JST80N60D5

60V N-Channel Mosfet

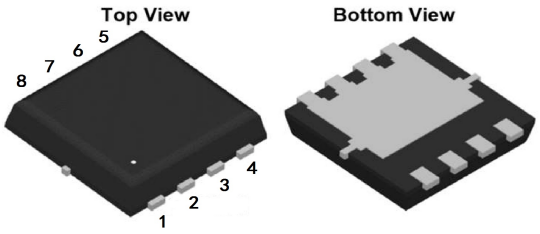
FEATURES

- RDS(ON) < 6.0mΩ @ VGS = 10V
- RDS(ON) < 11mΩ @ VGS = 4.5V

APPLICATIONS

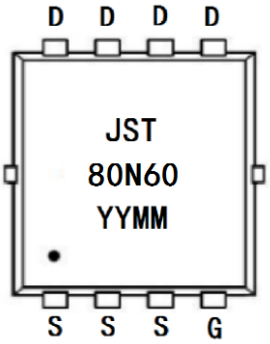
- PWM Applications
- Load Switch
- Power Management

PDFNWB5*6-8L



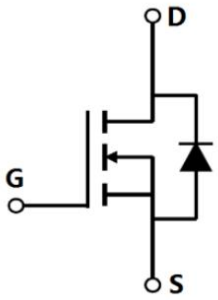
1: S	3: S	5: D	7: D
2: S	4: G	6: D	8: D

MARKING



YYMM:Date Code(year&month)

N-CHANNEL MOSFET



Maximum ratings (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	T_C = 25 ℃	60	-	V
V_{GS}	Gate-Source Voltage	T_C = 25 ℃	-	± 20	V
I_D*	Drain Current	T_C = 25 ℃, V_{GS} = 10 V	-	60	A
I_{DM}*,**,***	Pulsed Drain Current	T_C = 25 ℃, V_{GS} = 10 V	-	240	A
P_{tot}*	Total Power Dissipation	T_C = 25 ℃	-	35	W
T_{stg}	Storage Temperature		- 55	150	℃
T_J	Junction Temperature		-	150	℃
$R_{\theta JA}$*	Thermal Resistance- Junction to Case		-	3.5	℃ / W

Notes：

* Surface Mounted on 1 in^2 pad area, t ≤ 10 sec

** Pulse width ≤ 10 μs, duty cycle ≤ 1 %

*** limited by bonding wire

MOSFET ELECTRICAL CHARACTERISTICS Tc=25 ℃ unless otherwise specified

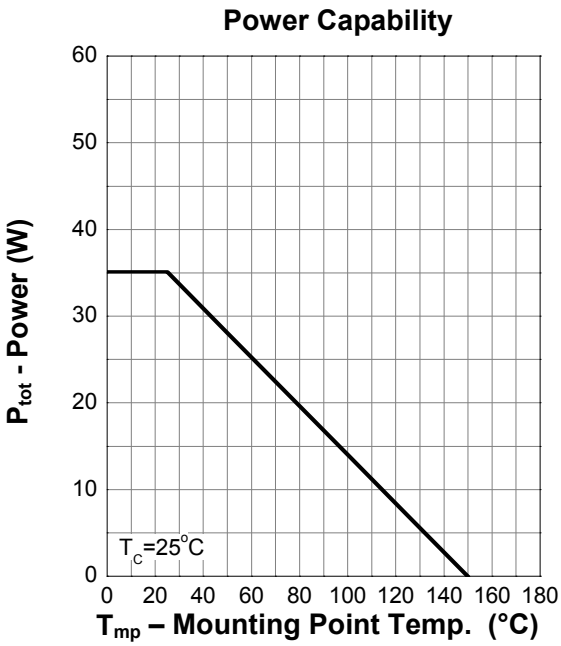
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_{DS} = 250 μA	60	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_{DS} = 250 μA	1.0	-	3.0	V
I_{DSS}	Drain Leakage Current	V_{DS} = 48 V, V_{GS} = 0 V	-	-	1	μA
I_{GSS}	Gate Leakage Current	V_{GS} = 0 V, V_{GS} = ± 20 V	-	-	±100	nA
$R_{DS(ON)}$[a]	On-State Resistance	V_{GS} = 10 V, I_{DS} = 20 A	-	4.8	6	mΩ
		V_{GS} = 4.5 V, I_{DS} =10 A	-	8.5	11	
Diode Characteristics						
V_{SD}[a]	Diode Forward Voltage	I_{SD} = 20 A, V_{GS} = 0 V	-	-	1.3	V
t_{rr}	Reverse Recovery Time	I_{DS} = 20 A, V_{GS} = 0 V dI_{SD}/dt = 100 A/μs	-	62	-	nS
Q_{rr}	Reverse Recovery Charge		-	65	-	μC
Dynamic Characteristics[b]						
C_{iss}	Input Capacitance	V_{GS} = 0 V, V_{DS} = 30 V Frequency = 1 MHz	-	2019	-	pF
C_{oss}	Output Capacitance		-	911	-	
C_{rss}	Reverse Transfer Capacitance		-	49	-	
t_d(on)	Turn-on Delay Time	V_{DS} = 30 V, V_{GEN} = 10 V, R_G = 4.5 Ω, R_L = 1.5 Ω, I_{DS} = 20 A	-	13	-	nS
t_r	Turn-on Rise Time		-	42	-	
t_d(off)	Turn-off Delay Time		-	34	-	
t_f	Turn-off Fall Time		-	55	-	
Gate Charge Characteristics[b]						
Q_g	Total Gate Charge	V_{DS} = 30 V, V_{GS} = 10 V, I_{DS} = 20 A	-	40	-	nC
Q_{gs}	Gate-Source Charge		-	9	-	
Q_{gd}	Gate-Drain Charge		-	10	-	

