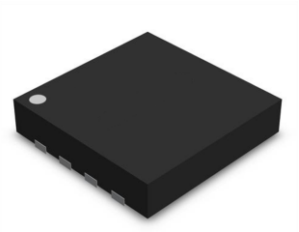
GP4406D33

30V N-Channel MOSFET

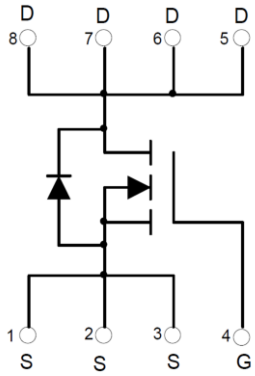
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	8mΩ@10V	20A
	12mΩ@4.5V	

DFN3*3-8L



Schematic diagram



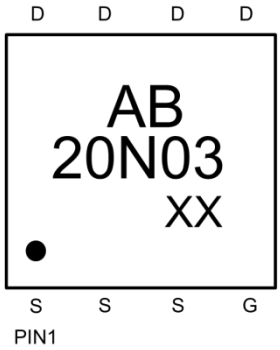
Feature

- High cell density trenched N-ch MOSFETs
- Super low gate charge
- Advanced high cell density Trench technology

Application

- Battery protection applications
- Load switch

MARKING:



AB20N03= Device code

Solid dot=Pin1 indicator

XX=Date Code

ABSOLUTE MAXIMUM RATINGS (T_C=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D(1)	20	A
Pulsed Drain Current	I_{DM}(1), (2)	45	A
Power Dissipation	P_D(3)	3	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	42	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =30V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$ (4)	V_{DS} =V_{GS}, I_D =250μA	1.0	1.7	3.0	V
Drain-source on-resistance	$R_{DS(on)}$ (4)	V_{GS} =10V, I_D =12A		8	12	mΩ
		V_{GS} =4.5V, I_D =10A		12	18	
Forward tranconductance	g_{FS}(4)	V_{DS} =5V, I_D =10A	5	12		S
Dynamic characteristics(5)						
Input capacitance	C_{iss}	V_{DS} =10V,V_{GS} =0V,f =1MHz		1277		pF
Output capacitance	C_{oss}			144		
Reverse transfer capacitance	C_{rss}			134		
Switching Characteristics(5)						
Total gate charge	Q_g	V_{DS} =15V,V_{GS} =5V,I_D =10A		13.5		nC
Gate-source charge	Q_{gs}			5.6		
Gate-drain charge	Q_{gd}			3.7		
Turn-on delay time	$t_{d(on)}$	V_{DD}=25V , V_{GS}=10V , R_G=63Ω, R_L=6.7Ω,I_D=1A		31		ns
Turn-on rise time	t_r			22		
Turn-off delay time	$t_{d(off)}$			105		
Turn-off fall time	t_f			82		
Diode Characteristics						
Continuous Source Current	I_S	V_G=V_D=0V , Force Current			15	A
Pulsed Source Current	I_{SM}				45	
Diode Forward Voltage	V_{SD}(4)	V_{GS}=0V , I_S=10A , T_J=25℃		0.85	1.2	V

Notes:

1.The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ c opper

2.Pulse Test:Pulse Width < 10us, Duty Cycle < 0.5%.

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

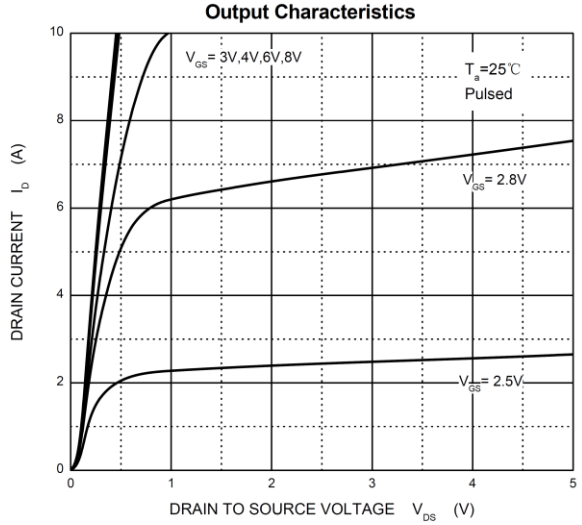
4.Pulse Test : Pulse width≤300μs, duty cycle≤0.5%.

