MY8806BBNE3

20V Dual N-Channel Enhancement Mode MOSFET

MAOYUAN semiconductor

General Description

The MY8806BBNE3 is the highest performance trench N-CH MOSFETS with extreme high cell density,which provide excellent R_{DSON} and gate charge for most of the small power switching and load switch applications.

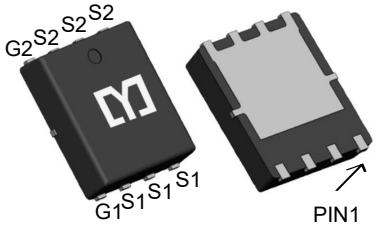
RoHS Compliant

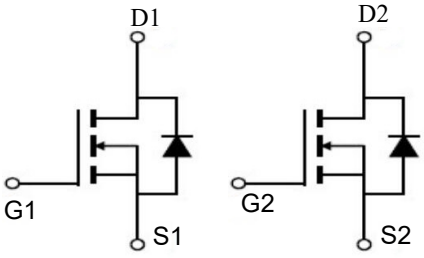
Features

V_{DSS}	20	V
I_D	35	A
$R_{DS(ON)}$(atV_{GS} =4.5V)	<8.8	mΩ
$R_{DS(ON)}$(atV_{GS} =2.5V)	<10.5	mΩ

Application

- Battery protection
- Load switch
- Uninterruptible power supply





Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY8806BBNE3	PDFN3*3-8	NULL	5000

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±8	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 4.5V[1]	35	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 4.5V[1]	32.6	A
I_D@T_A=25℃	Continuous Drain Current, V_{GS} @ 4.5V[1]	19	A
I_D@T_A=70℃	Continuous Drain Current, V_{GS} @ 4.5V[1]	15	A
I_{DM}	Pulsed Drain Current[2]	100	A
P_D@T_C=25℃	Total Power Dissipation[1]	31	W
P_D@T_A=25℃	Total Power Dissipation[1]	3.6	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]	35	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case[1]	4	℃/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=4.5V , I_D=3A	---	7.5	10.8	mΩ
		V_{GS}=3.9V , I_D=3A	---	10.53	16.5	
		V_{GS}=2.5V , I_D=3A	---	18	20	
		V_{GS}=1.8V , I_D=3A	---	22	24	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	0.4	---	1.0	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=16V , V_{GS}=0V , T_J=25 ℃	---	---	1	uA
		V_{DS}=16V , V_{GS}=0V , T_J=55℃	---	---	5	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±8V , V_{DS}=0V	---	---	±10	uA
gfs	Forward Transconductance	V_{DS}=5V , I_D=3A	---	42	---	S
Q_g	Total Gate Charge (4.5V)	V_{DS}=10V , I_D=3A	---	38	---	nC
	Total Gate Charge (3.9V)		---	33	---	
Q_{gs}	Gate-Source Charge		---	4.5	---	
Q_{gd}	Gate-Drain Charge		---	12	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=16V , V_{GS}=4.5V , R_G=6 I_D=3A	---	22	---	ns
T_r	Rise Time		---	41	---	
$T_{d(off)}$	Turn-Off Delay Time		---	77	---	
T_f	Fall Time		---	21	---	
C_{iss}	Input Capacitance	V_{DS}=10V , V_{GS}=0V , f=1MHz	---	3165	---	pF
C_{oss}	Output Capacitance		---	380	---	
C_{rss}	Reverse Transfer Capacitance		---	325	---	
I_S	Continuous Source Current [1]	V_G=V_D=0V , Force Current	---	---	30	A
I_{SM}	Pulsed Source Current[2]		---	---	100	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_S=3A , T_J=25℃	---	---	1.2	V

Note :

1.The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, t ≤10s.

