

/ Descriptions

PDFN3×3A-8L                      N                      MOS  
N-Channel Enhancement Mode Field Effect Transistor in a PDFN3×3A-8L Plastic Package.

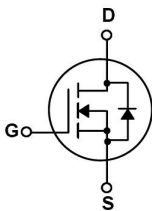
/ Features

$V_{DS} (V) = 30V$   
 $I_D = 40 A (V_{GS} = 20V)$   
 $R_{DS(ON)}@10V \ 6mR(Typ.4.7mR)$   
HF Product.

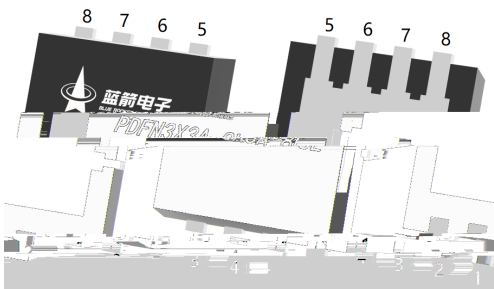
/ Applications

DC/DC  
These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

/ Equivalent Circuit



/ Pinning



| 出脚   | 定义 |
|------|----|
| Pin1 | S  |
| Pin2 | S  |
| Pin3 | S  |
| Pin4 | G  |
| Pin5 | D  |
| Pin6 | D  |
| Pin7 | D  |
| Pin8 | D  |

/ Marking

See Marking Instructions.

**/ Absolute Maximum Ratings(Ta=25 )**

| Parameter                               |              | Symbol                      | Rating     | Unit |
|-----------------------------------------|--------------|-----------------------------|------------|------|
| Drain-Source Voltage                    |              | $V_{DS}$                    | 30         | V    |
| Drain Current                           |              | $I_D(T_C=25^\circ\text{C})$ | 40         | A    |
| Drain Current - Pulsed                  |              | $I_{DM}$                    | 130        | A    |
| Gate-Source Voltage                     |              | $V_{GS}$                    | $\pm 20$   | V    |
| Single Pulsed Avalanche Energy          |              | $E_{AS}$                    | 211        | mJ   |
| Avalanche Current                       |              | $I_{AS}$                    | 23         | A    |
| Power Dissipation                       |              | $P_D(T_C=25^\circ\text{C})$ | 29         | W    |
| Operating and Storage Temperature Range |              | $T_J, T_{stg}$              | -55 to 150 |      |
| Junction-to-Ambient                     | $t \leq 10$  | $R_{\theta JA}$             | 40         | /W   |
| Junction-to-Ambient                     | Steady-State |                             | 75         |      |
| Junction-to-Case                        | Steady-State | $R_{\theta JC}$             | 4.2        |      |

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| Parameter                          | Symbol               | Test Conditions                             |                       | Min | Typ  | Max  | Unit |
|------------------------------------|----------------------|---------------------------------------------|-----------------------|-----|------|------|------|
| Drain-Source Breakdown Voltage     | BV <sub>DSS</sub>    | V <sub>GS</sub> =0V                         | I <sub>D</sub> =250μA | 30  | 32   |      | V    |
| Zero Gate Voltage Drain Current    | I <sub>DSS</sub>     | V <sub>DS</sub> =30V                        | V <sub>GS</sub> =0V   |     |      | 1    | μA   |
| Gate-Body Leakage Current Forward  | I <sub>GSS</sub>     | V <sub>GS</sub> =±20V                       | V <sub>DS</sub> =0V   |     |      | ±0.1 | μA   |
| Gate Threshold Voltage             | V <sub>GS(th)</sub>  | V <sub>DS</sub> =V <sub>GS</sub>            | I <sub>D</sub> =250μA | 1.0 | 1.8  | 2.5  | V    |
| Static Drain-Source On-Resistance  | R <sub>DS(on)</sub>  | V <sub>GS</sub> =10V                        | I <sub>D</sub> =20A   |     | 4.7  | 6    | mΩ   |
|                                    |                      | V <sub>GS</sub> =4.5V                       | I <sub>D</sub> =10A   |     | 7.1  | 9    | mΩ   |
| Drain-Source Diode Forward Voltage | V <sub>SD</sub>      | V <sub>GS</sub> =0V                         | I <sub>S</sub> =10A   |     | 0.75 | 1.2  | V    |
| Input Capacitance                  | C <sub>iss</sub>     | V <sub>DS</sub> =25V<br>f=1.0MHz            | V <sub>GS</sub> =0V   |     | 2090 |      | pF   |
| Output Capacitance                 | C <sub>oss</sub>     |                                             |                       |     | 790  |      |      |
| Reverse Transfer Capacitance       | C <sub>rss</sub>     |                                             |                       |     | 634  |      |      |
| Gate resistance                    | R <sub>g</sub>       | V <sub>GS</sub> =0V<br>f=1MHz               | V <sub>DS</sub> =0V   |     | 1.9  |      | Ω    |
| Total Gate Charge                  | Q <sub>g(10V)</sub>  | V <sub>GS</sub> =10V<br>I <sub>D</sub> =18A | V <sub>DS</sub> =15V  |     | 33   |      | nC   |
| Total Gate Charge                  | Q <sub>g(4.5V)</sub> |                                             |                       |     | 16   |      |      |
| Gate Source Charge                 | Q <sub>gs</sub>      |                                             |                       |     | 5.2  |      |      |
| Gate Drain Charge                  | Q <sub>gd</sub>      |                                             |                       |     | 6.2  |      |      |
| Turn-On Delay Time                 | t <sub>d(on)</sub>   | V <sub>DD(on)</sub>                         |                       |     |      |      |      |

