

-30V P-Channel Mosfet

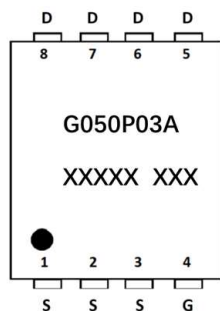
FEATURES

- $R_{DS(ON)} \leq 4.3m\Omega$ (3.3m Ω Typ.)
@ $V_{GS} = -10V$
- $R_{DS(ON)} \leq 7.2m\Omega$ (5.1m Ω Typ.)
@ $V_{GS} = -4.5V$
- AEC Q101 qualified
- Green Product (RoHS compliant)
- 100% UIS TEST

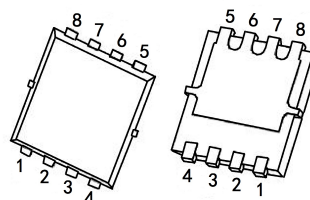
APPLICATIONS

- Automotive Systems
- PWM Applications
- Load Switch
- Power Management

MARKING

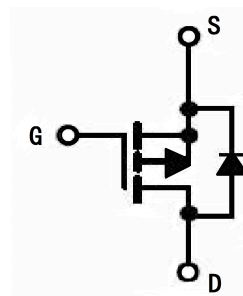


PDFNWB5*6-8L



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

P-CHANNEL MOSFET



MAXIMUM RATINGS ($T_C = 25^\circ C$ unless otherwise noted)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		± 20	V
I_D	Continuous Drain Current @ $V_{GS} = -10V$ ^{note1}	$T_C = 25^\circ C$	-80	A
		$T_C = 100^\circ C$	-56	A
I_{DM}	Pulsed Drain Current ^{note2}		-320	A
P_D	Power Dissipation		47	W
E_{AS}	Single Pulsed Avalanche Energy ^{note3}		225	mJ
$R_{\theta JC}$	Thermal Resistance, Junction to Case		3.2	$^\circ C/W$
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +175	$^\circ C$

MOSFET ELECTRICAL CHARACTERISTICS $T_C=25^\circ\text{C}$ unless otherwise specified

Symbol	Param	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = -250μA	-30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -30V, V _{GS} = 0V, T _a = 25℃	-	-	-1	μA
I _{GSS}	Gate to Body Leakage Current	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
On Characteristics <small>note3</small>						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-1.0	-1.5	-2.5	V
R _{DS(on)}	Static Drain-Source On-Resistance <small>note4</small>	V _{GS} = -10V, I _D = -20A	-	3.3	4.3	mΩ
		V _{GS} = -4.5V, I _D = -10A	-	5.1	7.2	mΩ
Dynamic and Switching Characteristics <small>note5</small>						
C _{iss}	Input Capacitance	V _{DS} = -15V, V _{GS} = 0V, f = 1.0MHz	-	9400	-	pF
C _{oss}	Output Capacitance		-	1000	-	
C _{rss}	Reverse Transfer Capacitance		-	767	-	
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-10V, I _D =-30A	-	42	-	nC
Q _{gs}	Gate-Source Charge		-	8.4	-	
Q _{gd}	Gate-Drain(“Miller”) Charge		-	11.2	-	
t _{d(on)}	Turn-On Delay T me	V _{DD} =-15V , V _{GS} =-10V , R _G =2.5Ω, I _D = -30A	-	15	-	ns
t _r	Turn-On Rise Time		-	16	-	
t _{d(off)}	Turn-Off Delay Time		-	69	-	
t _f	Turn-Off Fall Time		-	27	-	
Drain-Source Diode Characteristics and Maximum Ratings						
I _s	Continuous Source Current		-	-	-80	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-320	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =-30A , T _J =25℃	-	-0.8	-1.2	V

Notes: 1. $T_C=25^\circ\text{C}$ Limited only by maximum temperature allowed. Calculated continuous current based on maximum allowable junction temperature.

2. $PW \leq 10\mu s$, Duty cycle $\leq 1\%$

3. EAS condition: $V_{DD} = -15V$, $V_G = -10V$, $R_G = 25\Omega$, $L = 0.5\text{mH}$, $I_{AS} = -30A$, starting $T_J = 25^\circ\text{C}$.