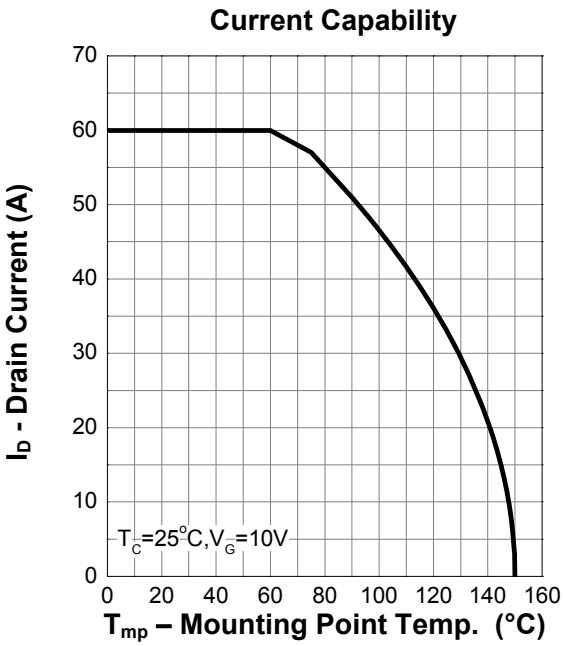
Notes：

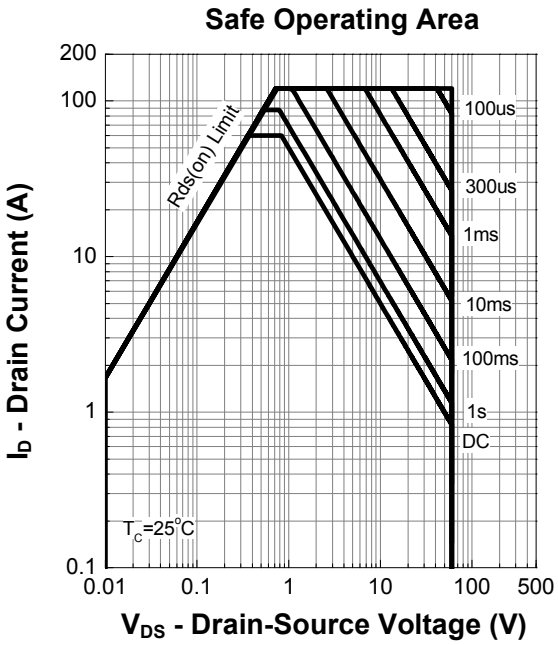
a : Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2%

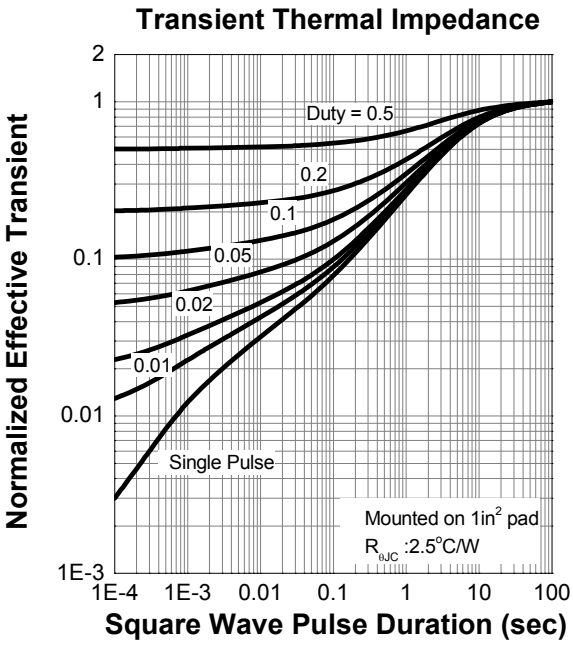
b : Guaranteed by design, not subject to production testing