## / Electrical Characteristic Curve

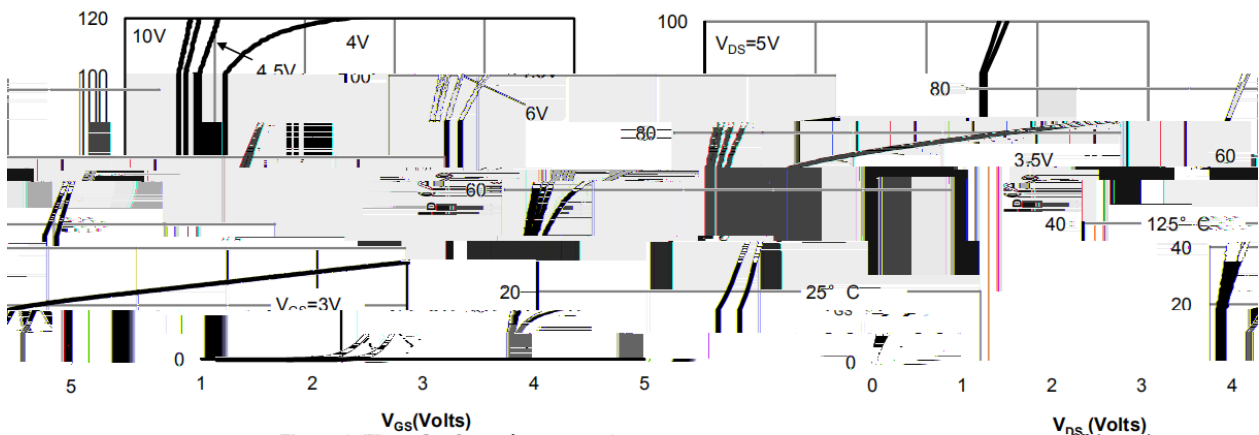


Figure 2: Transfer Characteristics

Figure 3: On-Region Characteristics

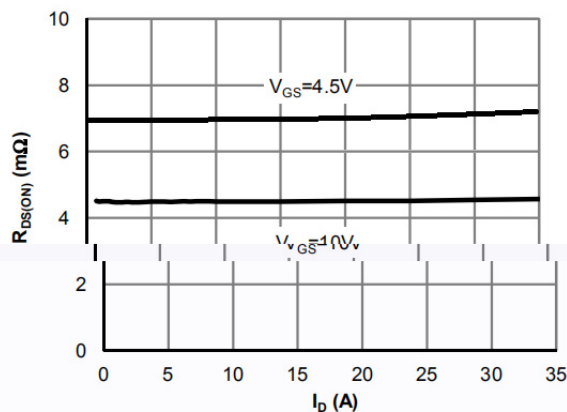


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

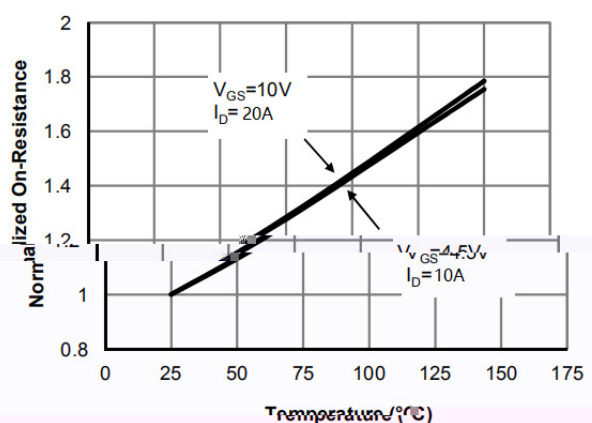


