General Description

The MY003BBNE3 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.

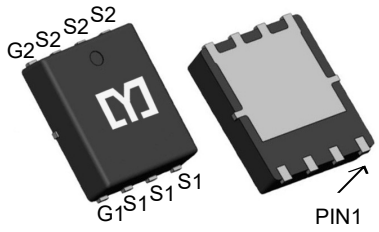
RoHS Compliant

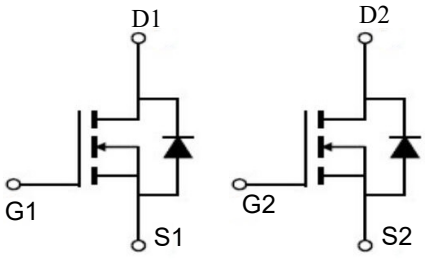
Features

V_{DSS}	20	V
I_D	80	A
$R_{DS(ON)}$(atV_{GS}=10V)	<2.5	mΩ
$R_{DS(ON)}$(atV_{GS}=4.5V)	<3.5	mΩ

Application

- Battery protection
- Load switch
- Uninterruptible power supply





Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY003BBNE3	PDFN3*3-8	3350	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	±12	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 4.5V[1]	80	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 4.5V[1]	50	A
I_D@T_A=25℃	Continuous Drain Current, V_{GS} @ 4.5V[1]	30	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	---	1.5	2.5	mΩ
		V_{GS}=3.9V , I_D=3A	---	2.5	3.5	
		V_{GS}=2.5V , I_D=3A	---	5	7	
		V_{GS}=1.8V , I_D=3A	---	9	10	
$V_{GS(th)}$	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	---	1200	---	pF
C_{oss}	Output Capacitance		---	193	---	
C_{rss}	Reverse Transfer Capacitance		---	185	---	
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

