



Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$ | I_D |
|---------------|---------------------|-------|
| 30V | 4.8m Ω @10V | 45A |
| | 6.6m Ω @4.5V | |

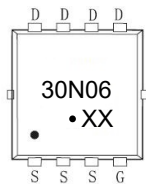
Feature

- High density cell design for ultra low $R_{DS(ON)}$
- Excellent package for good heat dissipation

Application

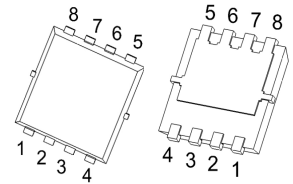
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

MARKING:

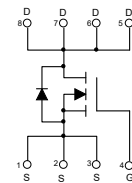


30N06 = Device Code
XX = Date Code

PDFNWB3.3x3.3-8L



Schematic diagram



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------------|---------------------------|--------------------|
| Drain-Source Voltage | V_{DS} | 30 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | |
| Continuous Drain Current | I_D | $T_C = 25^\circ\text{C}$ | A |
| | | $T_C = 100^\circ\text{C}$ | |
| Pulsed Drain Current | I_{DM} | 180 | |
| Power Dissipation | P_D | 83 | W |
| Thermal Resistance from Junction to Ambient ^a | $R_{\theta JA}$ | $t \leq 10\text{sec.}$ | $^\circ\text{C/W}$ |
| | | Steady-State | |
| Thermal Resistance from Junction to Case | Steady-State | $R_{\theta JC}$ | 1.5 |
| Junction Temperature | T_J | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | -55~ +150 | |

MOSFET ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Type | Max | Unit |
|--|---------------|---|-----|------|-----------|------------|
| Off Characteristics | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$ | 30 | | | V |
| Zero gate voltage drain current | I_{DSS} | $V_{DS} = 24V, V_{GS} = 0V$ | | | 1 | μA |
| Gate-body leakage current | I_{GSS} | $V_{GS} = \pm 20V, V_{DS} = 0V$ | | | ± 100 | nA |
| On Characteristics^b | | | | | | |
| Gate threshold voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 1 | 1.5 | 3 | V |
| Drainsource onresistance | $R_{DS(on)}$ | $V_{GS} = 10V, I_D = 10A$ | | 4.8 | 6 | m Ω |
| | | $V_{GS} = 4.5V, I_D = 10A$ | | 6.6 | 8.5 | |
| Forward transconductance | g_{FS} | $V_{DS} = 5V, I_D = 10A$ | 10 | | | S |
| Dynamic Characteristics^c | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$ | | 2987 | | pF |
| Output Capacitance | C_{oss} | | | 306 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 280 | | |
| Gate resistance | R_g | $V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$ | | 2 | | Ω |
| Switching Characteristics^c | | | | | | |
| Total Gate Charge | Q_g | $V_{DS} = 30V, V_{GS} = 10V, I_D = 14A$ | | 62.3 | | nC |
| GateSource Charge | Q_{gs} | | | 37.1 | | |
| GateDrain Charge | Q_{gd} | | | 47.7 | | |
| Turnon delay time | $t_{d(on)}$ | $V_{DD} = 15V, R_G = 1.5\Omega, V_{GS} = 10V, R_L = 0.75\Omega$ | | 15 | | ns |
| Turnon rise time | t_r | | | 40 | | |
| Turnoff delay time | $t_{d(off)}$ | | | 60 | | |
| Turnoff fall time | t_f | | | 18 | | |
| Diode Characteristics | | | | | | |
| Diode Forward Voltage ^b | V_{SD} | $V_{GS} = 0V, I_S = 15A$ | | | 1.2 | V |