Figure 4: On-Resistance vs. Junction Temperature

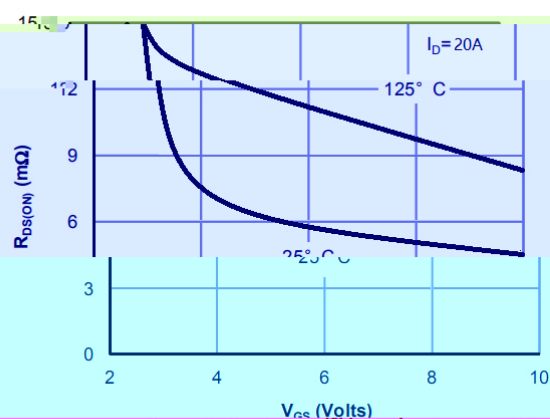


Figure 5: On-Resistance vs. Gate-Source Voltage

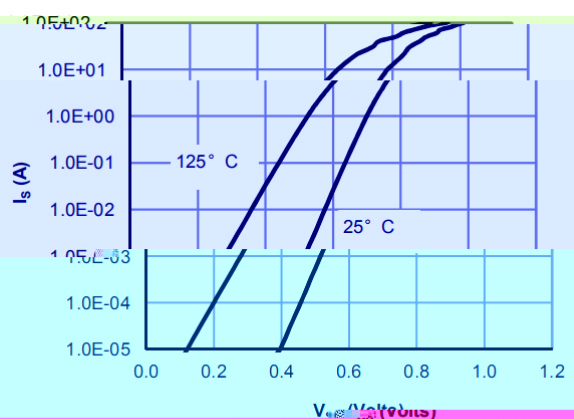
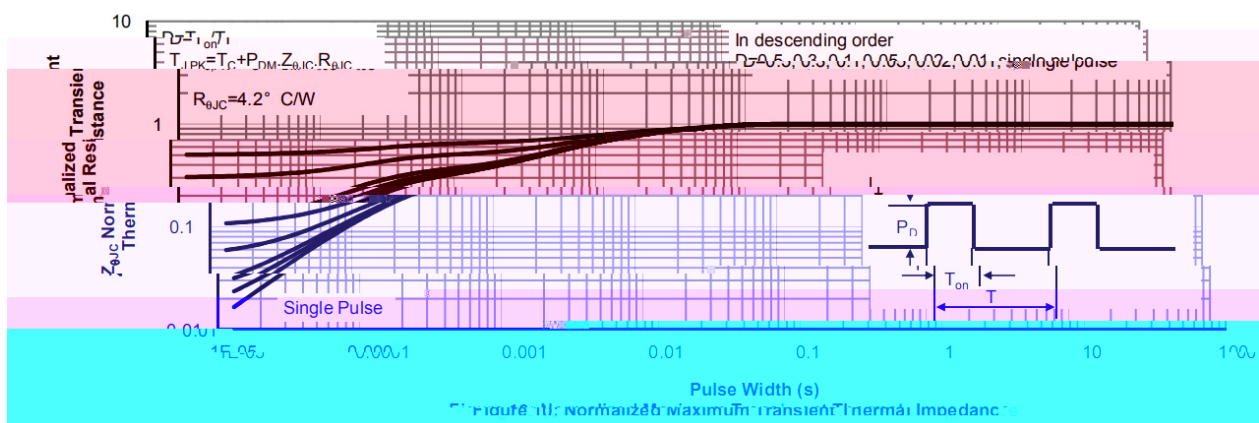
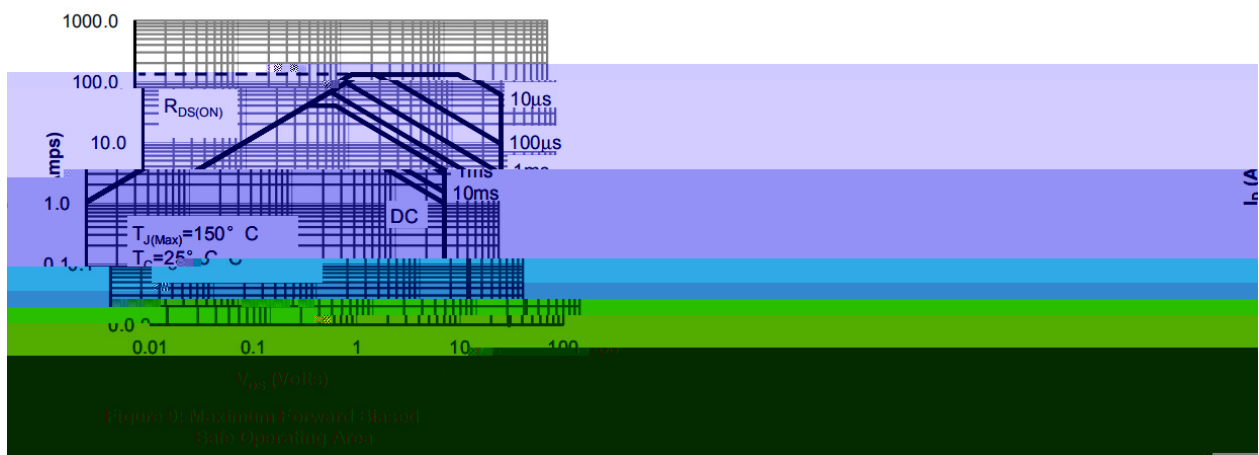
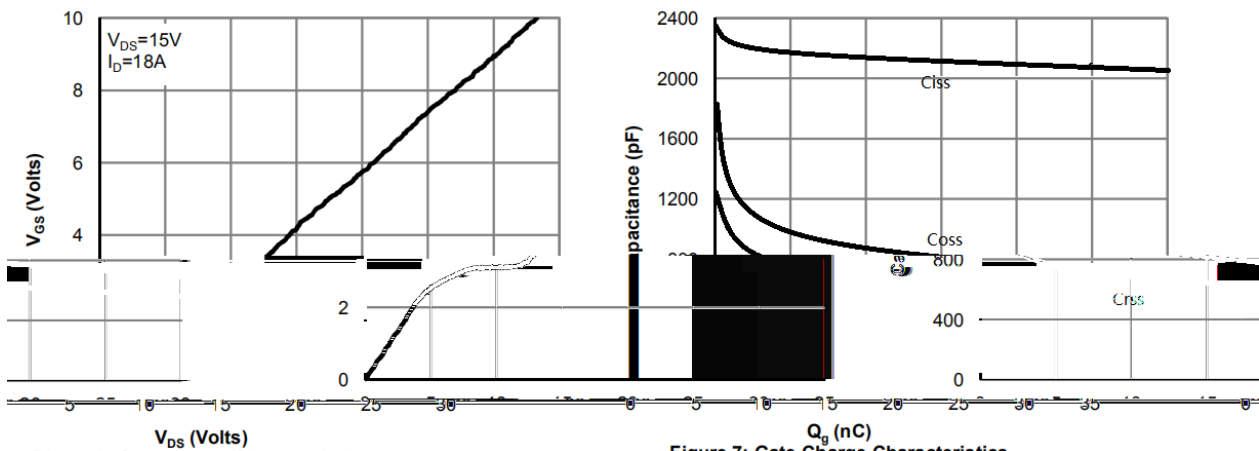


