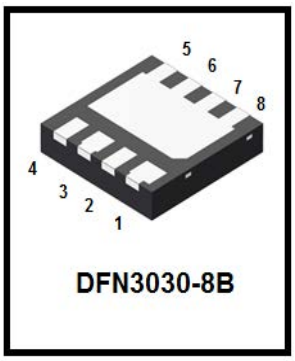
# N8266D

## N-Channel 60-V Power MOSFET

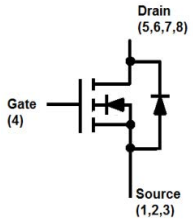



### 1. FEATURES

- Low RDS(on) trench technology.
- Low thermal impedance
- Fast switching speed
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

### 2. APPLICATION

- White LED boost converters
- Automotive Systems
- Industrial DC/DC Conversion Circuits




### 3. ORDERING INFORMATION

| Device | Marking | Shipping |
|---|---|---|
| N8266D | N66 | 3000/Tape&Reel |

### 4. MAXIMUM RATINGS(Ta = 25ºC)

| Parameter | | Symbol | Limit | Units |
|---|---|---|---|---|
| Drain-Source Voltage | | VDS | 60 | V |
| Gate-Source Voltage | | VGS | ±20 | |
| Continuous Drain Current (Note 1) | TA=25°C | ID | 9 | A |
| | TA=70°C | | 7 | |
| Pulsed Drain Current (Note 2) | | IDM | 40 | |
| Continuous Source Current (Diode Conduction)(Note 1) | | IS | 4.6 | A |
| Power Dissipation(Note 1) | TA =25°C | PD | 5 | W |
| | TA =70°C | | 3.2 | |
| Operating Junction and Storage Temperature Range | | TJ,Tstg | -55 to 150 | ℃ |

### 5. THERMAL CHARACTERISTICS

| Parameter | | Symbol | Maximum | Units |
|---|---|---|---|---|
| Maximum Junction-to-Ambient(Note 1) | t ≤ 10sec | $R_{\theta JA}$ | 39 | °C/W |
| | Steady State | | 85 | |

1.Surface Mounted on 1” x 1” FR4 Board.

