## Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$ | $I_D$ |
|---|---|---|
| -30V | 6mΩ@-10V | -55A |
| | 9mΩ@-4.5V | |

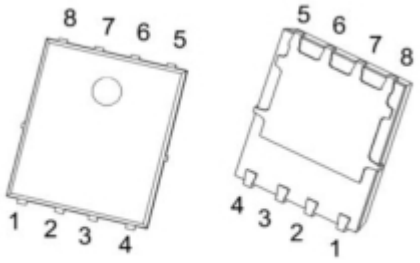
## Feature

- High switching speed
- Low Gate Charge
- High density cell design for ultra low Rdson
- 100% Single Pulse avalanche energy Test

## Application

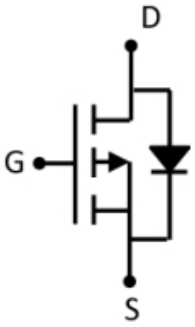
- Load Switching
- DC-DC

## Package

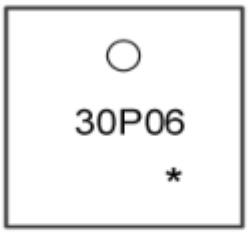



**PDFNWB5X6-8L**

## Circuit diagram




## Marking




**30P06 =Device Code**
*** =Month Code**

## Absolute maximum ratings

($T_a$=25℃ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ | -30 | V |
| Gate-Source Voltage | $V_{GS}$ | ±20 | V |
| Drain Current-Continuous （$T_C$=25℃） | $I_D$ | -55 | A |
| Pulsed Drain Current | $I_{DM}$ | -220 | A |
| Single Pulse Avalanche Energy[1] | $E_{AS}$ | 68 | mJ |
| Maximum Power Dissipation($T_C$ =25℃) | $P_D$ | 106 | W |
| Thermal Resistance, Junction-to-Case | $R_{\theta JC}$ | 1.18 | ℃/W |
| Operating Junction and Storage Temperature Range | $T_J$, $T_{STG}$ | -55~+150 | ℃ |

## Electrical characteristics

($T_A$=25℃, unless otherwise noted)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| **Static Characteristics** | | | | | | |
| Drain-Source Breakdown Voltage | $BV_{(BR)DSS}$ | $V_{GS}$ = 0V, $I_D$ =-250μA | -30 | | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$ =-30V, $V_{GS}$ = 0V | | | -1 | uA |
| Gate-Source Leakage | $I_{GSS}$ | $V_{GS}$ =±20V, $V_{DS}$ =0V | | | ±100 | uA |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$ =$V_{GS}$, $I_D$ =-250μA | -1 | -1.5 | -2.5 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}$ =-10V, $I_D$ =-15A | | 6 | 8 | mΩ |
| | | $V_{GS}$ =-4.5V, $I_D$ =-10A | | 9 | 13 | |
| | | $V_{DS}$ =-10V, $I_D$ =-15A | 30 | | | |
| **Dynamic Characteristics** | | | | | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=-15V, $V_{GS}$=0V, f=1MHz | | 2900 | | pF |
| Output Capacitance | $C_{oss}$ | | | 410 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 280 | | |
| **Switching Characteristics** | | | | | | |
| Turn-on Delay Time | $T_{d(on)}$ | $V_{DD}$ =-15V, , $I_D$=-10A $V_{GS}$=-10V, $R_{GEN}$=3Ω | | 15 | | nS |
| Turn-on Rise Time | $T_r$ | | | 11 | | |
| Turn-off Delay Time | $T_{d(off)}$ | | | 44 | | |
| Turn-off Fall Time | $T_f$ | | | 21 | | |
| Total Gate Charge | $Q_g$ | $V_{DS}$=-15V, $I_D$=-10A , $V_{GS}$=-10V | | 48 | | nC |
| Gate-Source Charge | $Q_{gs}$ | | | 12 | | |
| Gate-Drain Charge | $Q_{gd}$ | | | 14 | | |
| **Drain-Source Diode Characteristics** | | | | | | |
| Diode Forward Voltage | $V_{SD}$ | $V_{GS}$=0V,$I_S$=-2A | | | -1.2 | V |