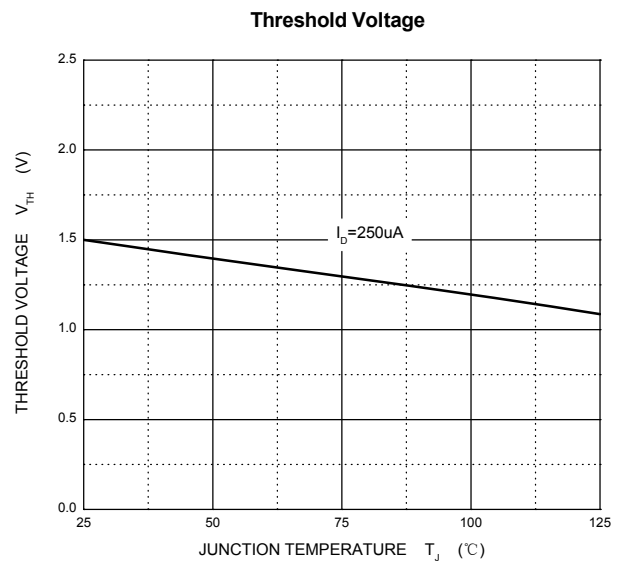
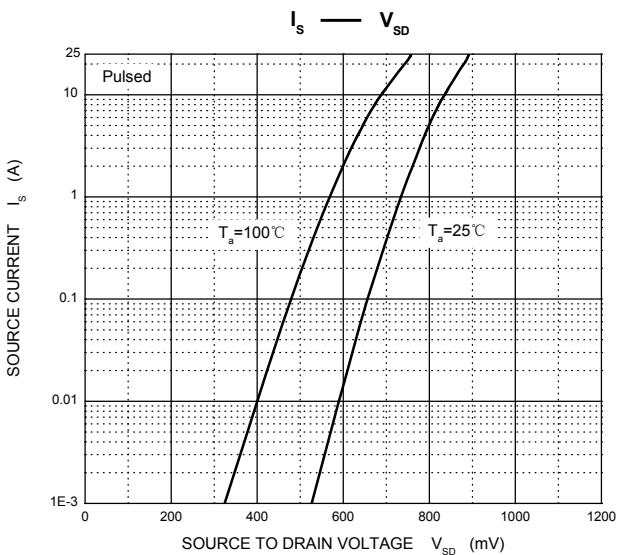
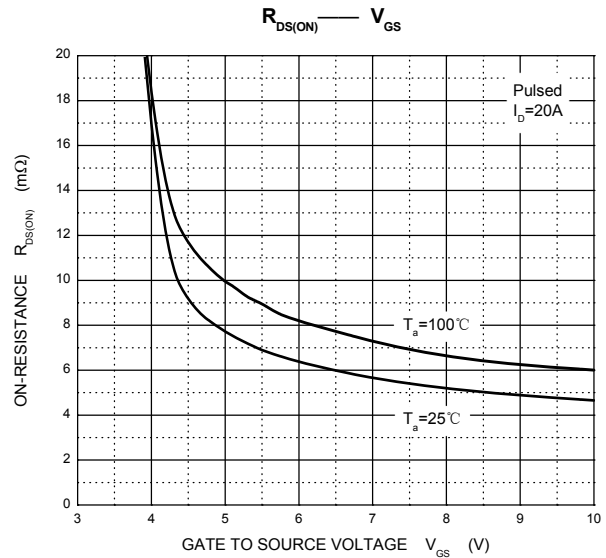
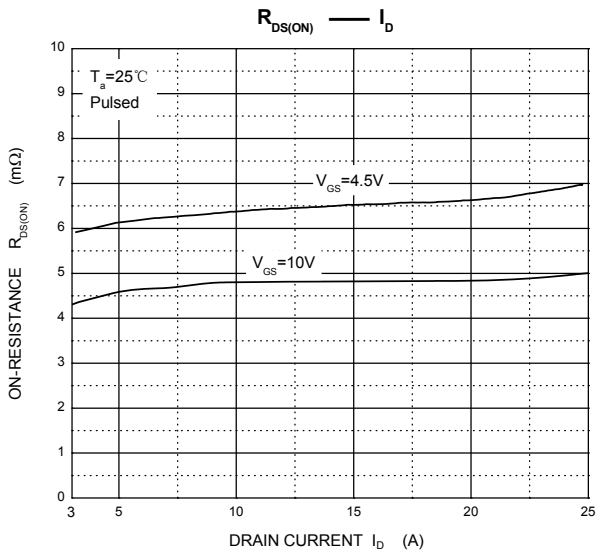
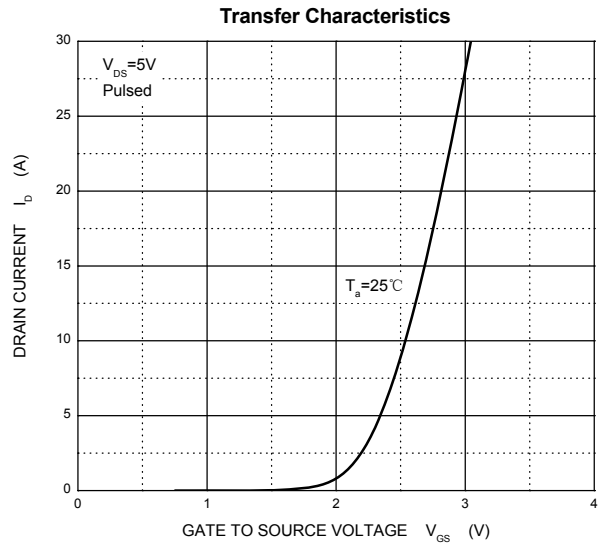
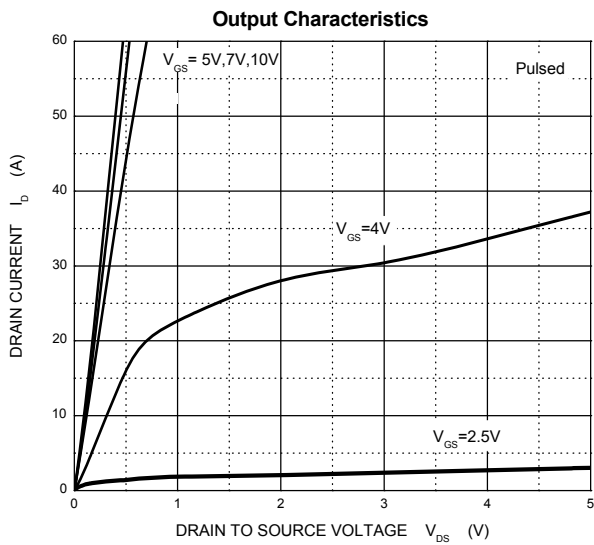
Notes :