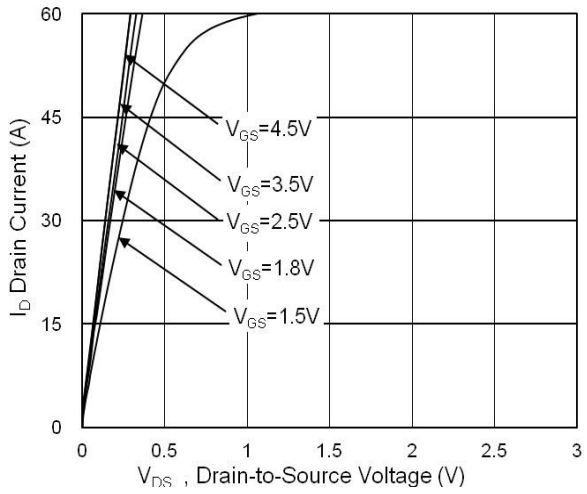


Fig.1 Typical Output Characteristics

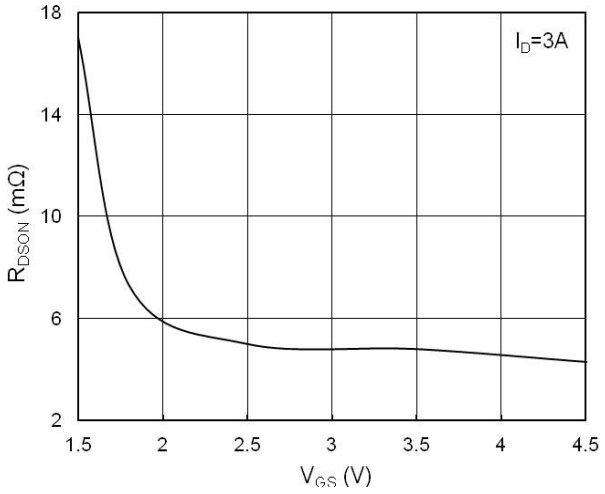


Fig.2 On-Resistance vs. Gate-Source

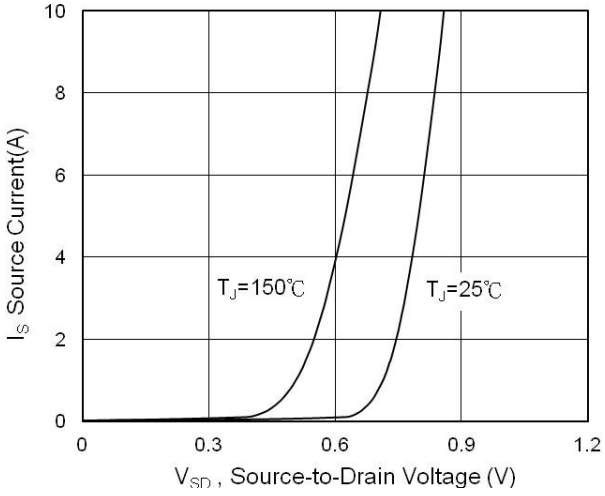


Fig.3 Forward Characteristics Of Reverse

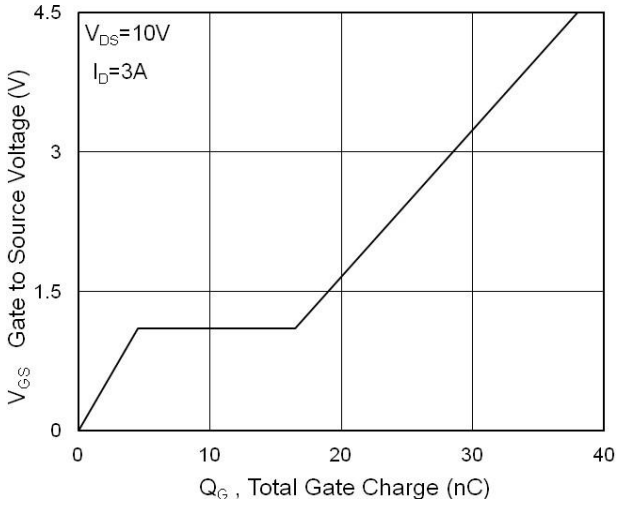


Fig.4 Gate-Charge Characteristics

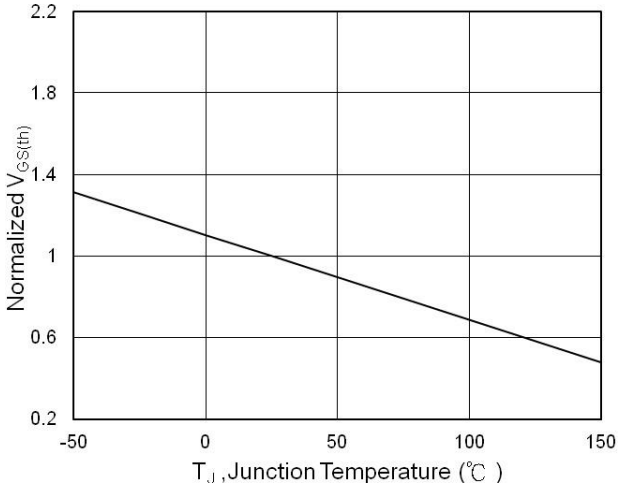


Fig.5 $V_{GS(th)}$ vs. T_J

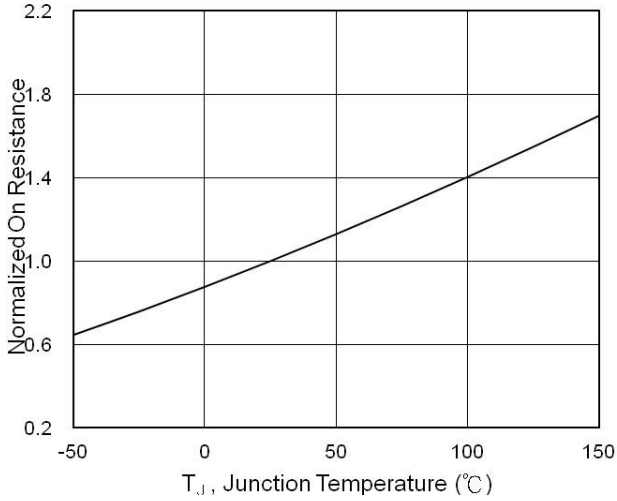