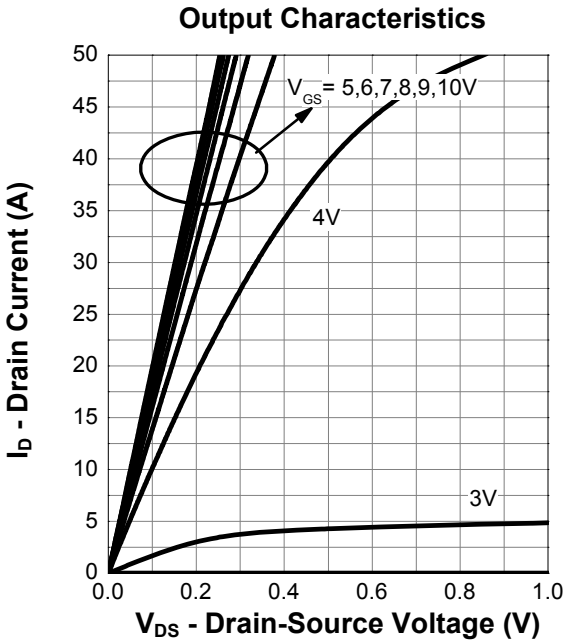
Typical Characteristics

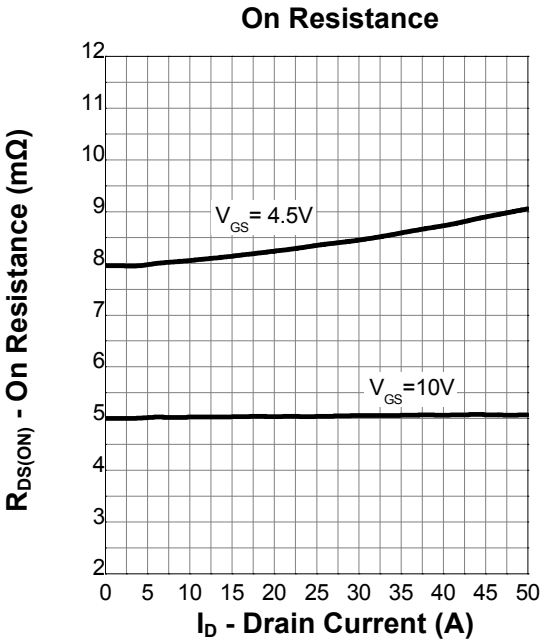


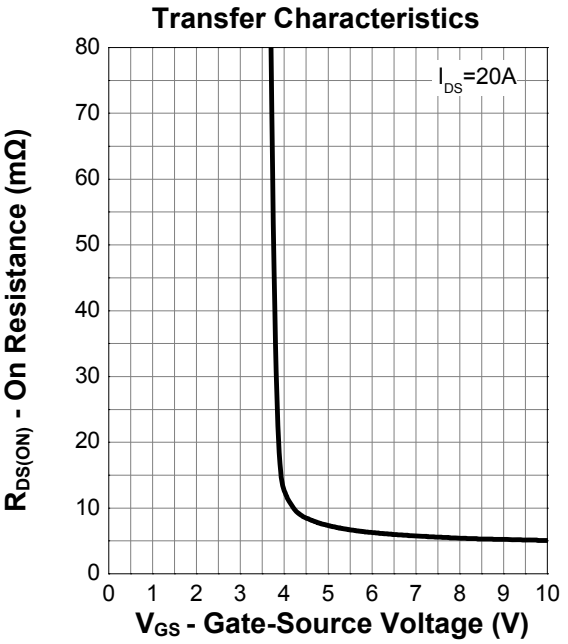


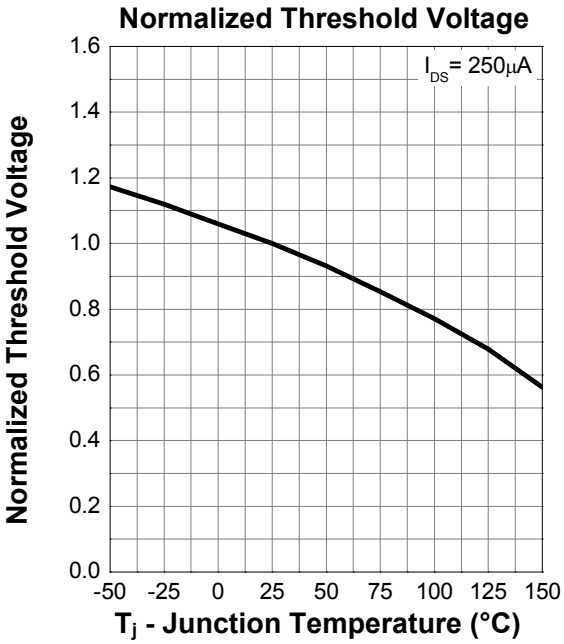


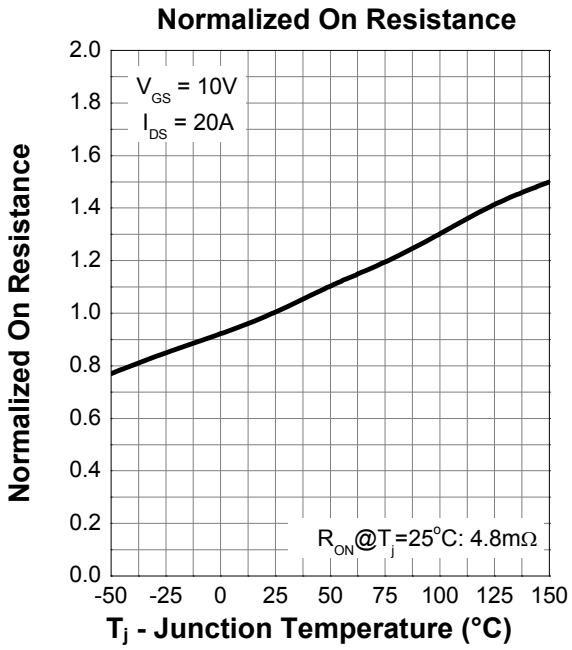


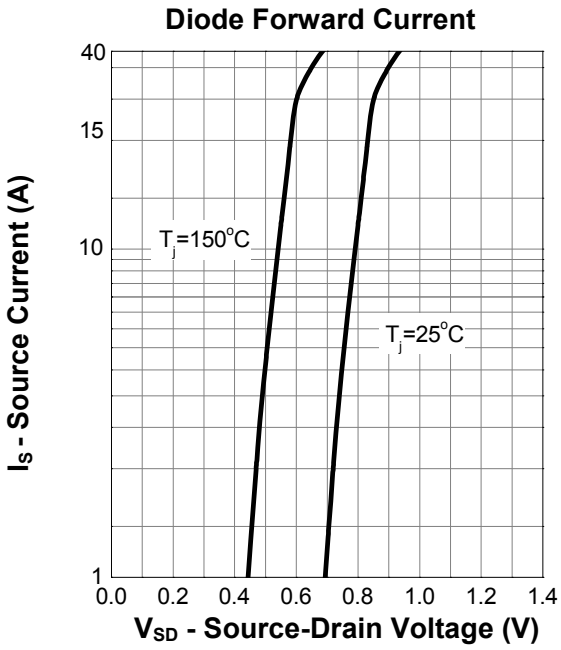

Output Characteristics
I_D - Drain Current (A)