4. Pulse Test: Pulse width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

5. Guaranteed by design, not subject to production testing

TYPICAL PERFORMANCE CHARACTERISTICS

Figure1: Output Characteristics

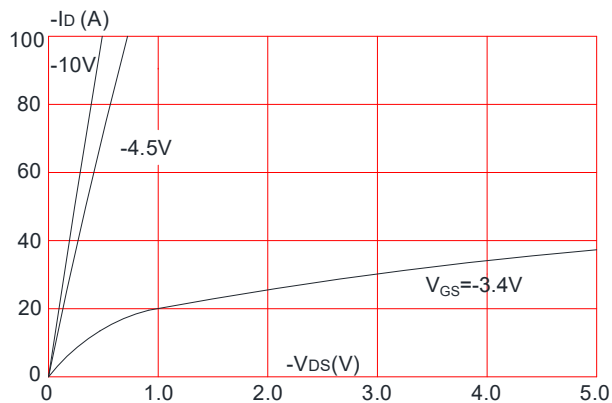


Figure 2: Typical Transfer Characteristics

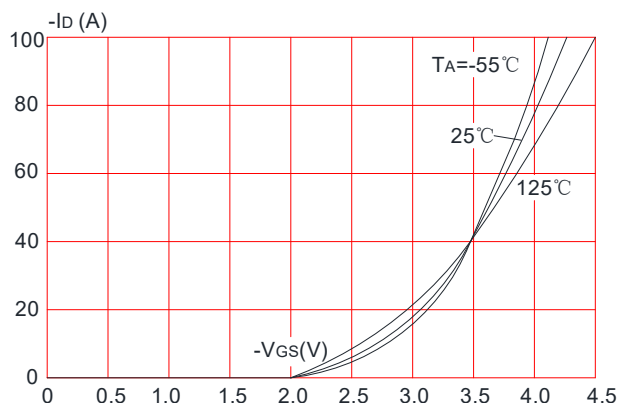


Figure 3: On-resistance vs. Drain Current

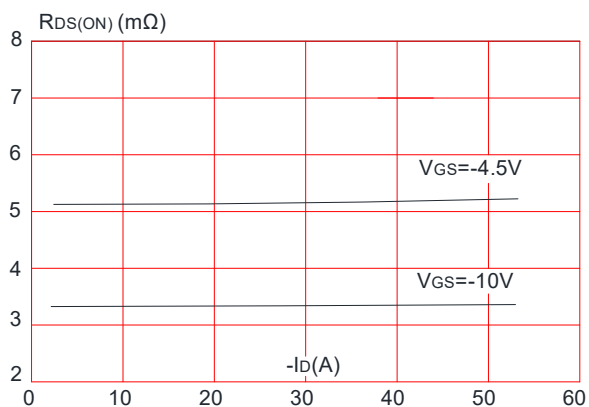


Figure 4: Body Diode Characteristics

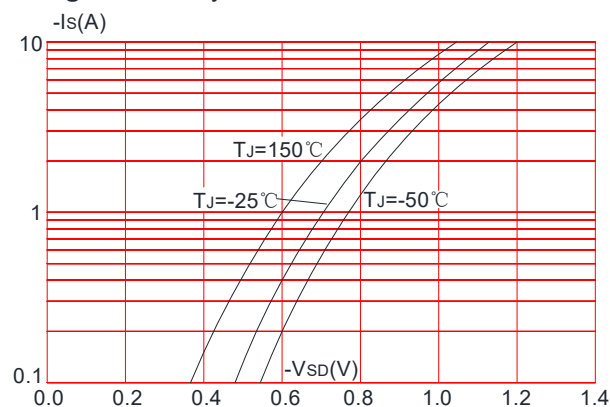


Figure 5: Gate Charge Characteristics

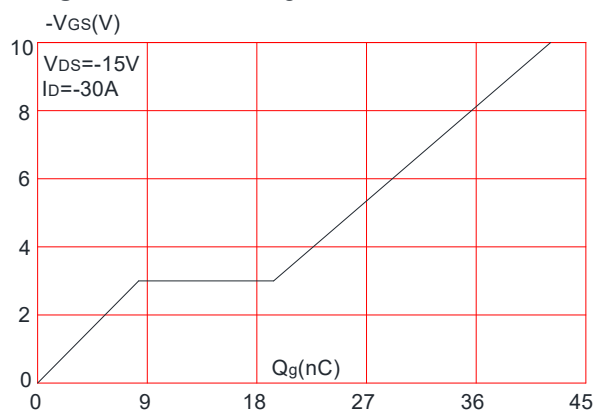
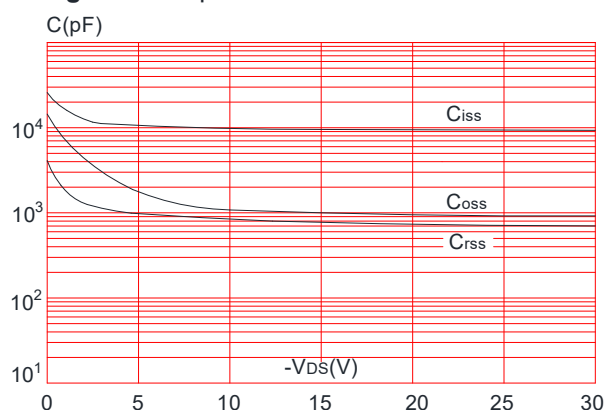


Figure 6: Capacitance Characteristics



TYPICAL PERFORMANCE CHARACTERISTICS (cont.)