2.Pulse width limited by maximum junction temperature

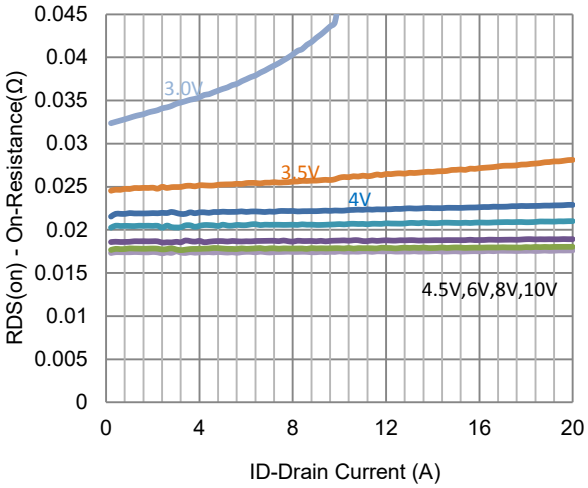
## 6.ELECTRICAL CHARACTERISTICS CURVES

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Static** | | | | | | |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$ = $V_{GS}$, $I_D$ = 250 uA | 1 | | | V |
| Gate-Body Leakage | $I_{GSS}$ | $V_{DS}$ = 0 V, $V_{GS}$ = ±20 V | | | ±10 | uA |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$ = 48 V, $V_{GS}$ = 0 V | | | 1 | uA |
| | | $V_{DS}$ = 48 V, $V_{GS}$ = 0 V, $T_J$ = 55°C | | | 25 | |
| On-State Drain Current | $I_{D(on)}$ | $V_{DS}$ = 5 V, $V_{GS}$ = 10 V | 25 | | | A |
| Drain-Source On-Resistance | $r_{DS(on)}$ | $V_{GS}$ = 10 V, $I_D$ = 10.4 A | | 16.5 | 20 | mΩ |
| | | $V_{GS}$ = 4.5 V, $I_D$ = 7.2 A | | 20.5 | 24 | |
| Forward Transconductance | $g_{fs}$ | $V_{DS}$ = 15 V, $I_D$ = 10.4 A | | 20 | | S |
| Diode Forward Voltage | $V_{SD}$ | $I_S$ = 2.3 A, $V_{GS}$ = 0 V | | 0.7 | | V |
| **Dynamic** | | | | | | |
| Total Gate Charge | $Q_g$ | $V_{DS}$ = 30 V, $V_{GS}$ = 4.5 V, $I_D$ = 10.4 A | | 13.3 | | nC |
| Gate-Source Charge | $Q_{gs}$ | | | 4.2 | | |
| Gate-Drain Charge | $Q_{gd}$ | | | 5.0 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DS}$ = 30 V, $R_L$ = 2.9 Ω, $I_D$ = 10.4 A, $V_{GEN}$ = 10 V, $R_{GEN}$ = 6 Ω | | 10 | | ns |
| Rise Time | $t_r$ | | | 24 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 67 | | |
| Fall Time | $t_f$ | | | 37 | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$ = 15 V, $V_{GS}$ = 0 V, f = 1 MHz | | 1739 | | pF |
| Output Capacitance | $C_{oss}$ | | | 88.5 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 73.9 | | |

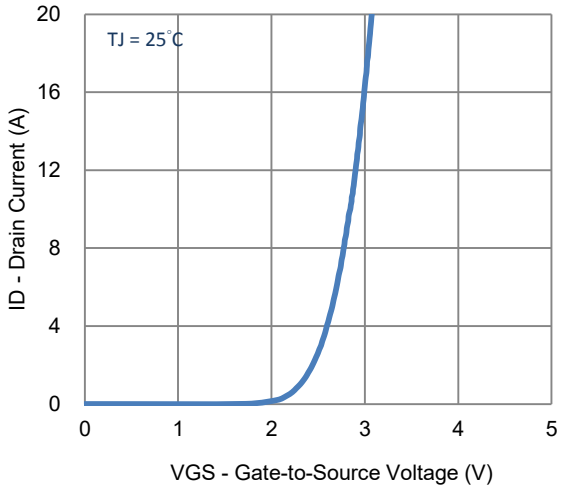
3.Pulse test: PW ≤ 300us duty cycle≤ 2%.

4.Guaranteed by design, not subject to production testing.