a. $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR4 board with 2oz, in a still air environment with $T_A = 25^\circ\text{C}$.

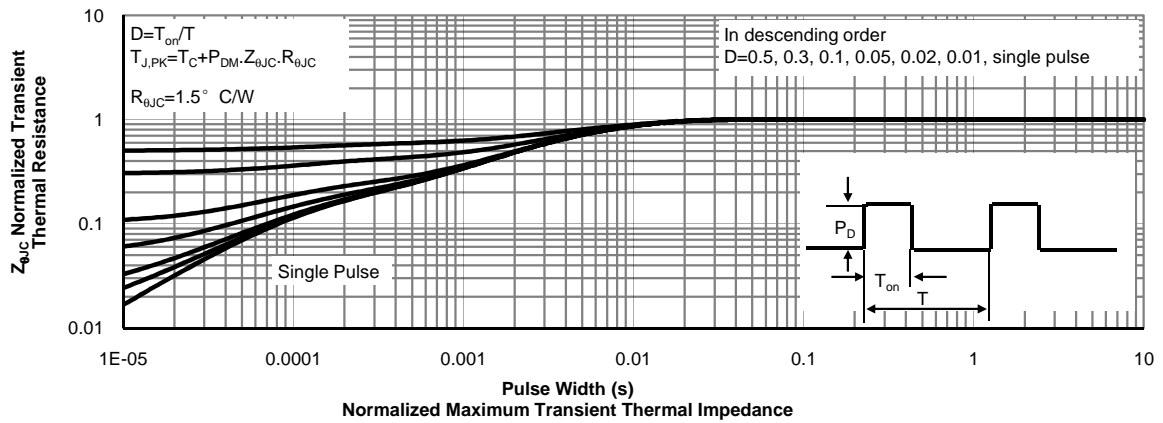
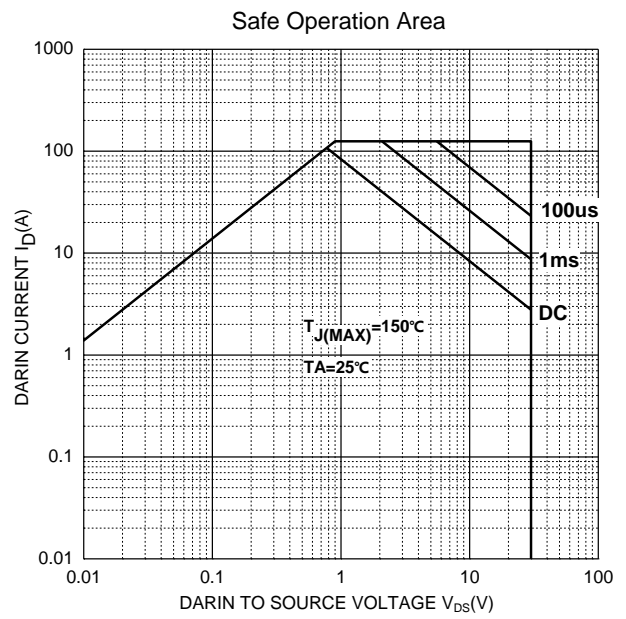
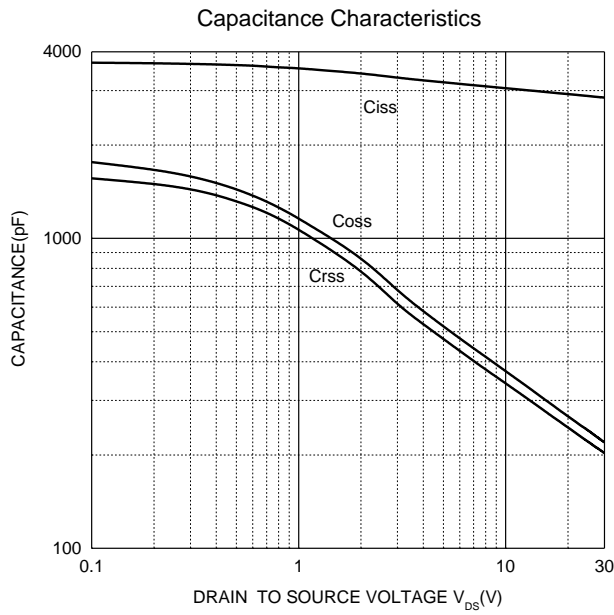
b. Pulse Test: Pulse Width $\leq 380\mu s$, Duty Cycle $\leq 2\%$.