5.Guaranteed by design, not subject to production testing.

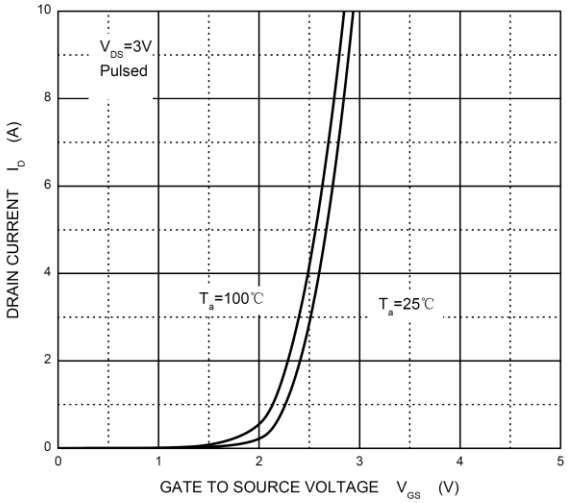
6.The data is theoretically the same as I_D, in real applications , should be limited by total power dissip ation.

Typical Electrical and Thermal Characteristics

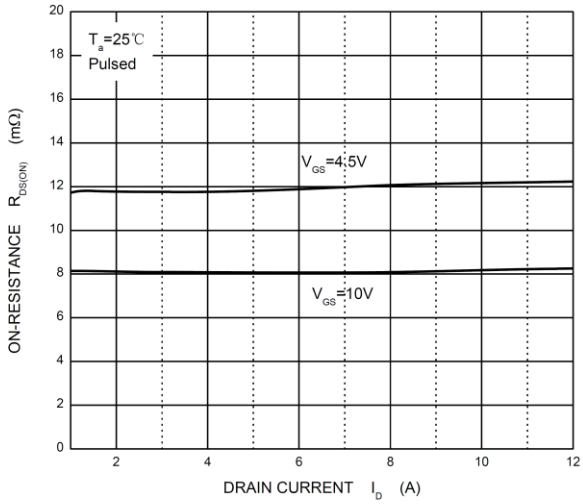
Output Characteristics



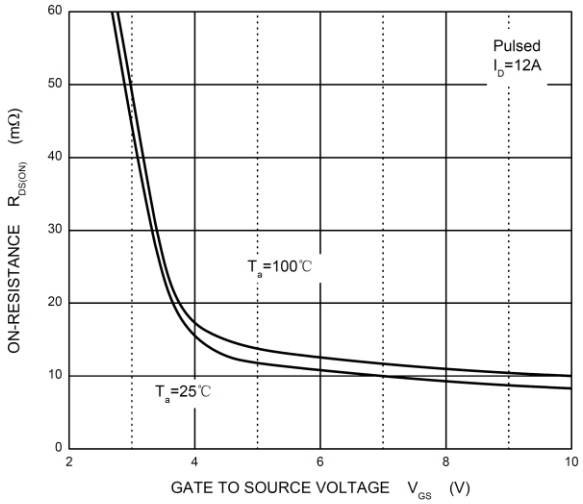
Transfer Characteristics



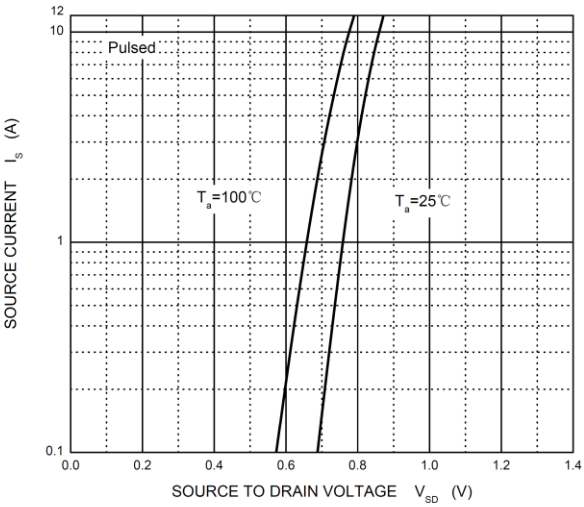
$R_{DS(ON)}$ —— I_D



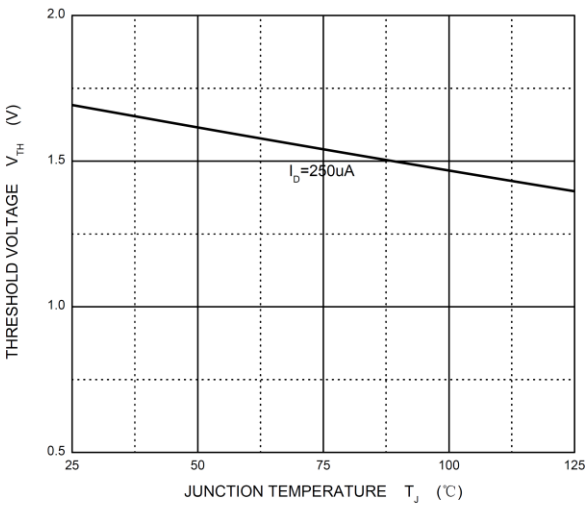
$R_{DS(ON)}$ —— V_{GS}



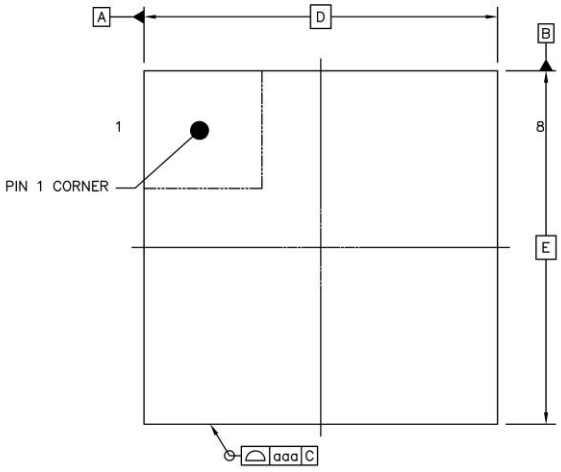
I_S —— V_{SD}