V_{DS} - Drain-Source Voltage (V)
V_{GS}= 5,6,7,8,9,10V
4V
3V
0
5
10
15
20
25
30
35
40
45
50
0.0
0.2
0.4
0.6
0.8
1.0

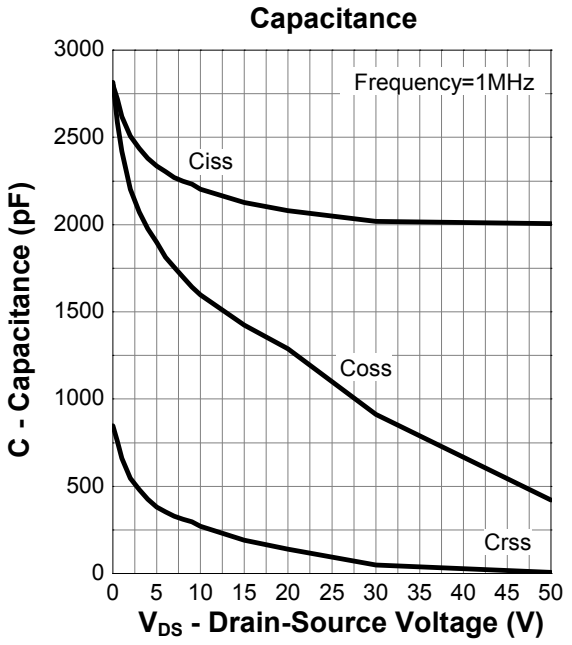

On Resistance
$R_{DS(ON)}$ - On Resistance (mΩ)
I_D - Drain Current (A)
V_{GS}= 4.5V
V_{GS}=10V
2
3
4
5
6
7
8
9
10
11
12
0
5
10
15
20
25
30
35
40
45
50