2.The data tested by pulsed , pulse width ≦ 10us , duty cycle ≦ 1%

Typical Characteristics

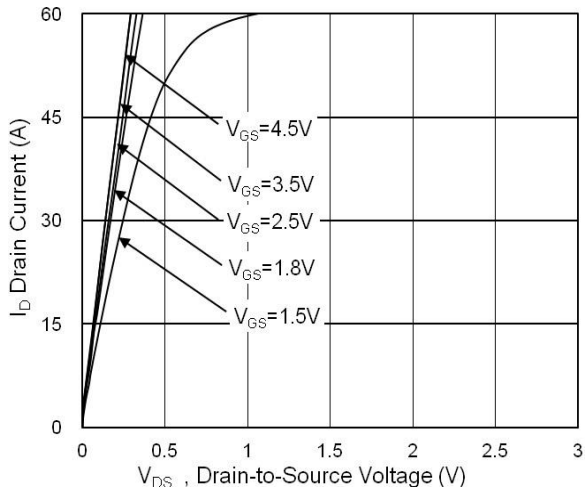


Fig.1 Typical Output Characteristics

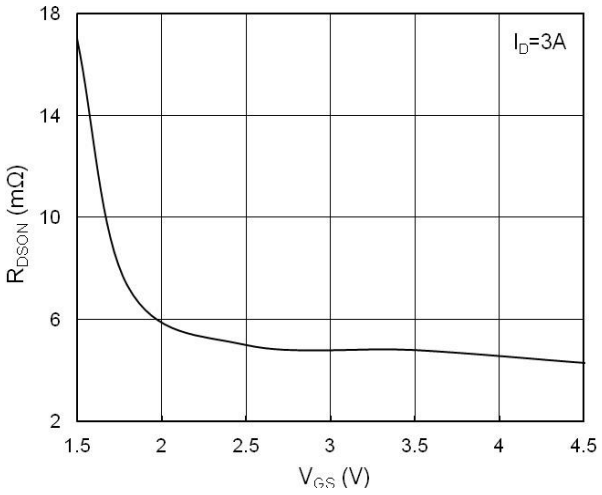


Fig.2 On-Resistance vs. Gate-Source

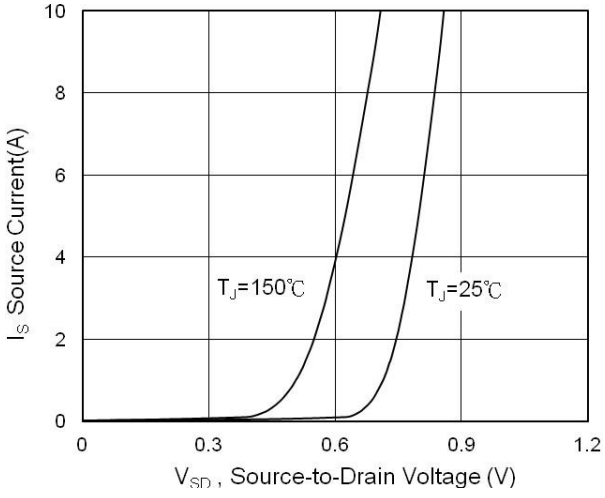


Fig.3 Forward Characteristics Of Reverse

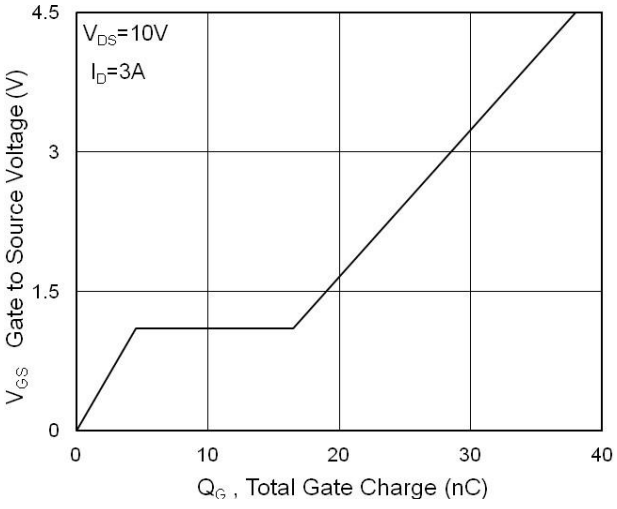


