

# BRCs200P03YB

Rev.A May.-2022

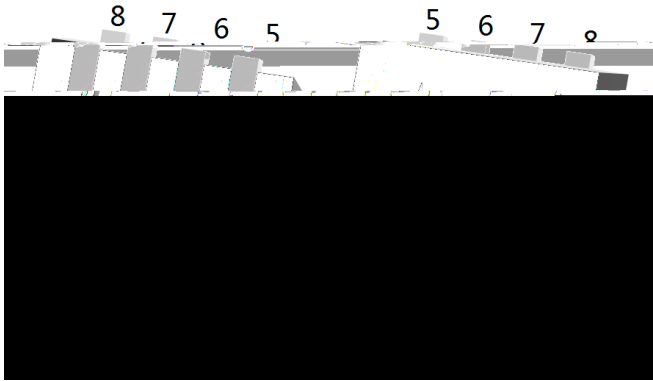
PDFN3x3A-8L P

P-Channel MOSFET in a PDFN3x3A-8L Plastic Package .

Low  $R_{DS(ON)}$  to minimize conductive loss;low Gate Charge for fast switching;Low Thermal resistance;HF Product.

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Notebook AC-in Load Switch,Battery Protection Charge/Discharge



PIN1 2 3 S PIN4 G PIN5 6 7 8 D


**/ Absolute Maximum Ratings( $T_a=25$  )**

| Parameter                              | Symbol         | Rating     | Unit |     |
|--|----------------|------------|------|-----|
| Drain-Source Voltage                   | $V_{DS}$       | -30        | V    |     |
| Drain Current - Continuous             | $I_D(T_c=25)$  | -24        | A    |     |
| Drain Current – Pulsed                 | $I_{DM}$       | -80        | A    |     |
| Gate-Source Voltage                    | $V_{GS}$       | $\pm 20$   | V    |     |
| Power Dissipation                      | $P_D(T_c=25)$  | 20         | W    |     |
| Single Pulse Avalanche Energy(L=0.5mH) | $E_{AS}$       | 152        | mJ   |     |
| Avalanche Current(L=0.5mH)             | $I_{AS}$       | 19.5       | A    |     |
| Junction and Storage Temperature Range | $T_j, T_{stg}$ | -55 to 150 |      |     |
| Thermal resistance, junction - ambient | t 10s          | $R_{JA}$   | 30   | / W |
|  | Steady-State   |            | 65   |     |
| Thermal resistance, junction - case    | Steady-State   | $R_{JC}$   | 7    |     |

**/ Electrical Characteristics( $T_a=25$  )**

| Parameter                         | Symbol        | Test Conditions                              | Min                                 | Typ  | Max       | Unit    |
|-----------------------------------|---------------|--|-------------------------------------|------|-----------|---------|
| Drain-Source Breakdown Voltage    | $BV_{DSS}$    | $I_D=-250$ A $V_{GS}=0V$                     | -30                                 | -33  |           | V       |
| Zero Gate Voltage Drain Current   | $I_{DSS}$     | $V_{DS}=-30V$ $V_{GS}=0V$                    |                                     |      | -1.0      | $\mu A$ |
| Gate-Body leakage current         | $I_{GSS}$     | $V_{DS}=0V,$ $V_{GS}=\pm 20V$                |                                     |      | $\pm 100$ | nA      |
| Gate Threshold Voltage            | $V_{GS(th)}$  | $V_{DS}=V_{GS}$ $I_D=-250$ A                 | -1.0                                | -1.3 | -3.0      | V       |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$  | $V_{GS}=-10V,$ $I_D=-10A$                    |                                     | 17.5 | 20        | m       |
|                                   |               | $V_{GS}=-4.5V,$ $I_D=-10A$                   |                                     | 25.5 | 30        |         |
| Diode Forward Voltage             | $V_{SD}$      | $I_S=-1A,$ $V_{GS}=0V$                       |                                     |      | -1.2      | V       |
| Input Capacitance                 | $C_{iss}$     | $V_{DS}=-25V$ $V_{GS}=0V$<br>$f=1.0MHz$      |                                     | 1430 |           | pF      |
| Output Capacitance                | $C_{oss}$     |  |                                     | 580  |           |         |
| Reverse Transfer Capacitance      | $C_{rss}$     |  |                                     | 350  |           |         |
| Gate resistance                   | $R_g$         |  | $V_{GS}=0V$ $V_{DS}=0V$<br>$f=1MHz$ |      | 13        |         |
| Total Gate Charge                 | $Q_{g(10V)}$  | $V_{GS}=-10V,$ $V_{DS}=-15V,$<br>$I_D=-9.7A$ |                                     | 20   |           | nC      |
| Total Gate Charge                 | $Q_{g(4.5V)}$ |  |                                     | 9.5  |           |         |
| Gate Source Charge                | $Q_{gs}$      |  |                                     | 3.5  |           |         |
| Gate Drain Charge                 | $Q_{gd}$      |  |                                     | 4.5  |           |         |

