60V N-Channel Mosfet

FEATURES

- $R_{DS(ON)}$ ≤ 6mΩ(4.8mΩ Typ.) @ V_{GS} = 10V
- $R_{DS(ON)}$ ≤ 11mΩ(8.5mΩ Typ.) @ V_{GS} = 4.5V
- AEC Q101 qualified
- Green Product (RoHS compliant)
- 100% UIS TEST

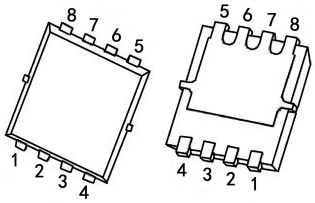
APPLICATIONS

- Automobile wiper module
- Automotive domain controller
- PWM Applications
- Load Switch
- Power Management

MARKING

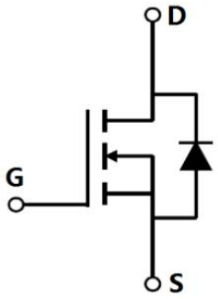
YYMM:Date Code(year&month)

PDFNWB5*6-8L



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

N-CHANNEL MOSFET



Maximum ratings (Tc=25℃ unless otherwise noted)

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	60	V
V_{GSS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current @V_{GS}=10V	60	A
I_{DM}	Pulsed Drain Current note1	240	A
P_D	Power Dissipation	42.8	W
E_{AS}	Single Pulsed Avalanche Energy note2	200	mJ
$R_{\theta JC}$	Thermal Resistance, Junction to Ambient	3.5	℃/W
T_J	Junction Temperature	175	℃
T_{STG}	Storage Temperature	-55 to +175	℃

MOSFET ELECTRICAL CHARACTERISTICS Tc=25℃ unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS} = 0V,I_D = 250μA	60	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 48V,V_{GS} = 0V	-	-	1	μA
I_{GSS}	Gate to Body Leakage Current	V_{GS} = ±20V,V_{GS} = 0V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} =V_{GS},I_D = 250μA	1.0	-	3.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance note3	V_{GS} =10V, I_D =20A	-	4.8	6	mΩ
		V_{GS} =4.5V, I_D =10A	-	8.5	11	mΩ
Dynamic Characteristics note4						
C_{iss}	Input Capacitance	V_{DS} =30V, V_{GS} = 0V f = 1.0MHz	-	2019	-	pF
C_{oss}	Output Capacitance		-	911	-	pF
C_{rss}	Reverse Transfer Capacitance			49	-	pF
Q_g	Total Gate Charge	V_{DS}=30V, I_D=20A, V_{GS}=10V	-	40	-	nC
Q_{gs}	Gate-Source Charge		-	9	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	10	-	nC
Switching Characteristics note4						
$t_{d(on)}$	Turn-On Delay Time	V_{GEN}= 10V, V_{DS}=30V, R_G =4.5Ω, I_D=20A R_L =1.5Ω	-	13	-	ns
t_r	Turn-On Rise Time		-	42	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	34	-	ns
t_f	Turn-Off Fall Time		-	55	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_{SD}=20A,	-	-	1.3	V
t_{rr}	Reverse Recovery Time	V_{GS} = 0V, I_S =20A, di/dt =100A/μs	-	62	-	ns
Q_{rr}	Reverse Recovery Charge		-	65	-	uC

Notes: 1. Repetitive Rating: Pulse width limited by maximum junction temperature

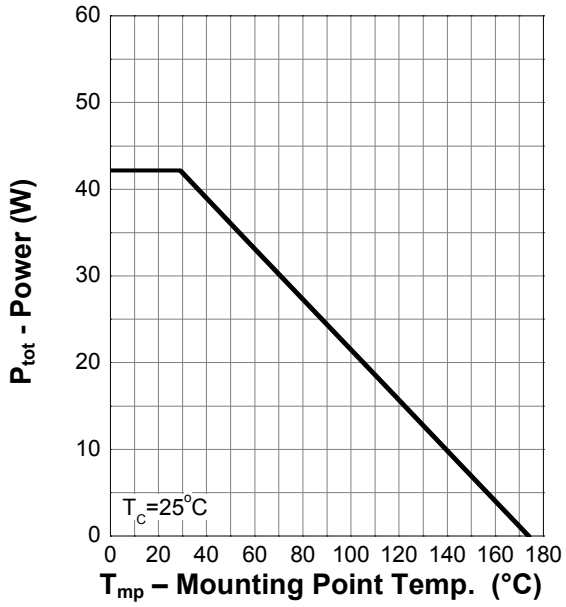
2. EAS condition: TJ= 25℃, VDD= 20V, VG=20V, L= 1mH, IAS= 20A