Fig.4 Gate-Charge Characteristics

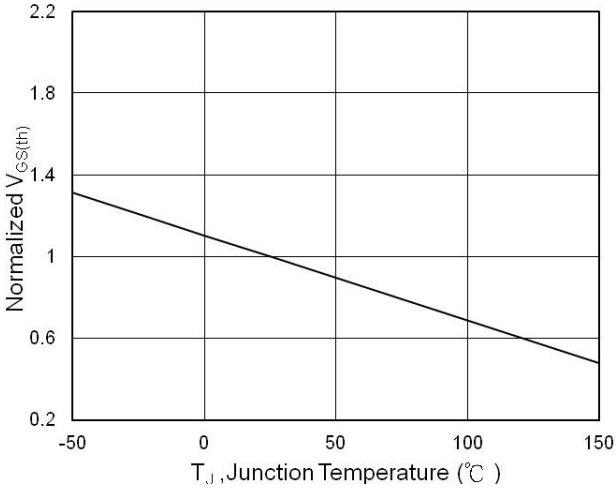


Fig.5 $V_{GS(th)}$ vs. T_J

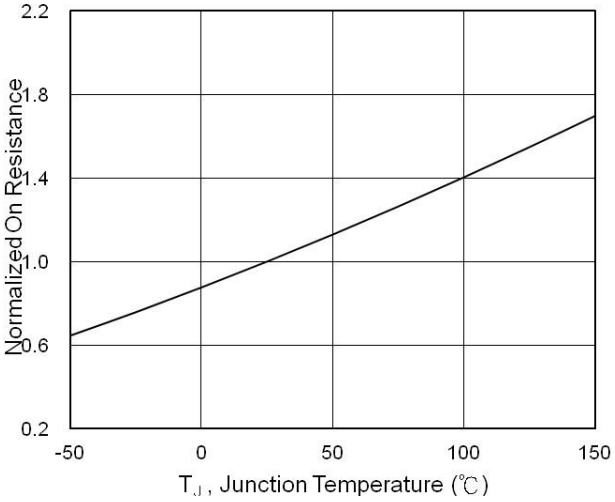


Fig.6 Normalized R_{DSON} vs. T_J

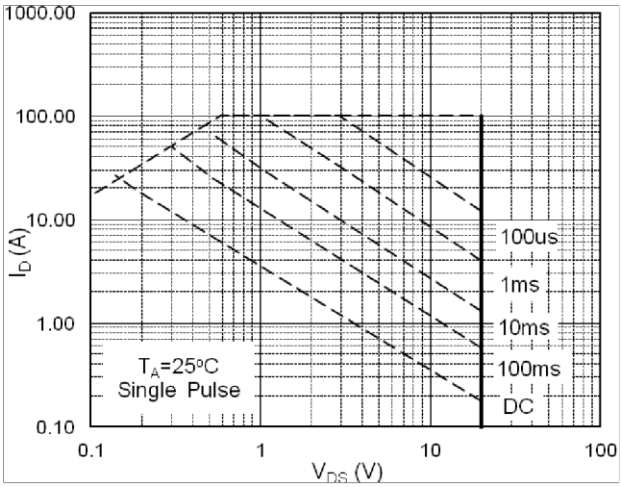


Fig.7 Capacitance

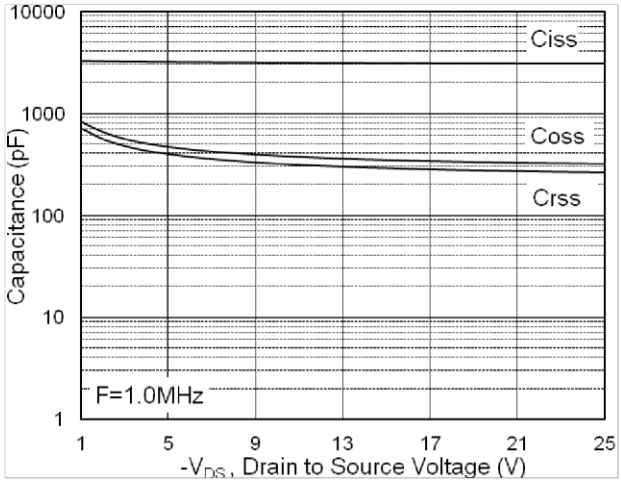


Fig.8 Safe Operating Area

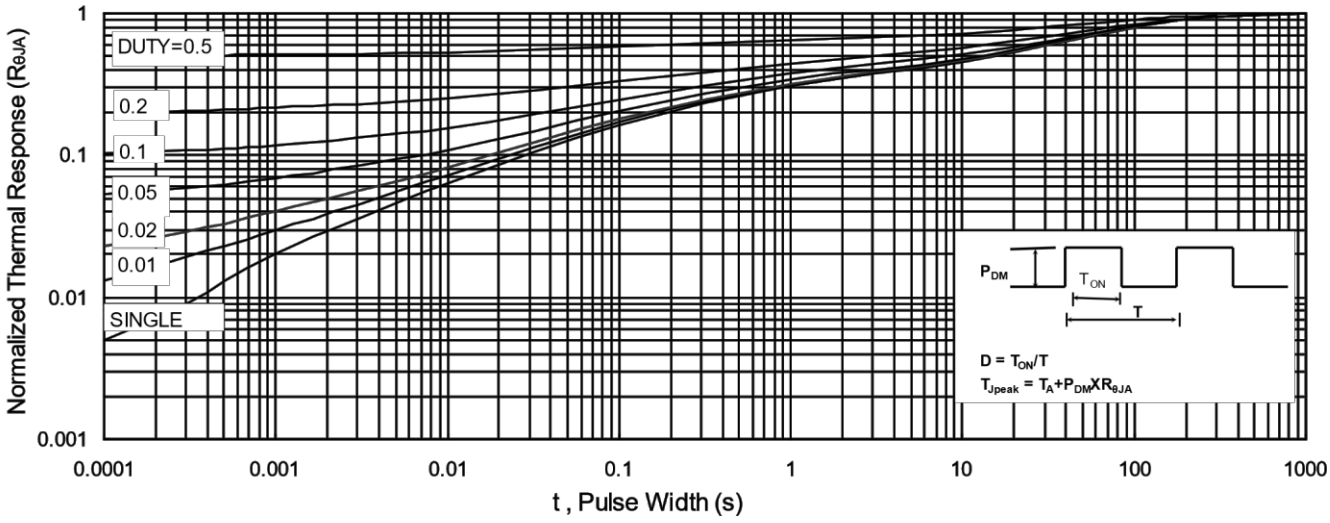