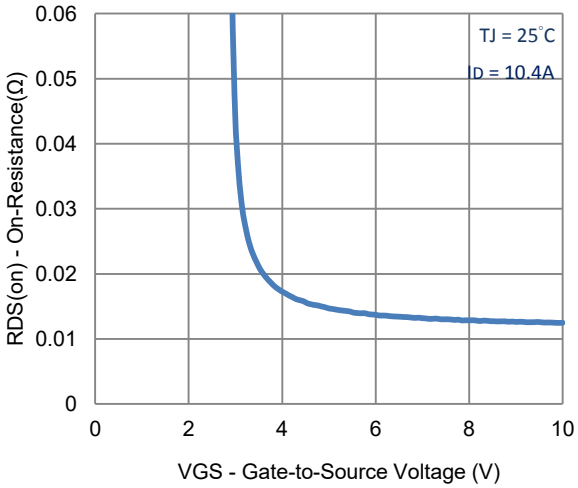
## 7.ELECTRICAL CHARACTERISTICS CURVES



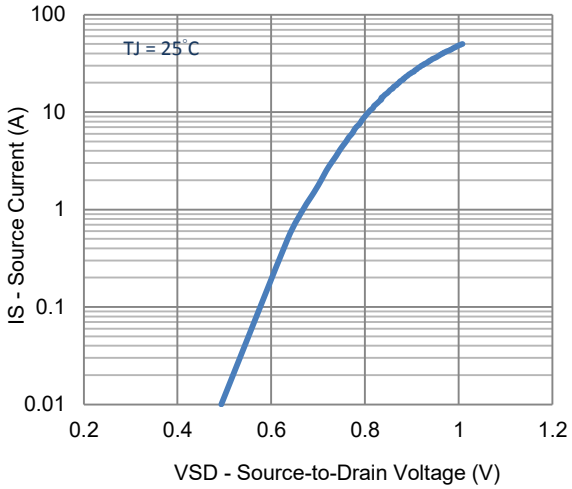

**1. On-Resistance vs. Drain Current**



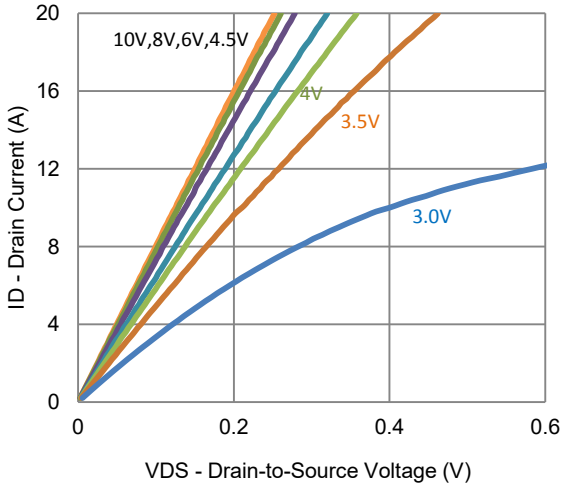

**2. Transfer Characteristics**



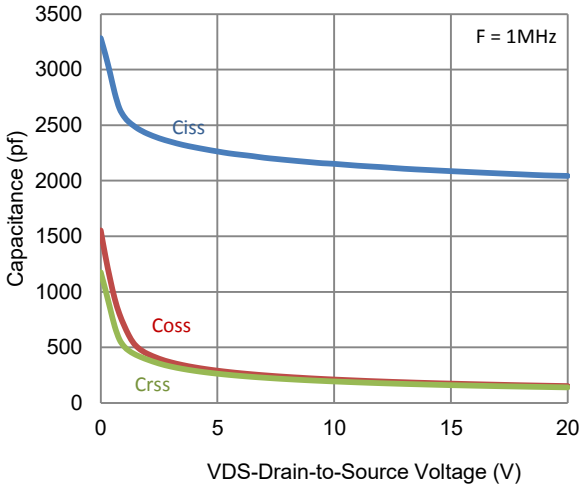

