



| Parameter                              | Symbol                      | Rating     | Unit |
|----------------------------------------|-----------------------------|------------|------|
| Drain-Source Voltage                   | $V_{DS}$                    | 100        | V    |
| Drain Current - Continuous             | $I_D$                       | 55         | A    |
| Drain Current – Pulsed                 | $I_{DM}$                    | 175        | A    |
| Gate-Source Voltage                    | $V_{GS}$                    | $\pm 20$   | V    |
| Power Dissipation                      | $P_D(T_c=25^\circ\text{C})$ | 48         | W    |
| Single Pulse Avalanche Energy(L=0.5mH) | $E_{AS}$                    | 288        | mJ   |
| Junction and Storage Temperature Range | $T_j, T_{stg}$              | -55 to 150 |      |
| Thermal resistance, junction - ambient | $R_{\theta JA}$             | 55         | / W  |
| Thermal resistance, junction - case    | $R_{\theta JC}$             | 2.6        |      |

| Parameter                          | Symbol        | Test Conditions                            | Min | Typ  | Max       | Unit      |
|------------------------------------|---------------|--------------------------------------------|-----|------|-----------|-----------|
| Drain-Source Breakdown Voltage     | $BV_{DSS}$    | $V_{GS}=0V$ $I_D=250\mu A$                 | 100 | 109  |           | V         |
| Zero Gate Voltage Drain Current    | $I_{DSS}$     | $V_{DS}=100V$ $V_{GS}=0V$                  |     |      | 1.0       | $\mu A$   |
| Gate-Body Leakage Current Forward  | $I_{GSS}$     | $V_{GS}=\pm 20V$ $V_{DS}=0V$               |     |      | $\pm 100$ | nA        |
| Gate Threshold Voltage             | $V_{GS(th)}$  | $V_{DS}=V_{GS}$ $I_D=250\mu A$             | 1   | 1.6  | 2.5       | V         |
| Static Drain-Source On-Resistance  | $R_{DS(on)}$  | $V_{GS}=10V$ $I_D=20A$                     |     | 7.3  | 8.5       | $m\Omega$ |
|                                    | $R_{DS(on)}$  | $V_{GS}=4.5V$ $I_D=10A$                    |     | 9.3  | 12        | $m\Omega$ |
| Drain-Source Diode Forward Voltage | $V_{SD}$      | $V_{GS}=0V$ $I_S=1A$                       |     |      | 1.2       | V         |
| Reverse Recovery Time              | $t_{rr}$      | $V_D=50V$ , $I_D=20A$                      |     | 24.8 |           | ns        |
| Reverse Recovery Charge            | $Q_{rr}$      | $di/dt=100A/\mu s$                         |     | 18   |           | nC        |
| Gate resistance                    | $R_g$         | $V_{GS}=0V$ $V_{DS}=0V$ ,<br>$f=1MHz$      |     | 1.3  |           | $\Omega$  |
| Input Capacitance                  | $C_{iss}$     | $V_{DS}=25V$ $V_{GS}=0V$<br>$f=1.0MHz$     |     | 1520 |           | pF        |
| Output Capacitance                 | $C_{oss}$     |                                            |     | 700  |           |           |
| Reverse Transfer Capacitance       | $C_{rss}$     |                                            |     | 50   |           |           |
| Total Gate Charge                  | $Q_{g(10V)}$  | $V_{GS}=10V$ , $V_{DS}=50V$ ,<br>$I_D=20A$ |     | 24.3 |           | nC        |
| Total Gate Charge                  | $Q_{g(4.5V)}$ |                                            |     | 11.7 |           |           |
| Gate Source Charge                 | $Q_{gs}$      |                                            |     | 2.1  |           |           |
| Gate Drain Charge                  | $Q_{gd}$      |                                            |     | 4.2  |           |           |



| Parameter           | Symbol       | Test Conditions                                           | Min | Typ  | Max | Unit |
|---------------------|--------------|-----------------------------------------------------------|-----|------|-----|------|
| Turn-On Delay Time  | $t_{d(on)}$  | $V_{GS}=10V,$ $V_{DS}=50V,$<br>$I_D=20A,$ $R_g=3\ \Omega$ |     | 9.7  |     | ns   |
| Turn-On Rise Time   | $t_r$        |                                                           |     | 4.7  |     |      |
| Turn-Off Delay Time | $t_{d(off)}$ |                                                           |     | 28.0 |     |      |
| Turn-Off Fall Time  | $t_f$        |                                                           |     | 6.0  |     |      |

