

/ Descriptions

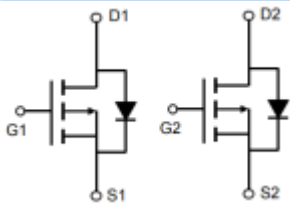
/ Features

$V_{DS}=-20V$     $I_D=-22.8A$   
 $R_{DS(ON)}@-4.5V$  22m (Type.20m )  
 $R_{DS(ON)}@-2.5V$  30m (Type.26m )  
 $R_{DS(ON)}@-1.8V$  100m (Type.35m )  
HF Product.

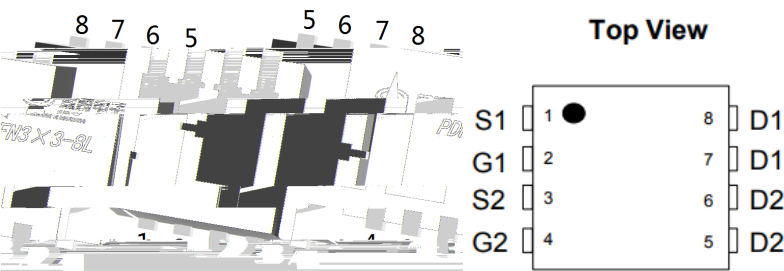
/ Applications

Protection Circuits Applications,Logic/Load Switch Circuits Applications.

/ Equivalent Circuit



/ Pinning



/ Marking

See Marking Instructions.