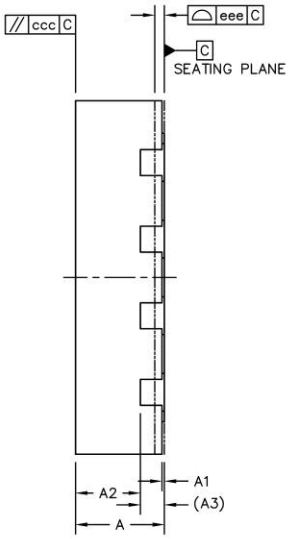
Threshold Voltage



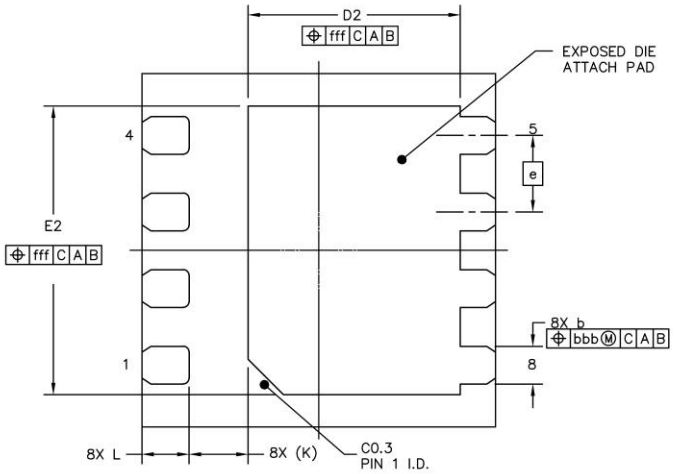
DFN3*3-8L Package Information



TOP VIEW



SIDE VIEW



BOTTOM VIEW

DFN3*3-8L Package Information

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A2	0.550TYP		0.022TYP	
A3	0.203REF		0.008REF	
b	0.270	0.370	0.011	0.015
D	3.000BSC		0.118BSC	
E	3.000BSC		0.118BSC	
e	0.650BSC		0.026BSC	
D2	1.700	1.900	0.067	0.075
E2	2.350	2.550	0.093	0.100
L	0.300	0.500	0.012	0.020
K	0.500REF		0.020REF	
aaa	0.100TYP		0.004TYP	
ccc	0.100TYP		0.004TYP	
eee	0.080TYP		0.003TYP	
bbb	0.100TYP		0.004TYP	
fff	0.100TYP		0.004TYP	