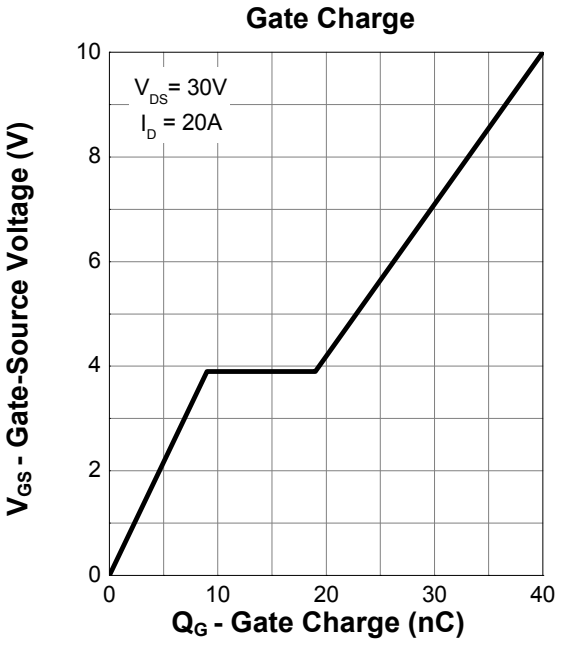

Transfer Characteristics
$R_{DS(ON)}$ - On Resistance (mΩ)
V_{GS} - Gate-Source Voltage (V)
I_{DS}=20A
0
10
20
30
40
50
60
70
80
0
1
2
3
4
5
6
7
8
9
10


Normalized Threshold Voltage
Normalized Threshold Voltage
T_j - Junction Temperature (°C)
I_{DS}= 250μA
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
-50
-25
0
25
50
75
100
125
150

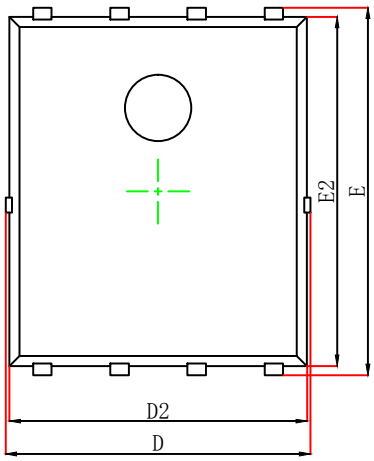

Normalized On Resistance
Normalized On Resistance
V_{GS} = 10V
I_{DS} = 20A
R_{ON}@T_j=25°C: 4.8mΩ
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-50 -25 0 25 50 75 100 125 150
T_j - Junction Temperature (°C)


Diode Forward Current
I_S - Source Current (A)
40
15
10
1
T_j=150°C
T_j=25°C
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4
V_{SD} - Source-Drain Voltage (V)

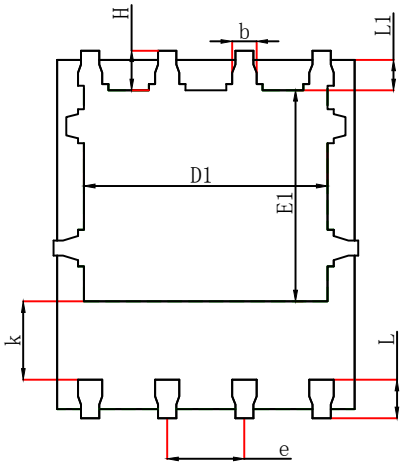

Capacitance
C - Capacitance (pF)
3000
2500
2000
1500
1000
500
0
Frequency=1MHz
Ciss
Coss
Crss
0 5 10 15 20 25 30 35 40 45 50
V_{DS} - Drain-Source Voltage (V)


Gate Charge
V_{GS} - Gate-Source Voltage (V)
10
8
6
4
2
0
V_{DS}= 30V
I_D = 20A
0 10 20 30 40
Q_G - Gate Charge (nC)

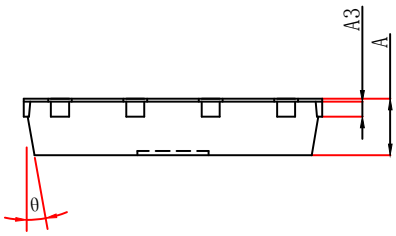
Package Dimension



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°