3. Pulse test : pulse width≤300 us, duty cycle≤2%

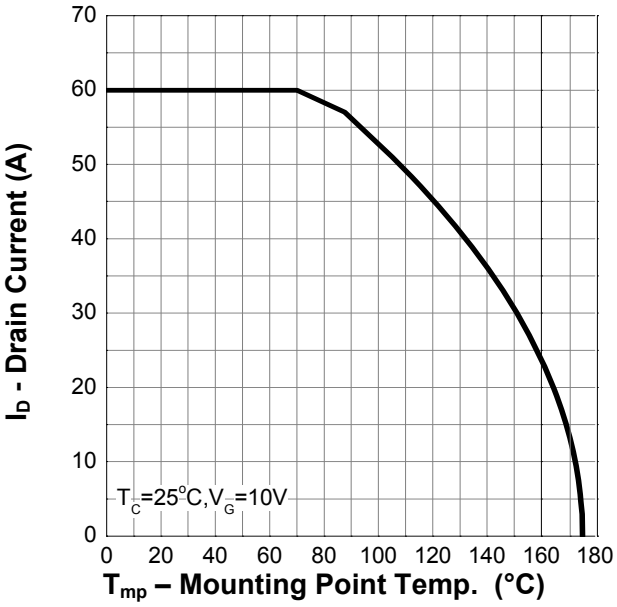
4. Guaranteed by design, not subject to production testing

