0V			±50	
VGS(th)	Gate Threshold Voltage	VDS= VGS, ID=250μA	1.0	1.6	2.5	V
RDS(ON)	Static Drain-Source On-Resistance	VGS=10V, ID=1.6A		135	180	mΩ
		VGS=4.5V, ID=1A		165	225	
Ciss	Input Capacitance	VDS=10V,VGS=0V,f=1MHZ		205		pF
Coss	Output Capacitance			25		pF
Crss	Reverse Transfer Capacitance			10		pF
Qg	Total Gate Charge	VGS=10V,VDS=30V,ID=3A		2.5		nC
Qgs	Gate-Source Charge			5		nC
Qgd	Gate-Drain Charge			1		nC
Qrr	Reverse Recovery Chrage	IF=1A, di/dt=100A/us		14		nC
trr	Reverse Recovery Time			16		ns
tD(on)	Turn-on Delay Time	VGS=10V, VDS=30V, RL=20Ω RGEN=3Ω		6		ns
tr	Turn-on Rise Time			9		ns
tD(off)	Turn-off Delay Time			12		ns
tf	Turn-off fall Time			3		ns
VSD	Diode Forward Voltage	IS=1A,VGS=0V			1.3	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.

Typical Characteristics

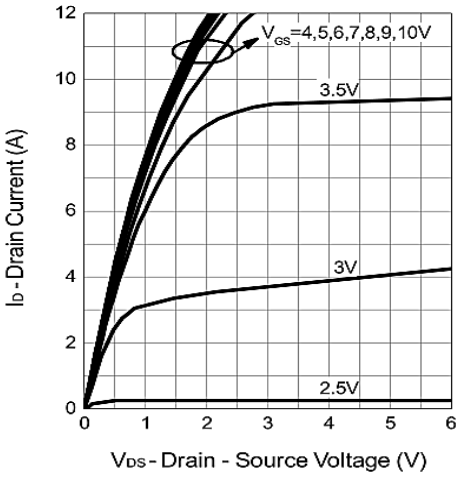


Figure1：Output Characteristics

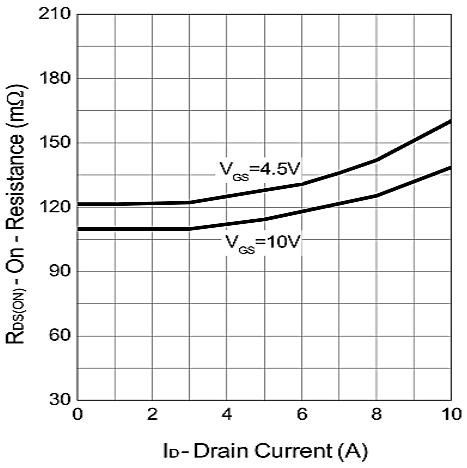


Figure2：Drain-Source On Resistance

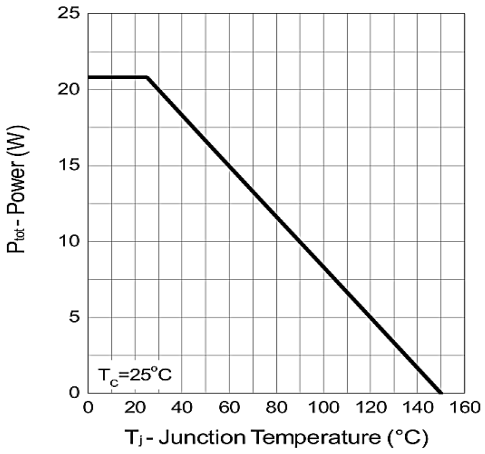


Figure3：Power Dissipation

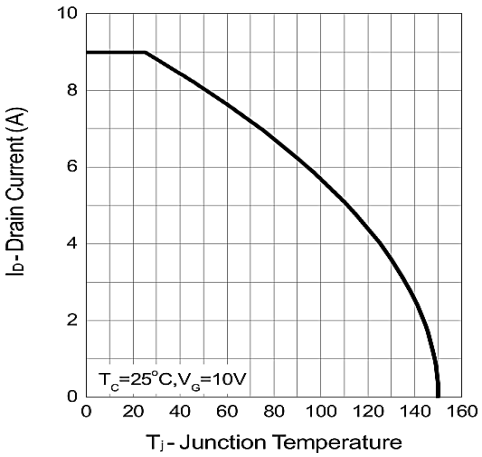


Figure4： Drain Current

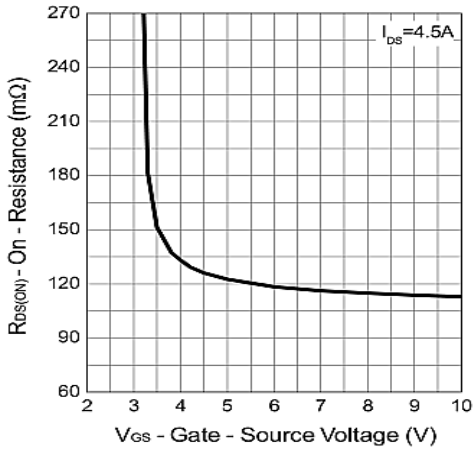


Figure5：Gate-Source On Resistance

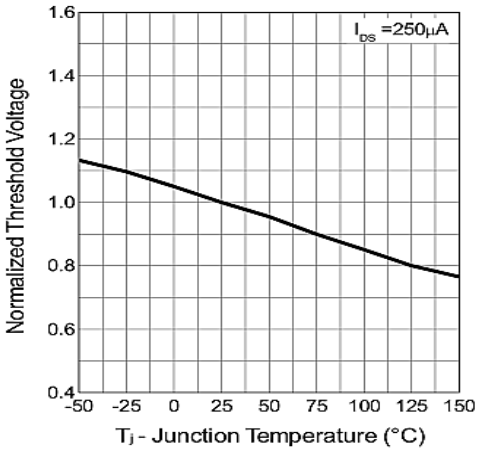