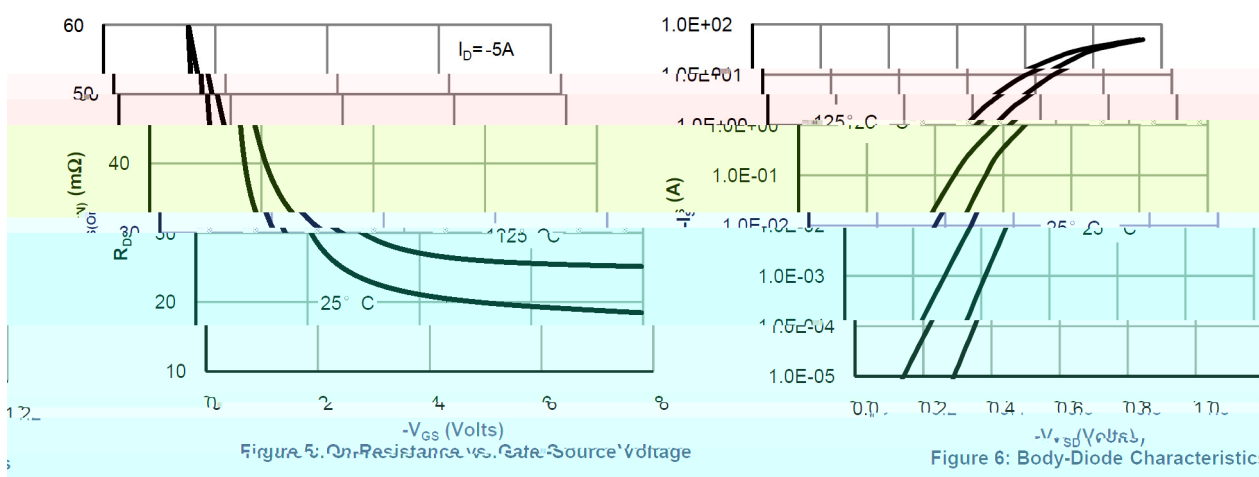
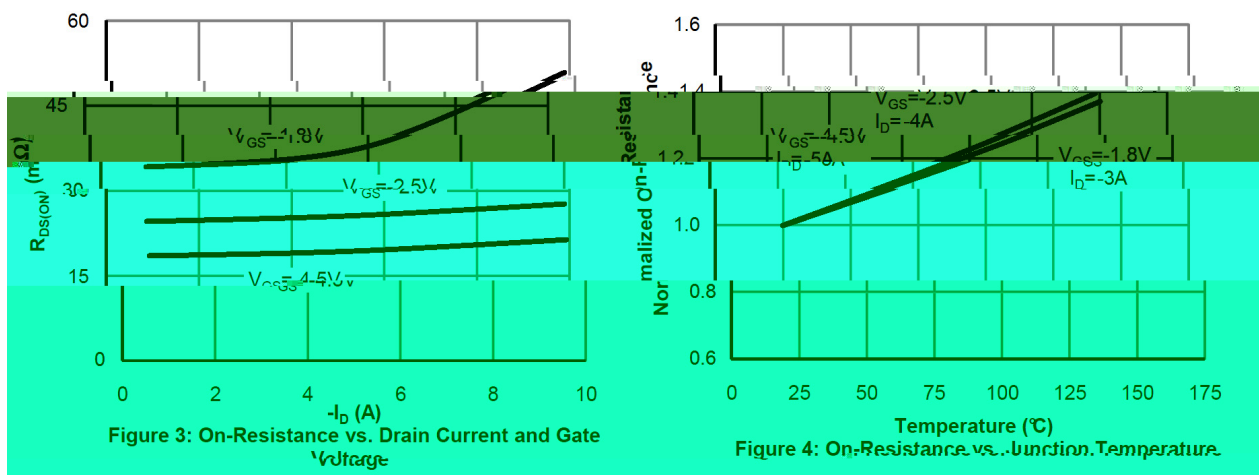
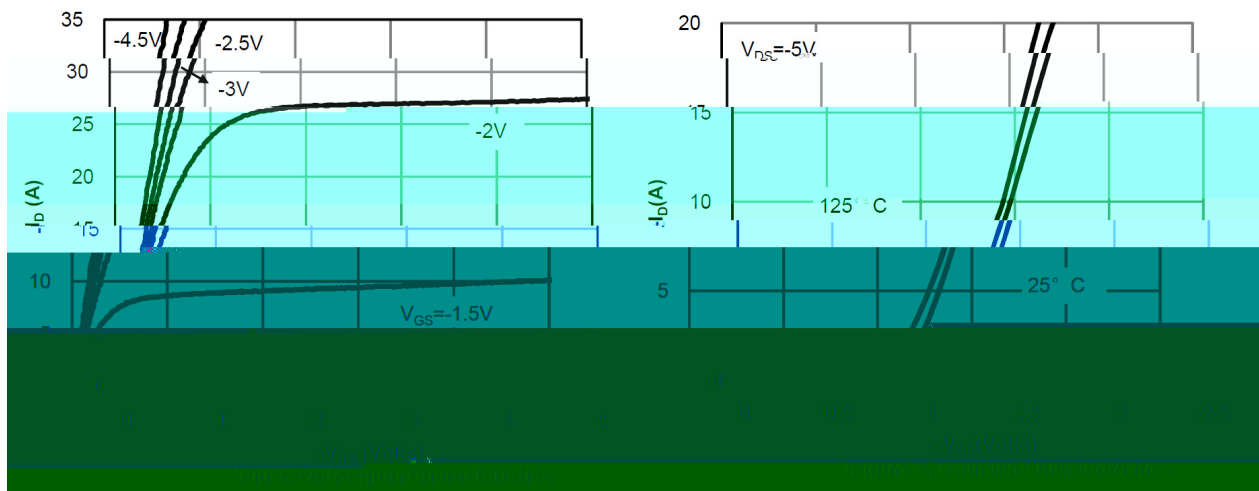
/ Absolute Maximum Ratings( $T_a=25$  )