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

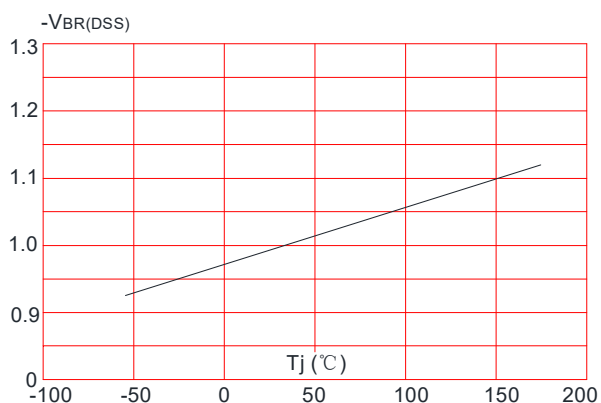


Figure 8: Normalized on Resistance vs. Junction Temperature

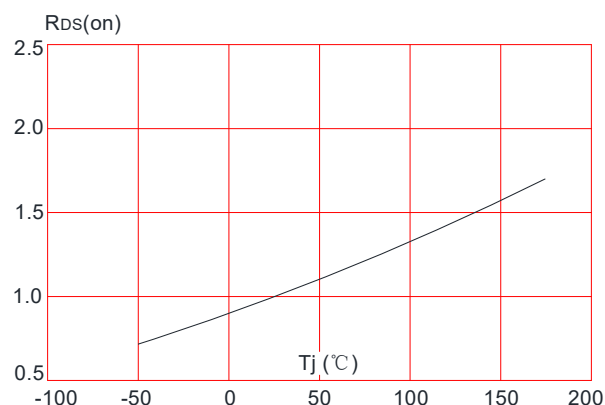


Figure 9: Maximum Safe Operating Area

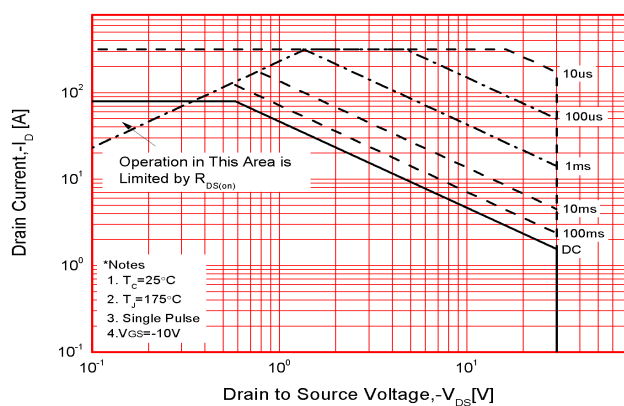


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

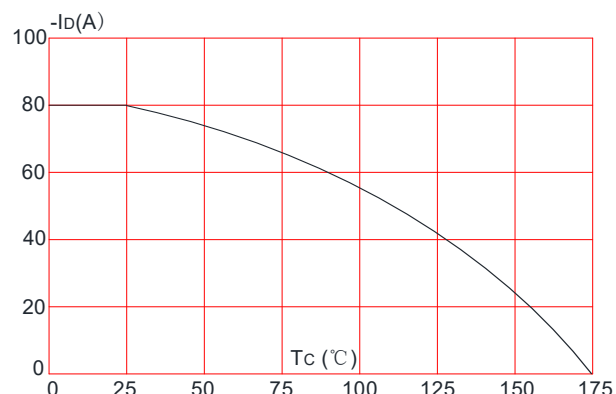