**3. On-Resistance vs. Gate-to-Source Voltage**




**4. Drain-to-Source Forward Voltage**

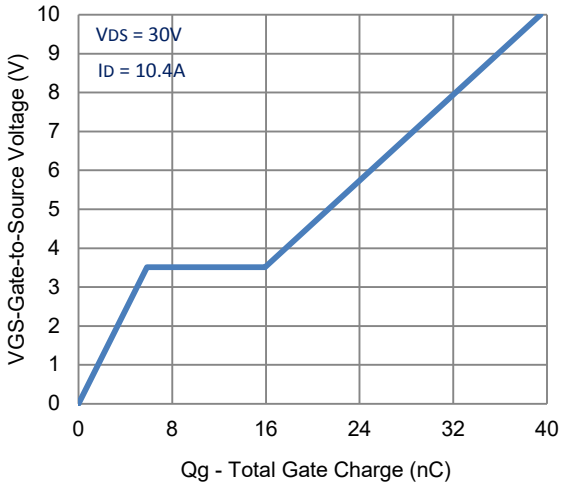



**5. Output Characteristics**

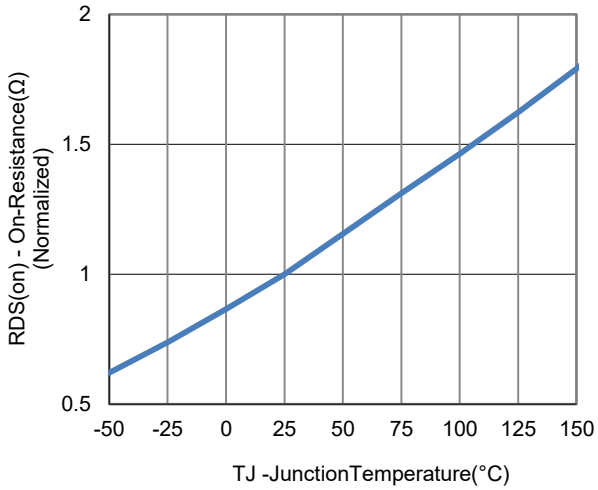



**6. Capacitance**

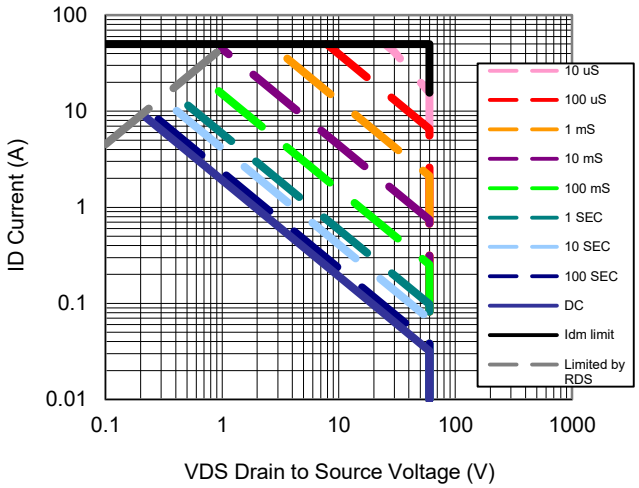
## 8.ELECTRICAL CHARACTERISTICS CURVES(Con.)