| Parameter                              | Symbol                        | Rating      | Unit |
|----------------------------------------|-------------------------------|-------------|------|
| Drain-Source Voltage                   | $V_{DS}$                      | -20         | V    |
| Gate-Source Voltage                    | $V_{GS}$                      | $\pm 12$    | V    |
| Continuous Drain Current               | $I_D(T_c=25)$                 | -22.8       | A    |
| Pulsed Drain Current                   | $I_{DM}$                      | -37.5       | A    |
| Power Dissipation                      | $P_D(T_c=25)$                 | 16          | W    |
| Junction and Storage Temperature Range | $T_J, T_{STG}$                | -55 to +150 |      |
| Maximum Junction-to-Ambient            | $R_{JA}(\text{Steady-State})$ | 65          | /W   |
| Maximum Junction-to-Case               | $R_{JC}(\text{Steady-State})$ | 7.8         | /W   |

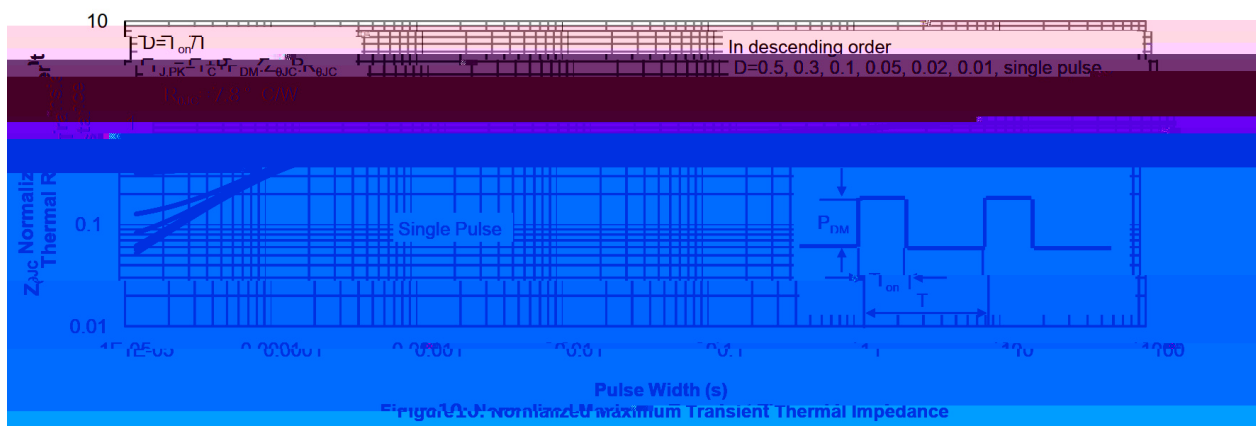
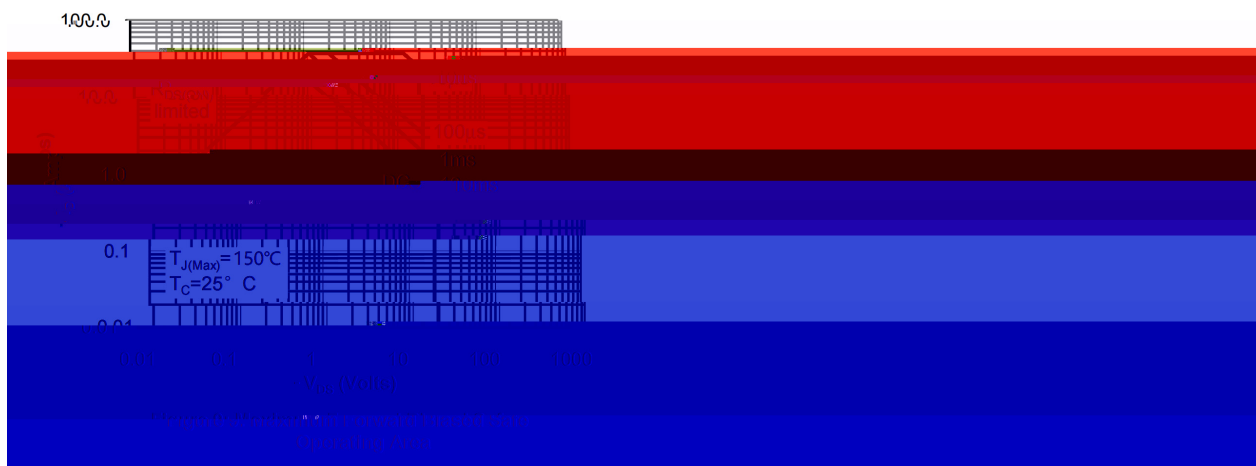
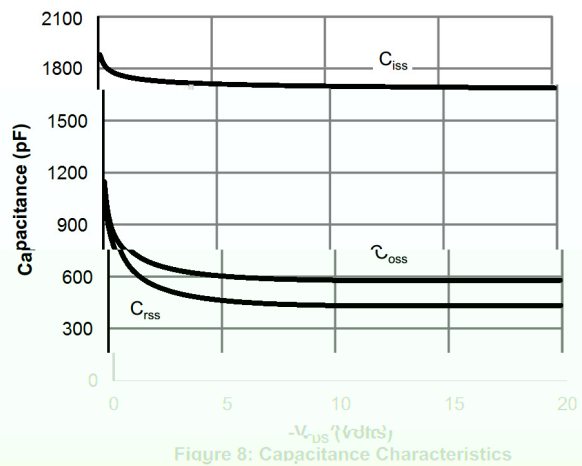
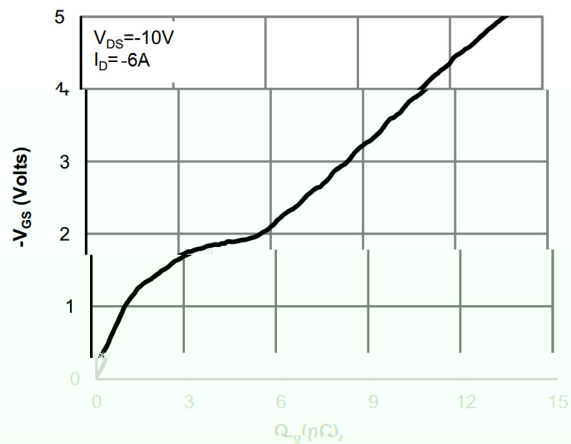
/ Electrical Characteristics( $T_a=25$  )