Figure6：Gate Threshold Voltage

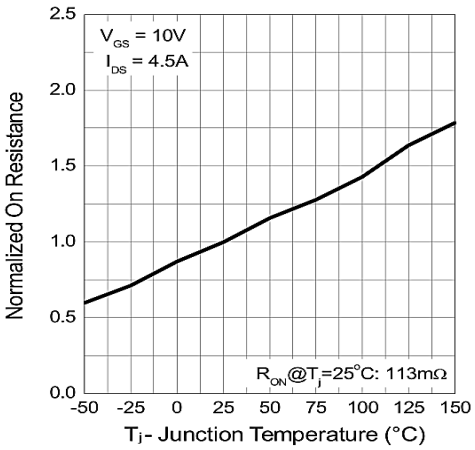


Figure7：Drain-Source On Resistance

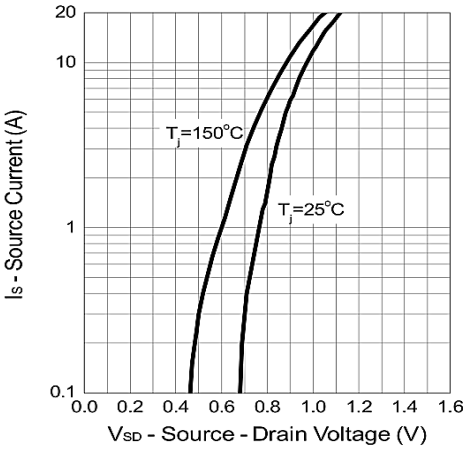


Figure8：Source-Drain Diode Forward

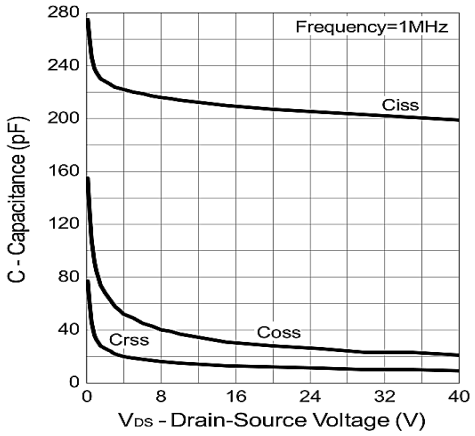


Figure:9：Capacitance

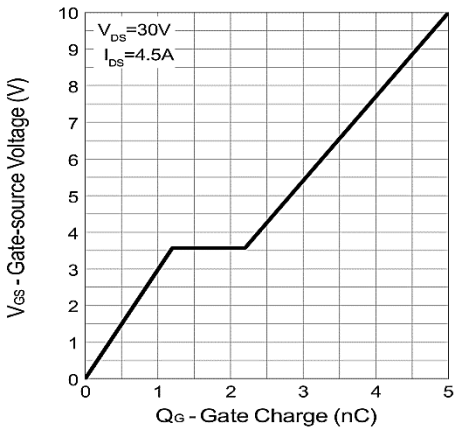


Figure10：Gate Charge

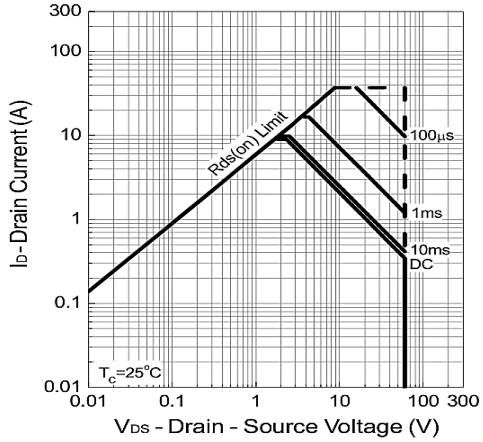


Figure11：Safe Operation Area

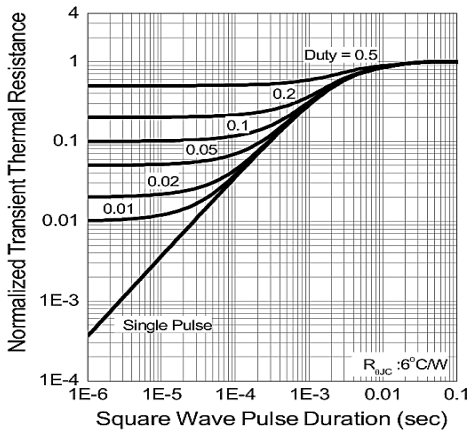
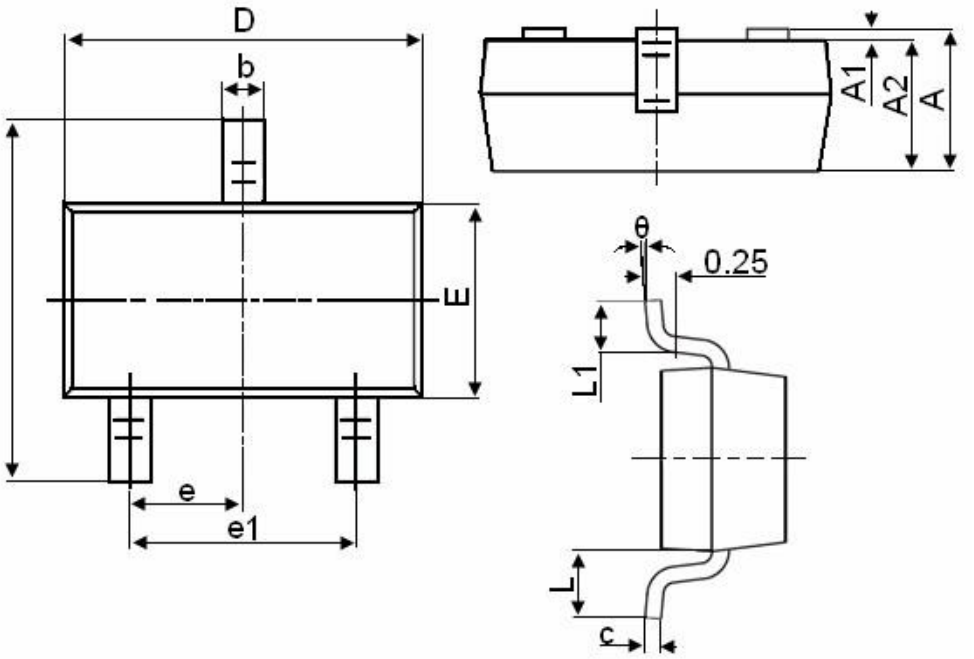


Figure12：Thermal Transient Impedance

Package Mechanical Data-SOT23-XC-Single



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°