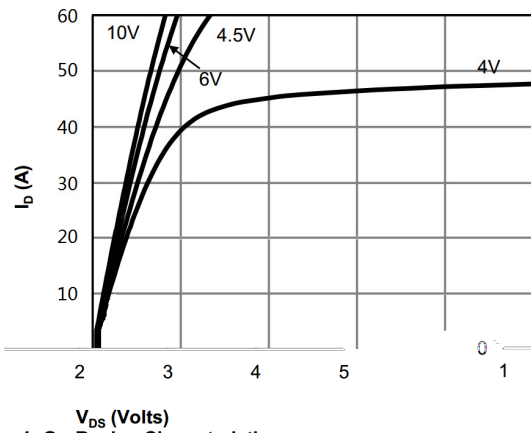


Figure 1: On-Region Characteristics

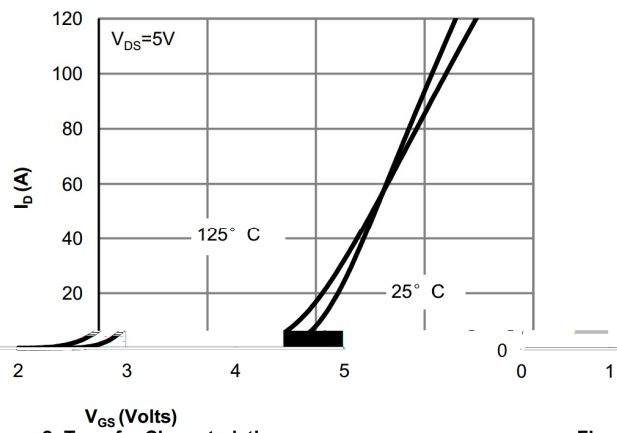


Figure 2: Transfer Characteristics

Figure

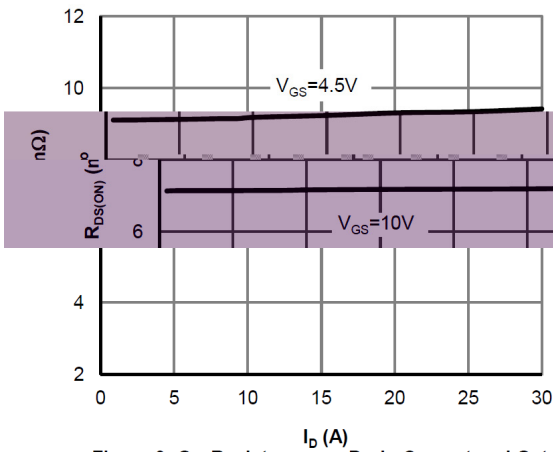


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