| Parameter                         | Symbol       | Test Conditions                                        | Min  | Typ   | Max       | Unit       |
|-----------------------------------|--------------|--------------------------------------------------------|------|-------|-----------|------------|
| Drain-Source Breakdown Voltage    | $BV_{DS}$    | $I_D=-250$ A $V_{GS}=0V$                               | -20  | -22.5 |           | V          |
| Zero Gate Voltage Drain Current   | $I_{DSS}$    | $V_{DS}=-20V$ $V_{GS}=0V$                              |      |       | -1.0      | A          |
| Gate-Body leakage current         | $I_{GSS}$    | $V_{DS}=0V$ $V_{GS}=\pm 12V$                           |      |       | $\pm 100$ | nA         |
| Gate Threshold Voltage            | $V_{GS(th)}$ | $V_{DS}=V_{GS}$ $I_D=-250$ A                           | -0.5 | -0.6  | -1.0      | V          |
| Static Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=-4.5V$ $I_D=-5A$                               |      | 20    | 22        | m $\Omega$ |
|                                   |              | $V_{GS}=-2.5V$ $I_D=-4A$                               |      | 26    | 30        |            |
|                                   |              | $V_{GS}=-1.8V$ $I_D=-3A$                               |      | 35    | 100       |            |
| Diode Forward Voltage             | $V_{SD}$     | $I_S=-1A$ $V_{GS}=0V$                                  |      |       | -1.2      | V          |
| Gate resistance                   | $R_g$        | $V_{GS}=0V$ , $f=1MHz$ $V_{DS}=0V$ ,                   |      | 11    |           | $\Omega$   |
| Input Capacitance                 | $C_{iss}$    | $V_{GS}=0V$ $V_{DS}=-5V$<br>$f=1MHz$                   |      | 1700  |           | pF         |
| Output Capacitance                | $C_{oss}$    |                                                        |      | 600   |           |            |
| Reverse Transfer Capacitance      | $C_{rss}$    |                                                        |      | 450   |           |            |
| Total Gate Charge                 | $Q_g$        | $V_{GS}=-4.5V$ , $V_{DS}=-10V$ ,<br>$I_D=-6A$          |      | 13    |           | nC         |
| Gate Source Charge                | $Q_{gs}$     |                                                        |      | 2.5   |           |            |
| Gate Drain Charge                 | $Q_{gd}$     |                                                        |      | 4.2   |           |            |
| Turn-On Delay Time                | $t_{d(on)}$  | $V_{GS}=-4.5V$ $R_L=1.25$<br>$V_{DS}=-10V$ $R_{GEN}=3$ |      | 7.5   |           | ns         |
| Turn-On Rise Time                 | $t_r$        |                                                        |      | 29.2  |           |            |
| Turn-Off Delay Time               | $t_{d(off)}$ |                                                        |      | 103   |           |            |
| Turn-Off Fall Time                | $t_f$        |                                                        |      | 50    |           |            |