c. Guaranteed by design, not subject to production

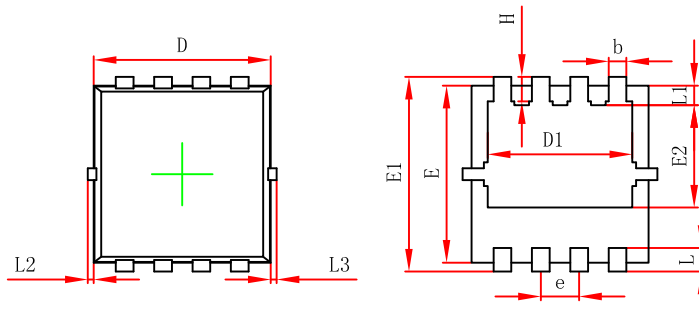
Typical Characteristics



Typical Characteristics

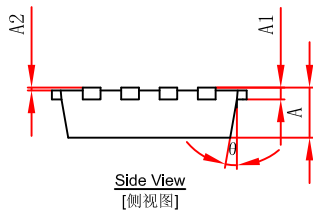


PDFNWB3.3x3.3-8L Package Information



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 | 0.650 | 0.850 | 0.026 | 0.033 |
| A1 | 0.152 REF. | | 0.006 REF. | |
| A2 | 0-0.05 | | 0-0.002 | |
| D | 2.900 | 3.100 | 0.114 | 0.122 |
| D1 | 2.300 | 2.600 | 0.091 | 0.102 |
| E | 2.900 | 3.100 | 0.114 | 0.122 |
| E1 | 3.150 | 3.450 | 0.124 | 0.136 |
| E2 | 1.535 | 1.935 | 0.060 | 0.076 |
| b | 0.200 | 0.400 | 0.008 | 0.016 |
| e | 0.550 | 0.750 | 0.022 | 0.030 |
| L | 0.300 | 0.500 | 0.012 | 0.020 |
| L1 | 0.180 | 0.480 | 0.007 | 0.019 |
| L2 | 0-0.100 | | 0-0.004 | |
| L3 | 0-0.100 | | 0-0.004 | |
| H | 0.315 | 0.515 | 0.012 | 0.020 |
| θ | 9° | 13° | 9° | 13° |