Fig.9 Normalized Maximum Transient Thermal Impedance

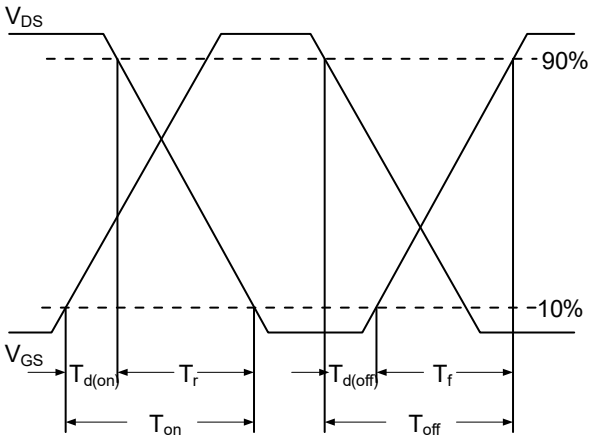


Fig.10 Switching Time Waveform

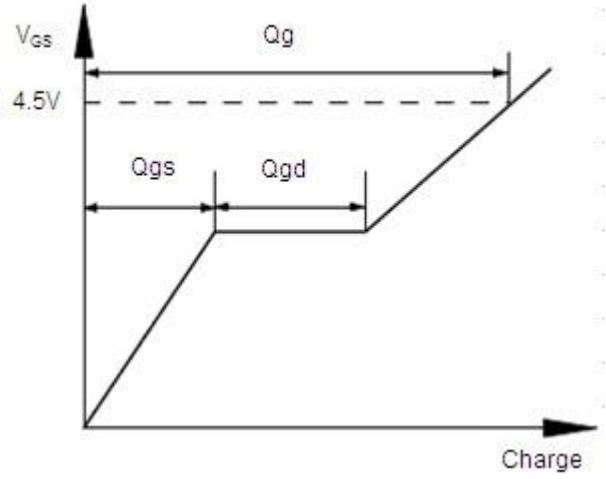
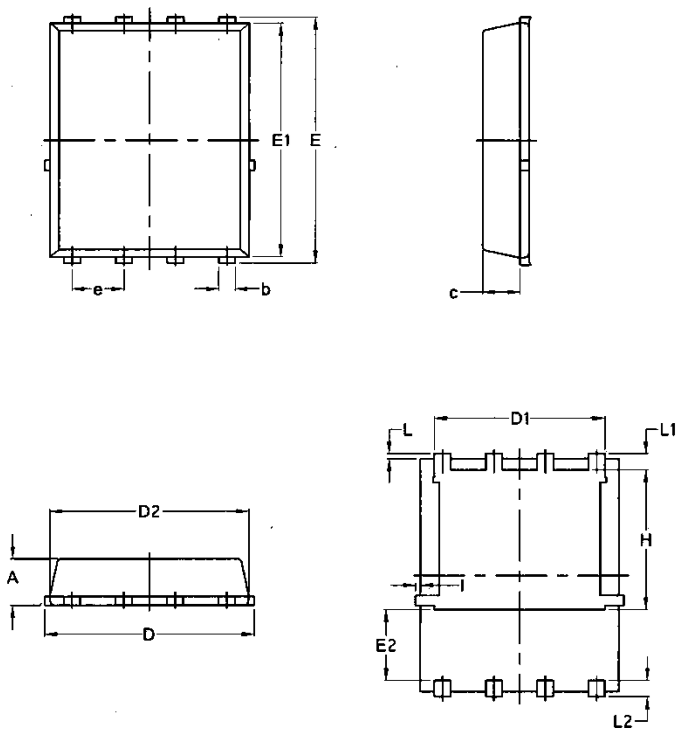


Fig.11 Gate Charge Waveform

Package Mechanical Data-DFN5*6-8L-JQ Single



Symbol	Common			
	mm		Inch	
	Mim	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070