Fig.6 Normalized R_{DSON} vs. T_J

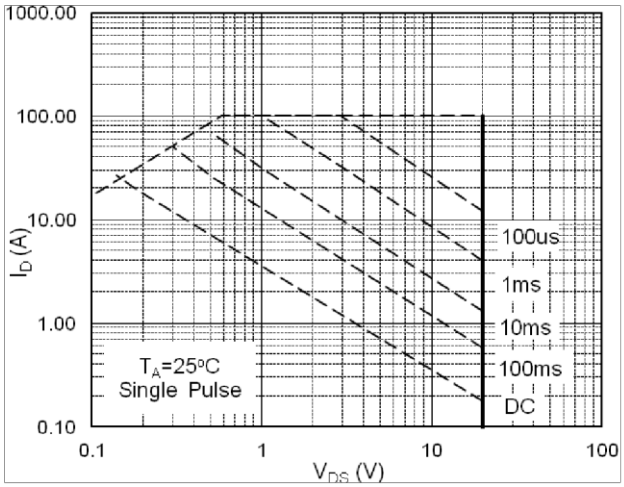


Fig.7 Capacitance

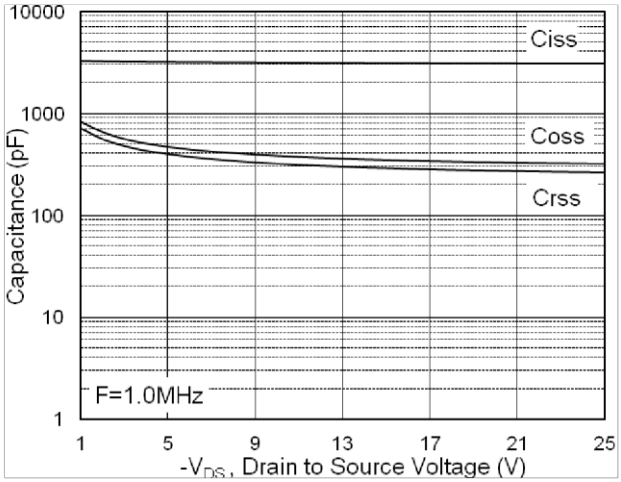


Fig.8 Safe Operating Area

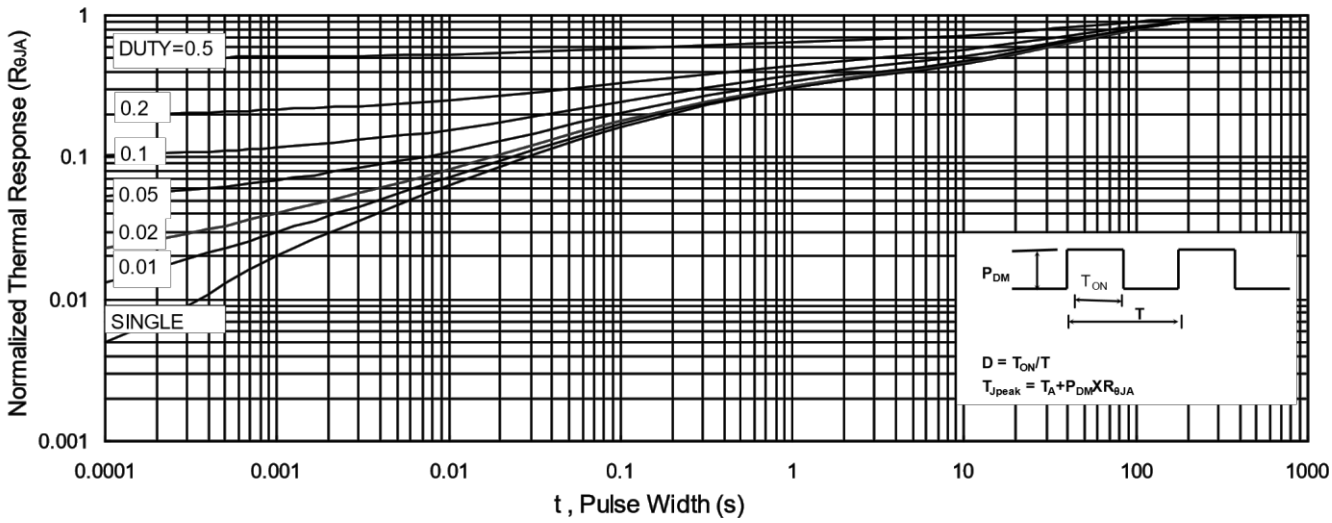


Fig.9 Normalized Maximum Transient Thermal Impedance

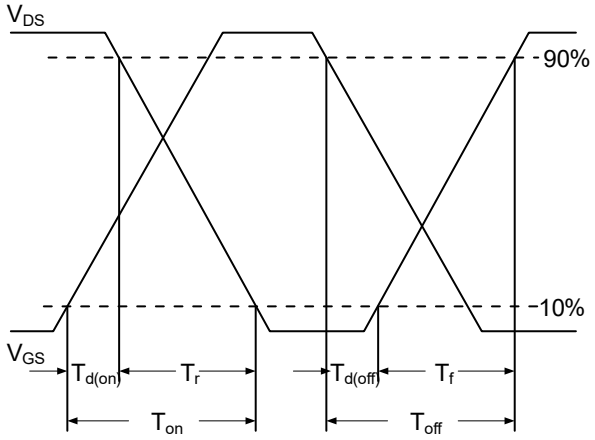


Fig.10 Switching Time Waveform

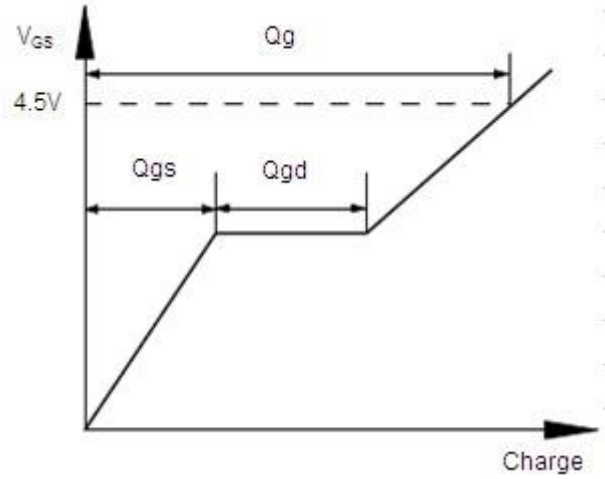
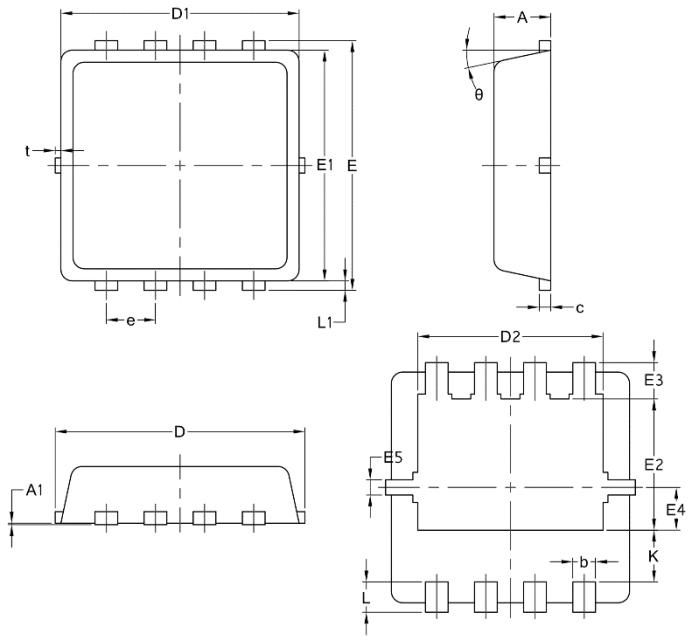


Fig.11 Gate Charge Waveform

Package Mechanical Data-DFN3*3-8L-JQ Single



Symbol	Common		
	mm		
	Mim	Nom	Max
A	0.70	0.75	0.85
A1	/	/	0.05
b	0.20	0.30	0.40
c	0.10	0.152	0.25
D	3.15	3.30	3.45
D1	3.00	3.15	3.25
D2	2.29	2.45	2.65
E	3.15	3.30	3.45
E1	2.90	3.05	3.20
E2	1.54	1.74	1.94
E3	0.28	0.48	0.65
E4	0.37	0.57	0.77
E5	0.10	0.20	0.30
e	0.60	0.65	0.70
K	0.59	0.69	0.89
L	0.30	0.40	0.50
L1	0.06	0.125	0.20
t	0	0.075	0.13
Φ	10	12	14