TYPICAL PERFORMANCE CHARACTERISTICS

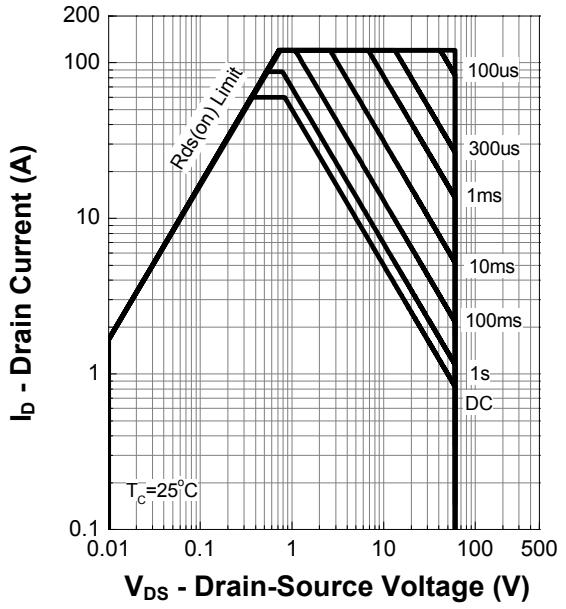
Power Capability



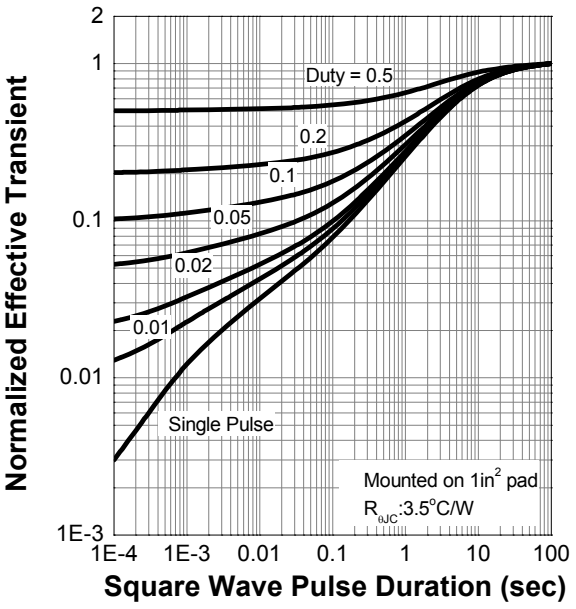
Current Capability



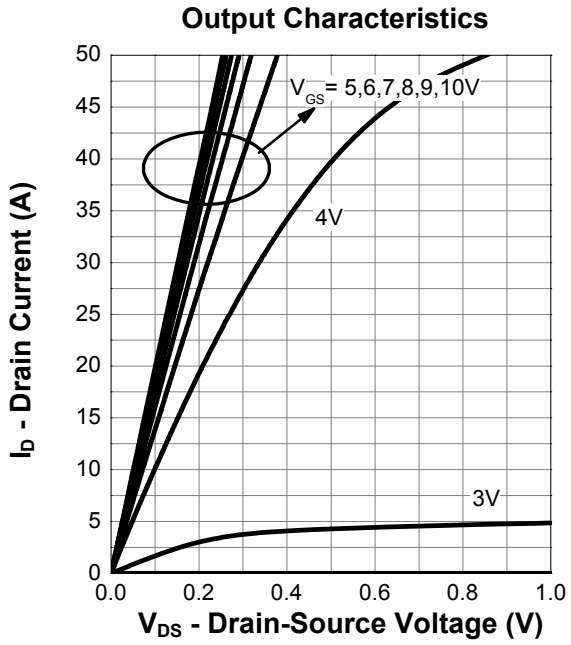