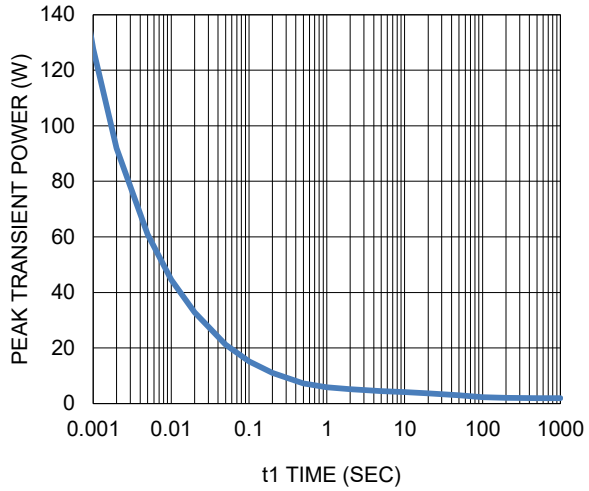

**7. Gate Charge**



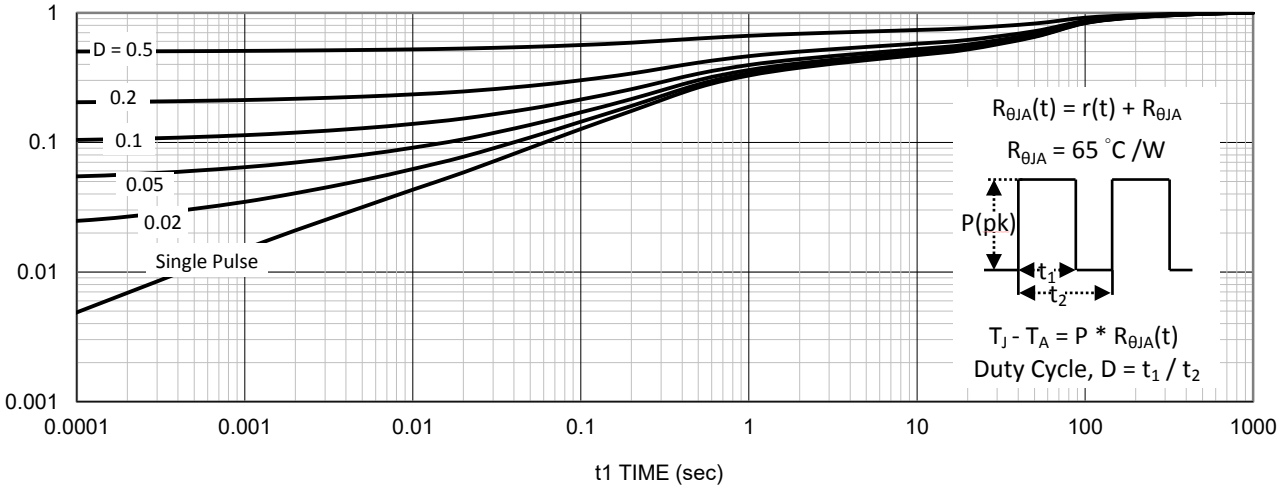

**8. Normalized On-Resistance Vs Junction Temperature**




**9. Safe Operating Area**

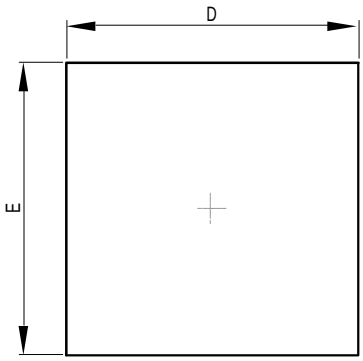



**10. Single Pulse Maximum Power Dissipation**

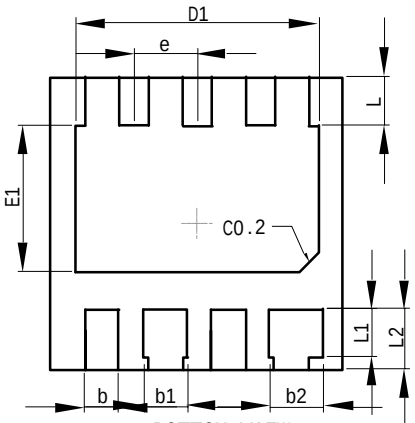



**11. Normalized Thermal Transient Junction to Ambient**

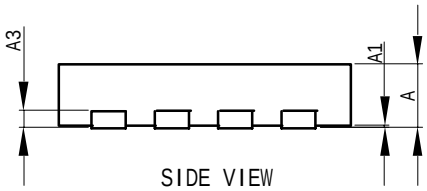
## 9.OUTLINE AND DIMENSIONS




TOP VIEW



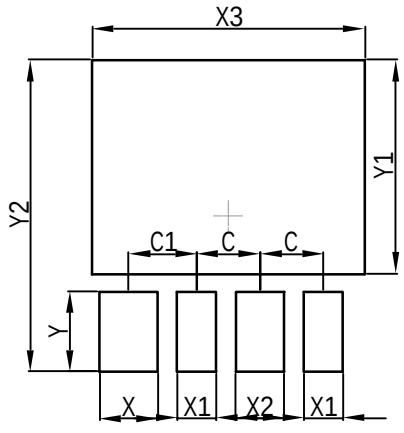

BOTTOM VIEW




SIDE VIEW

| DFN3030-8B | | | |
|---|---|---|---|
| Dim | Min | Nor | Max |
| A | 0.60 | 0.65 | 0.70 |
| A1 | 0.00 | 0.03 | 0.05 |
| b | 0.30 | 0.35 | 0.40 |
| b1 | 0.40 | 0.45 | 0.50 |
| b2 | 0.50 | 0.55 | 0.60 |
| D | 2.95 | 3.00 | 3.05 |
| E | 2.95 | 3.00 | 3.05 |
| D1 | 2.45 | 2.50 | 2.55 |
| E1 | 1.45 | 1.50 | 1.55 |
| e | 0.65BSC | | |
| L | 0.45 | 0.50 | 0.55 |
| L1 | 0.44 | 0.49 | 0.54 |
| L2 | 0.57 | 0.62 | 0.67 |
| A3 | 0.152REF. | | |
| All Dimensions in mm | | | |

## 10.SOLDERING FOOTPRINT




| DFN3030-8B | |
|---|---|
| Dim | (mm) |
| C | 0.65 |
| C1 | 0.70 |
| X | 0.60 |
| X1 | 0.40 |
| X2 | 0.50 |
| X3 | 2.80 |
| Y1 | 2.20 |
| Y2 | 3.20 |
| Y | 0.82 |