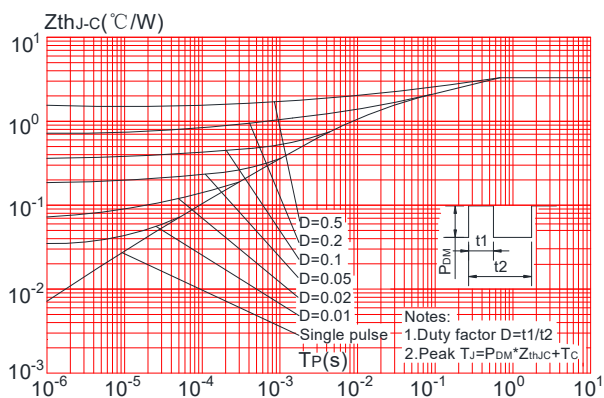
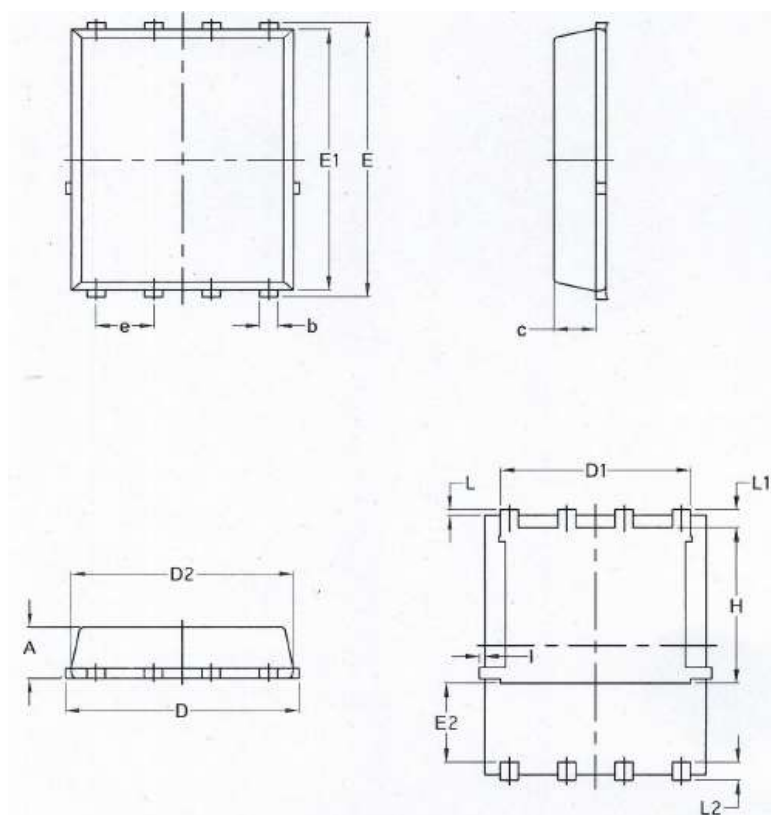


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



PDFNWB5*6-8L PACKAGE OUTLINE DRAWING



SYMBOL	COMMON			
	MM		INCH	
	MIN.	MAX.	MIN.	MAX.
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.970	0.0324	0.0382
△ 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