Safe Operating Area

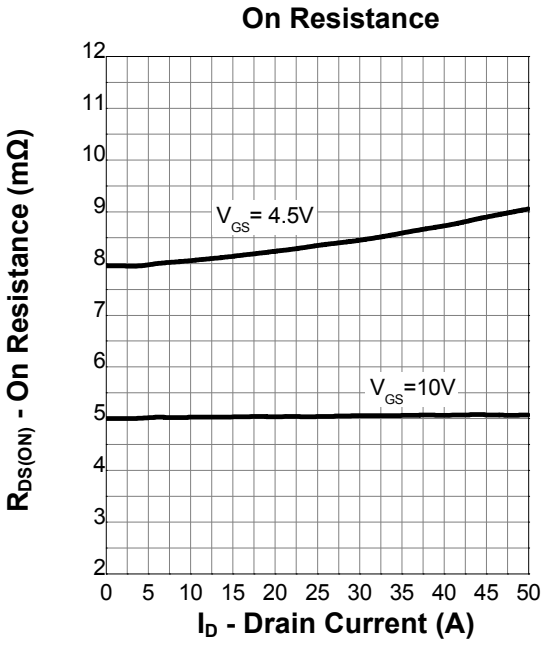


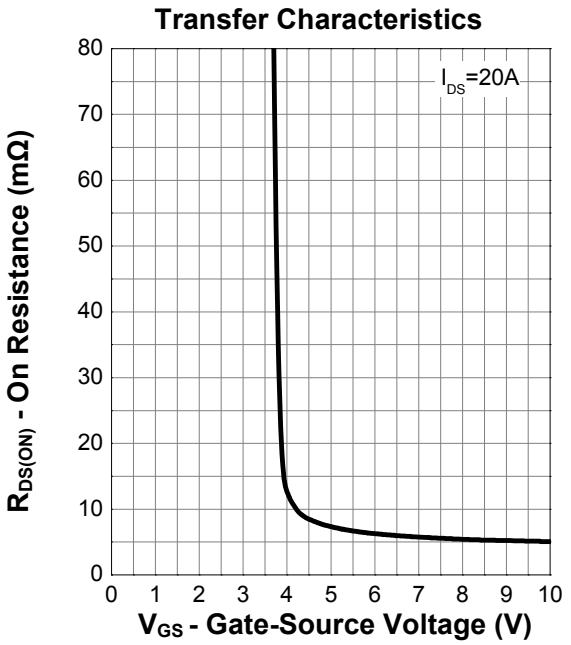
Transient Thermal Impedance

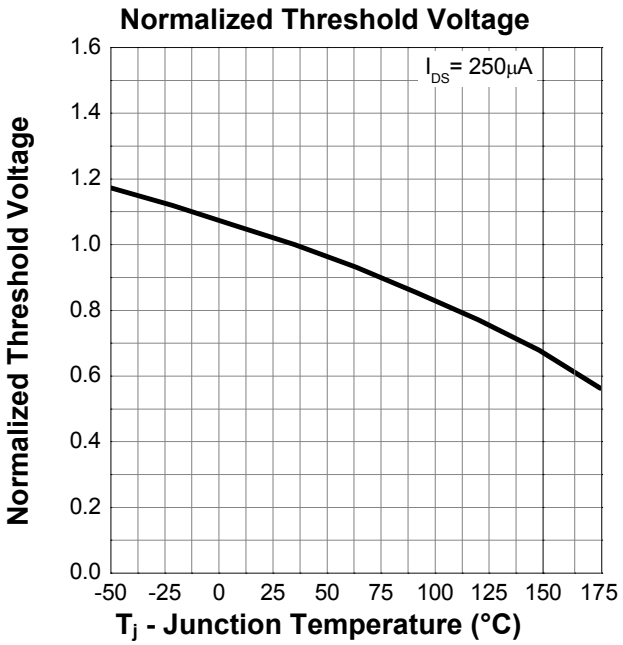


TYPICAL PERFORMANCE CHARACTERISTICS (cont.)