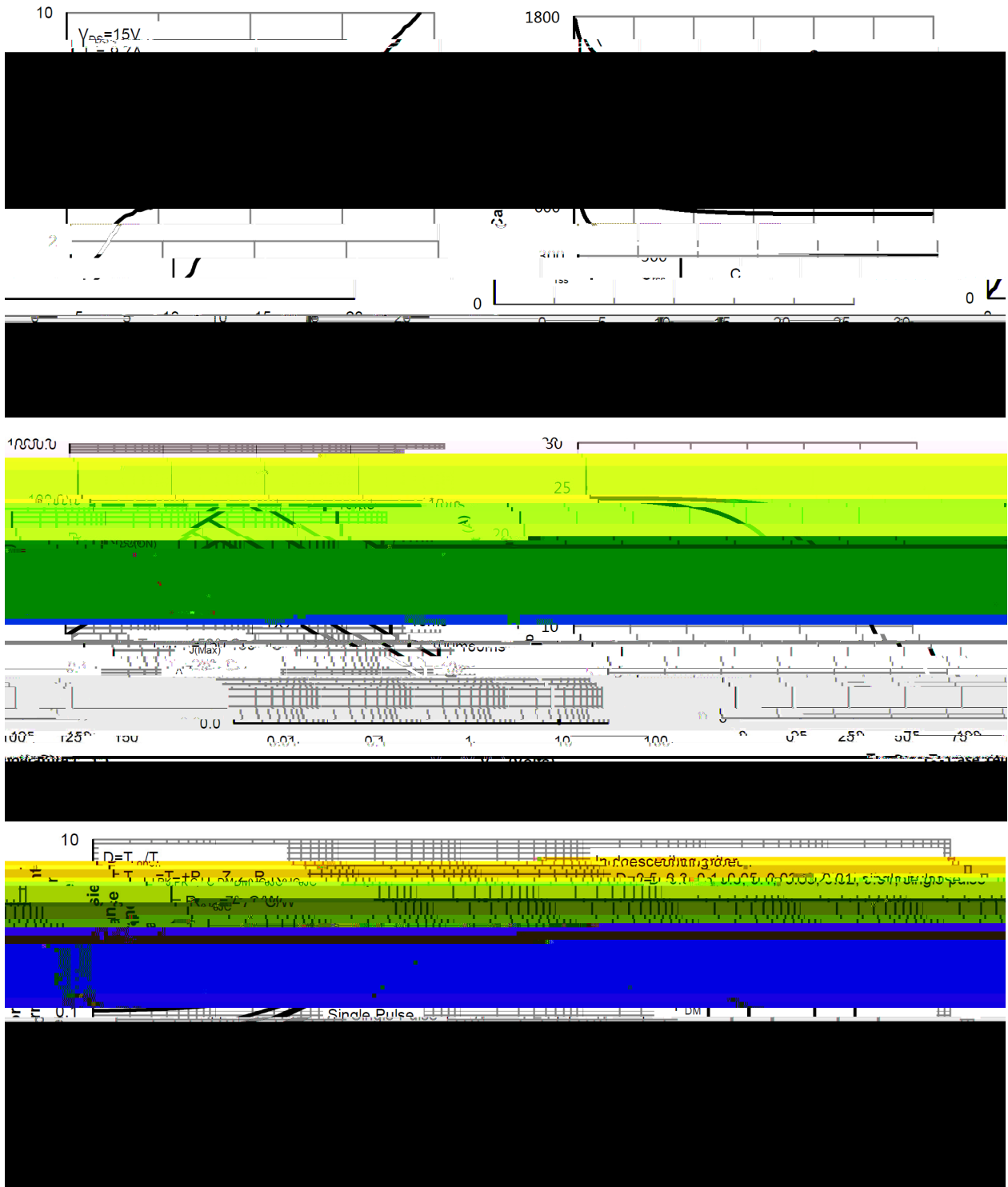
**/ Electrical Characteristics(Ta=25 )**

| Parameter           | Symbol       | Test Conditions                                      | Min | Typ  | Max | Unit |
|---------------------|--------------|--|-----|------|-----|------|
| Turn-On Delay Time  | $t_{d(on)}$  | $V_{GS}=-10V$ $V_{DS}=-15V$<br>$R_L=1.5$ $R_{GEN}=3$ |     | 10   |     | ns   |
| Turn-On Rise Time   | $t_r$        |  |     | 5.5  |     |      |
| Turn-Off Delay Time | $t_{d(off)}$ |  |     | 26.1 |     |      |
| Turn-Off Fall Time  | $t_f$        |  |     | 9.1  |     |      |

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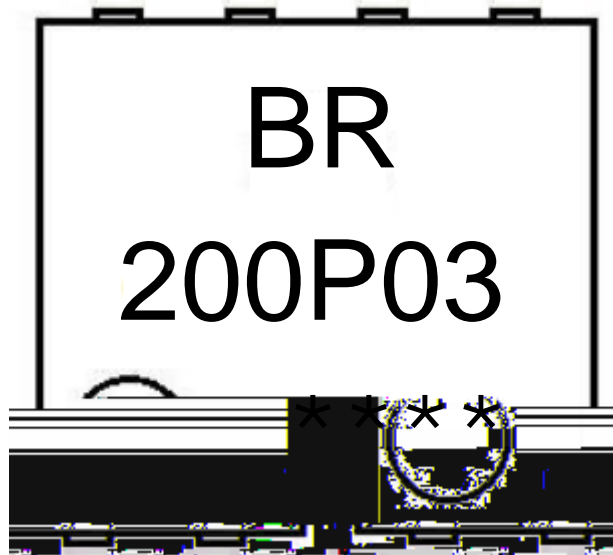
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/ Electrical Characteristic Curve





/ Marking Instructions



BR

200P03

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Note:

BR: Company Code.

200P03: Product Type Code

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

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**Note:**

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|---|---------|-----------|---|
| 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<br>/ | Reels/Inner Box<br>/ | Units/Inner Box<br>/ | Inner Boxes/Outer Box<br>/ | Units/Outer Box<br>/ | Reel                              | Inner Box | Outer Box |