## / Electrical Characteristic Curve



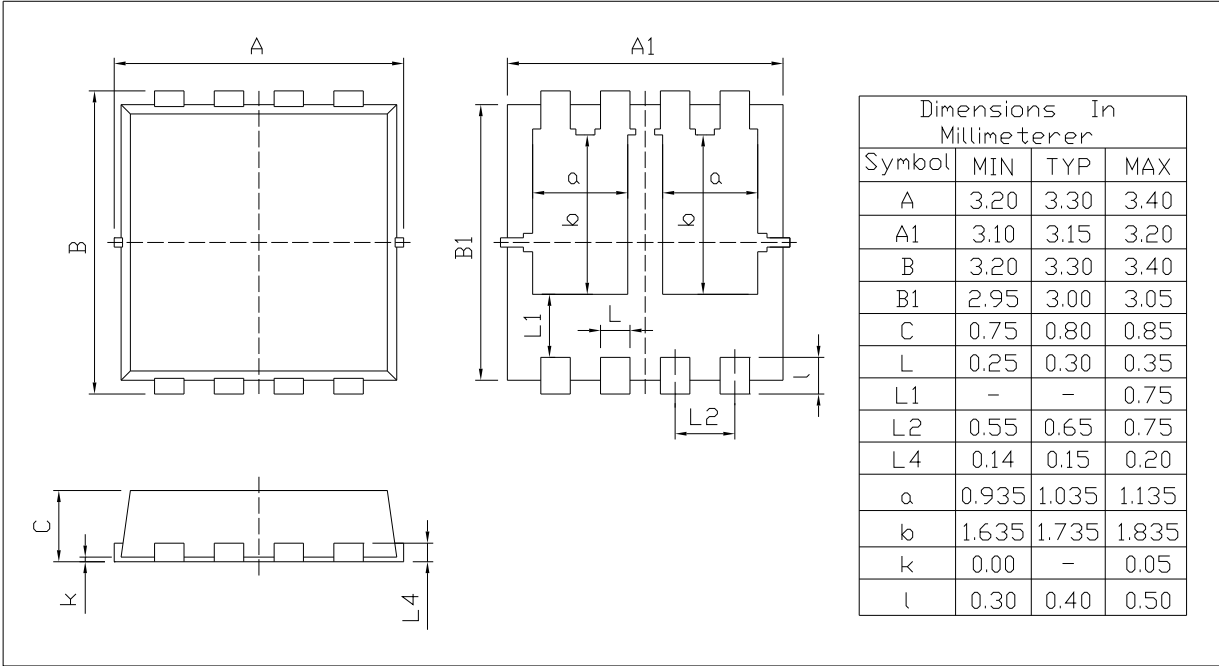
## / Electrical Characteristic Curve



/ Package Dimensions

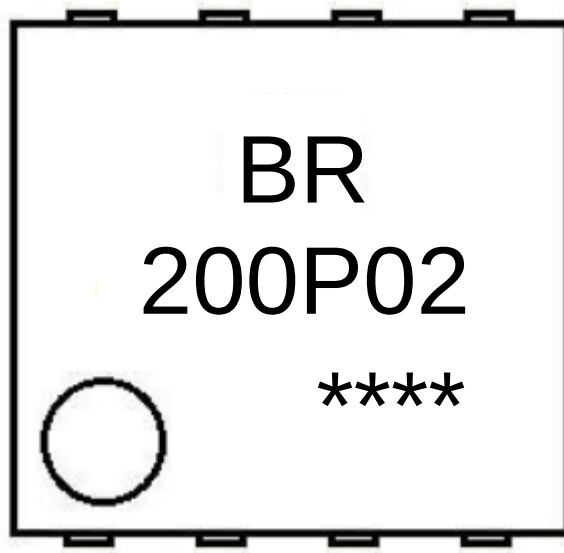
PDFN3X3-8L

Unit:mm



Rev.00 202011

**/ Marking Instructions**



BR

200P02

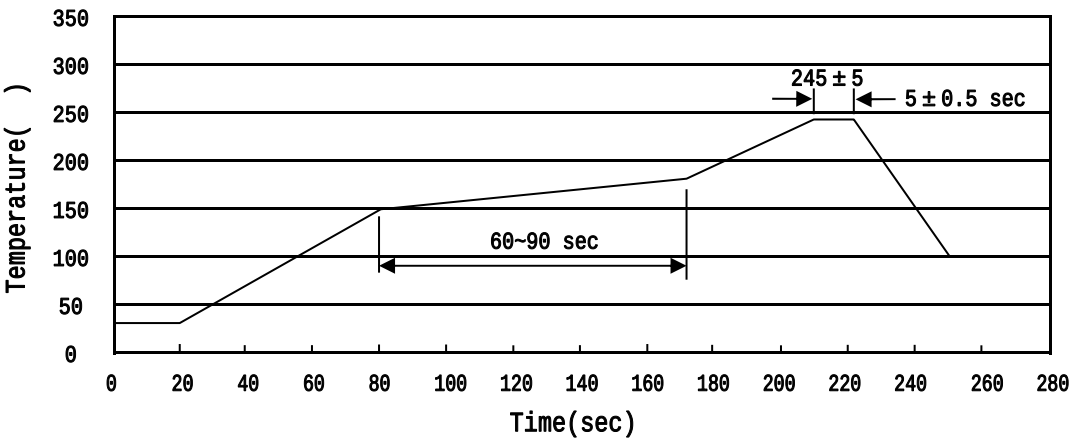
Note:

BR: Company Code

200P02: Product Type Code

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

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



Note:

- |   |     |     |    |         |                                         |
|---|-----|-----|----|---------|-----------------------------------------|
| 1 | 150 | 180 | 60 | 90sec;  | 1.Preheating:150~180 , Time:60~90sec.   |
| 2 | 245 | 5   | 5  | 0.5sec; | 2.Peak Temp.:245 5 , Duration:5 0.5sec. |
| 3 |     | 2   | 10 | /sec.   | 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 | Reels/Inner Box | Units/Inner Box | Inner Boxes/Outer Box | Units/Outer Box | Reel                              | Inner Box  | Outer Box   |
| PDFN3×3-8L   | 5,000      | 2               | 10,000          | 6                     | 60,000          | 13 ×12                            | 360×360×50 | 380×335×366 |

/ Notices