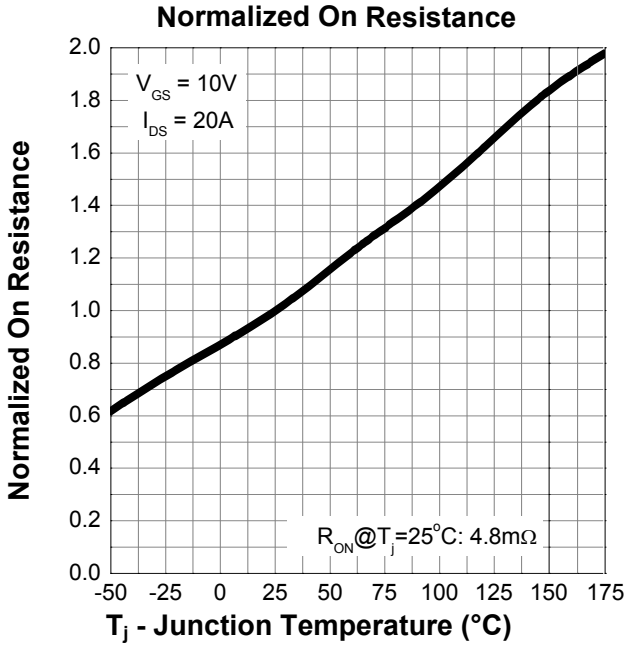


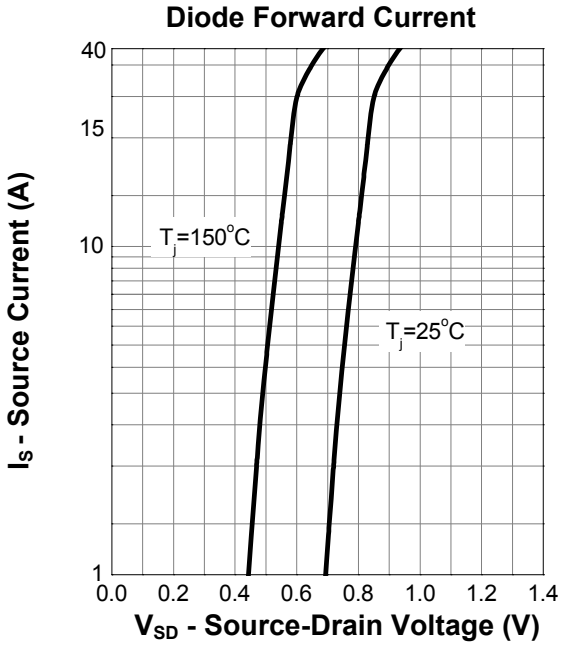


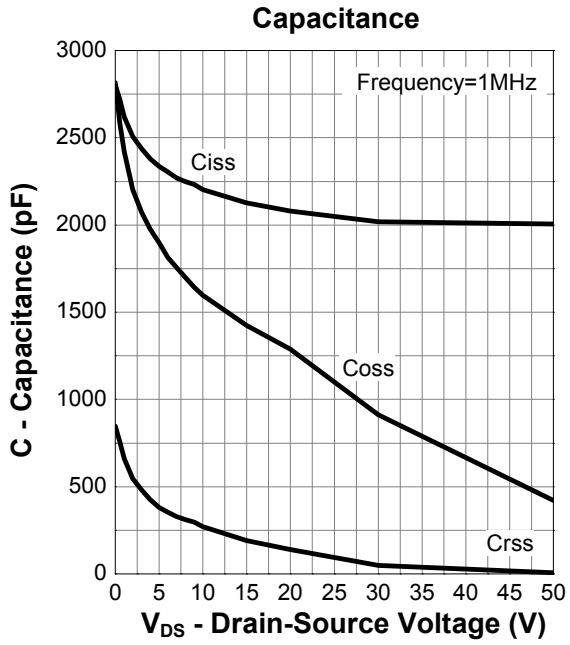


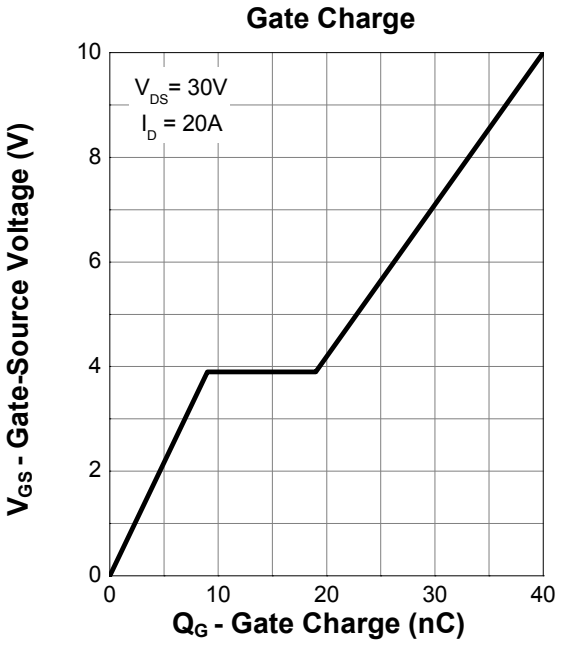


TYPICAL PERFORMANCE CHARACTERISTICS (cont.)

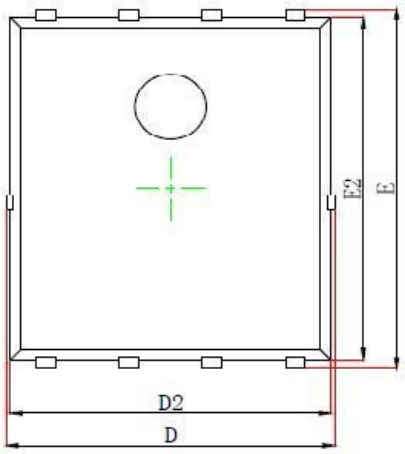




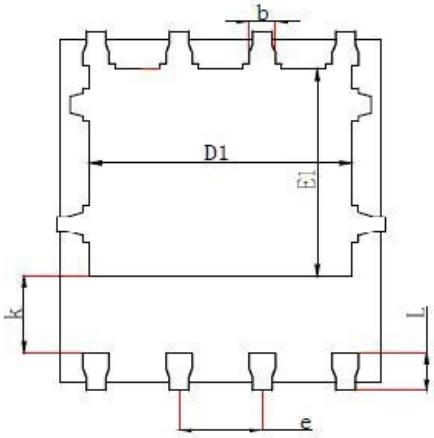




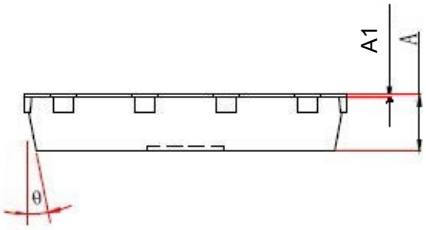
PDFNWB5*6-8L PACKAGE OUTLINE DRAWING



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	0.800	1.100	0.031	0.043
A1	0.000	0.05	0.000	0.002
D	-	5.4	-	0.212
E	-	6.200	-	0.244
D1	3.900	4.200	0.153	0.165
E1	3.350	3.650	0.132	0.144
D2	4.800	5.100	0.189	0.201
E2	5.674	5.950	0.223	0.234
k	1.100	1.500	0.043	0.059
b	0.250	0.490	0.010	0.019
e	1.170	1.370		
L	0.510	0.711	0.020	0.028
θ	6°	14°	6°	14°