Figure 6: Body Diode Characteristics

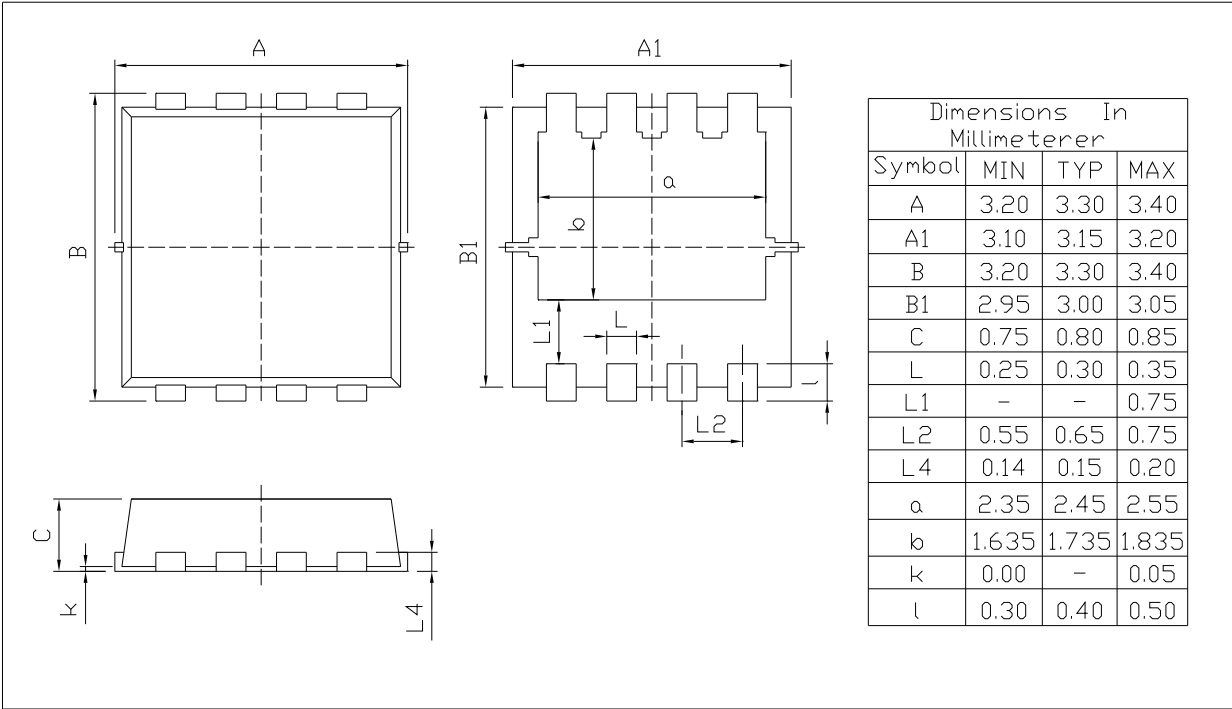
## / Electrical Characteristic Curve



/ Package Dimensions

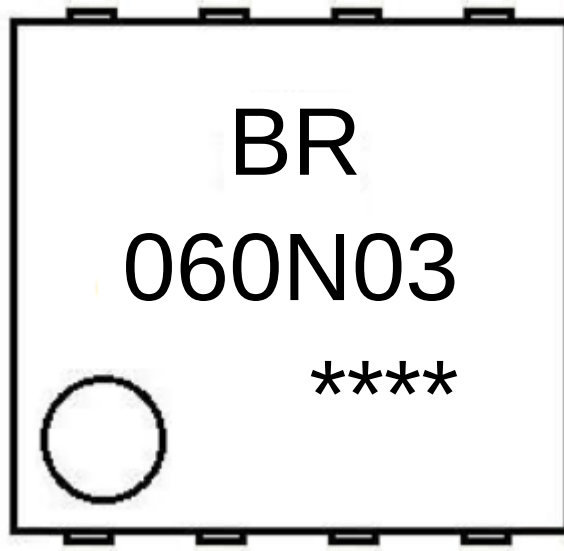
PDFN3X3A-8L

Unit:mm



Rev.00 202011

/ Marking Instructions



BR

060N03

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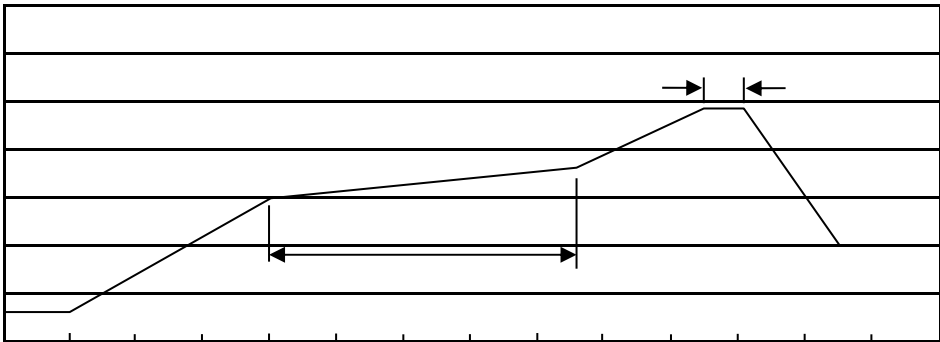
Note:

BR: Company Code

060N03: Product Type Code

\*\*\*\*: Lot No. Code, code change with Lot No

(     ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



- 1

150 180

60 90sec;
- 2

245±5

5±0.5sec;
- 3

2 10 /sec.
- Note:

1.Preheating:150~180 , Time:60~90sec.

2.Peak Temp.:245±5 , Duration:5±0.5sec.

3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260±5                      10±1 sec.                      Temp.:260±5                      Time:10±1 sec

/ Packaging SPEC.

/ REEL

| Package Type | Units           |                      |                      |                            |                      | Dimension (unit mm <sup>3</sup> ) |            |             |
|--------------|-----------------|----------------------|----------------------|----------------------------|----------------------|-----------------------------------|------------|-------------|
|              | Units/Reel<br>/ | Reels/Inner Box<br>/ | Units/Inner Box<br>/ | Inner Boxes/Outer Box<br>/ | Units/Outer Box<br>/ | Reel                              | Inner Box  | Outer Box   |
| PDFN3×3A-8L  | 5,000           | 2                    | 10,000               | 6                          | 60,000               | 13 ×12                            | 360×360×50 | 380×335×366 |

/ Notices