**Note:**

1. The $E_{AS}$ data shows Max. rating . The test condition is $V_{DD}$=-15V,$V_{GS}$=-10V,L=0.1mH,Rg=25Ω

## Typical Characteristics

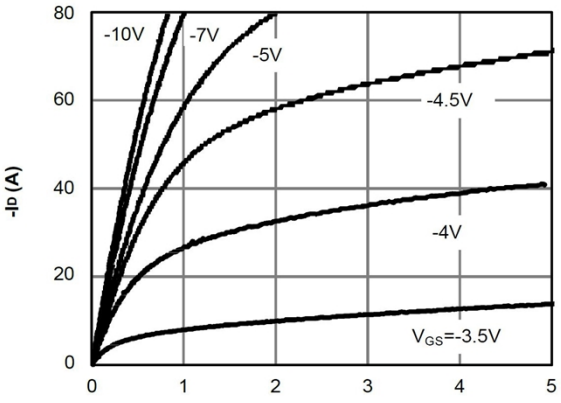



Fig 1: On-Region Characteristics

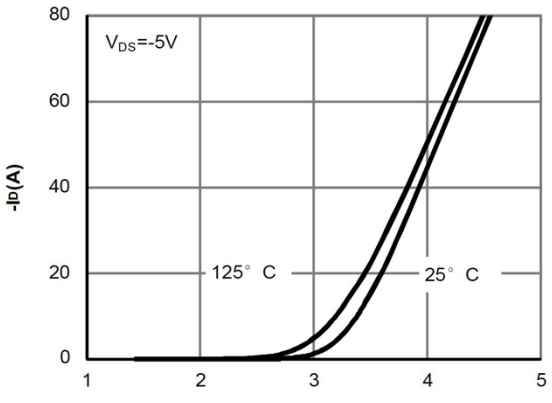



Figure 2: Transfer Characteristics

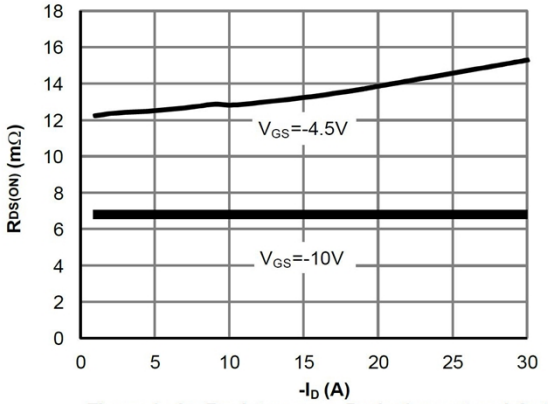



Figure 3: On-Resistance vs. Drain Current and Gate Voltage

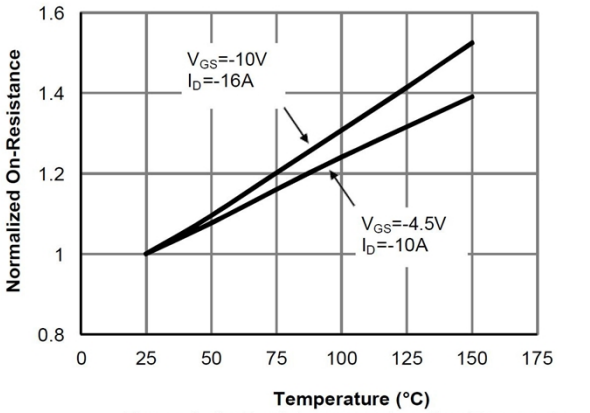



Figure 4: On-Resistance vs. Junction Temperature

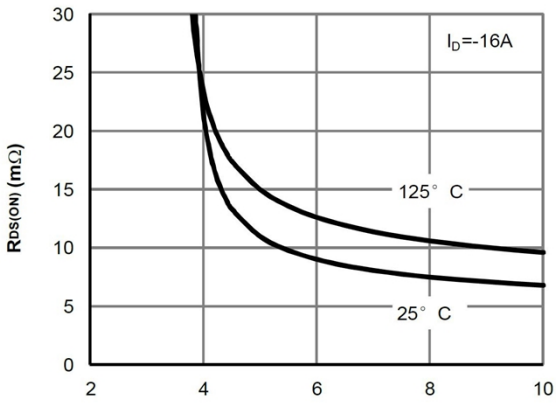



Figure 5: On-Resistance vs. Gate-Source Voltage

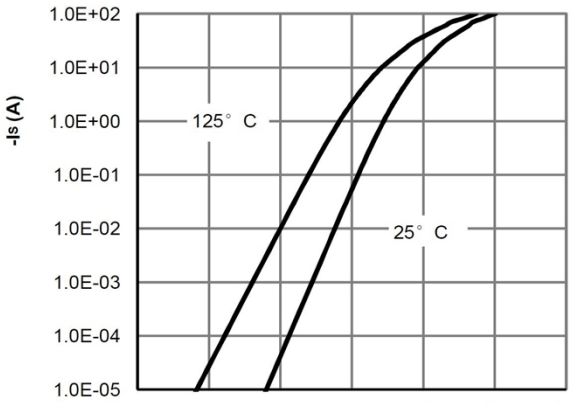
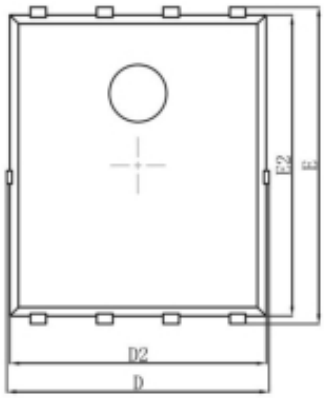
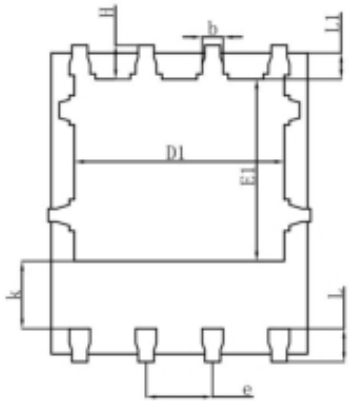



Figure 6: Body-Diode Characteristics

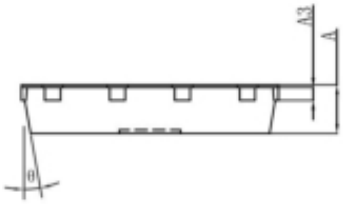
## PDFNWB5X6-8L Package Information




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 | 0.900 | 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° |