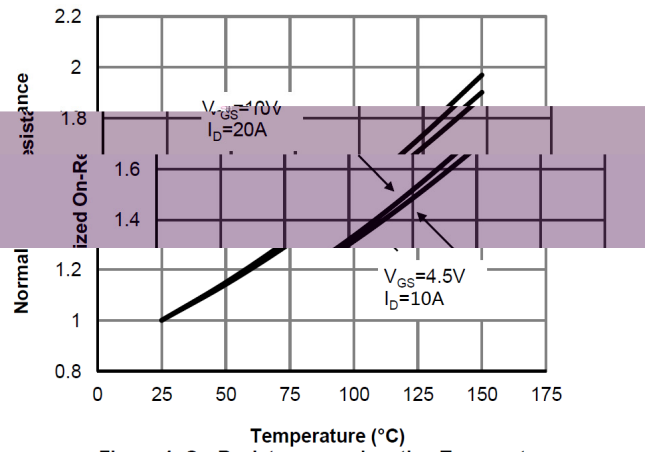


Figure 4: On-Resistance vs. Junction Temperature

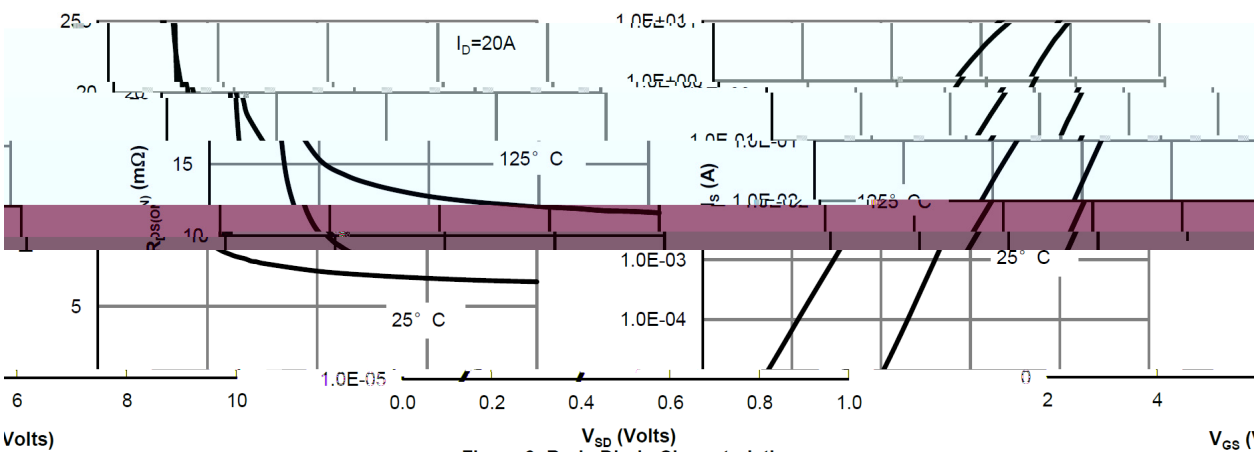


Figure 5: On-Resistance

Figure 6: Body-Diode Characteristics

Figure 6: Body-Diode Characteristics

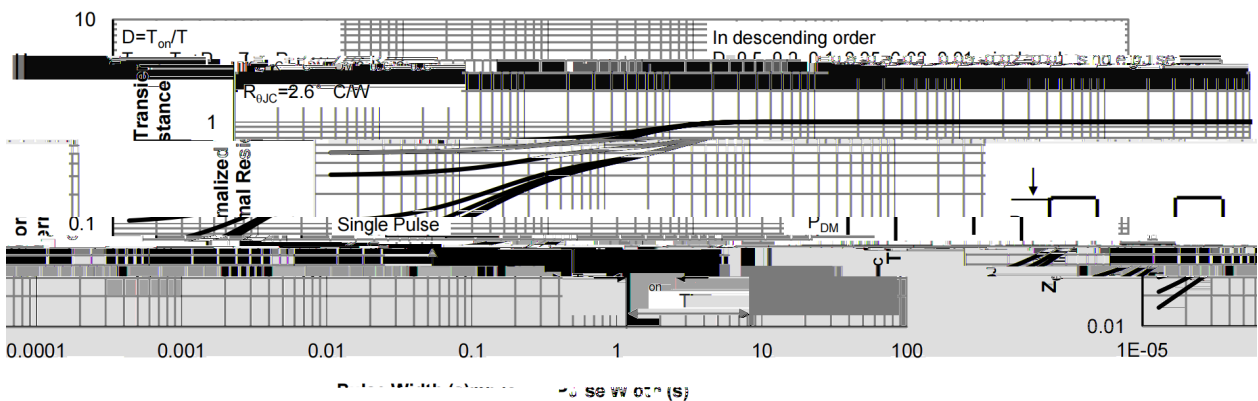
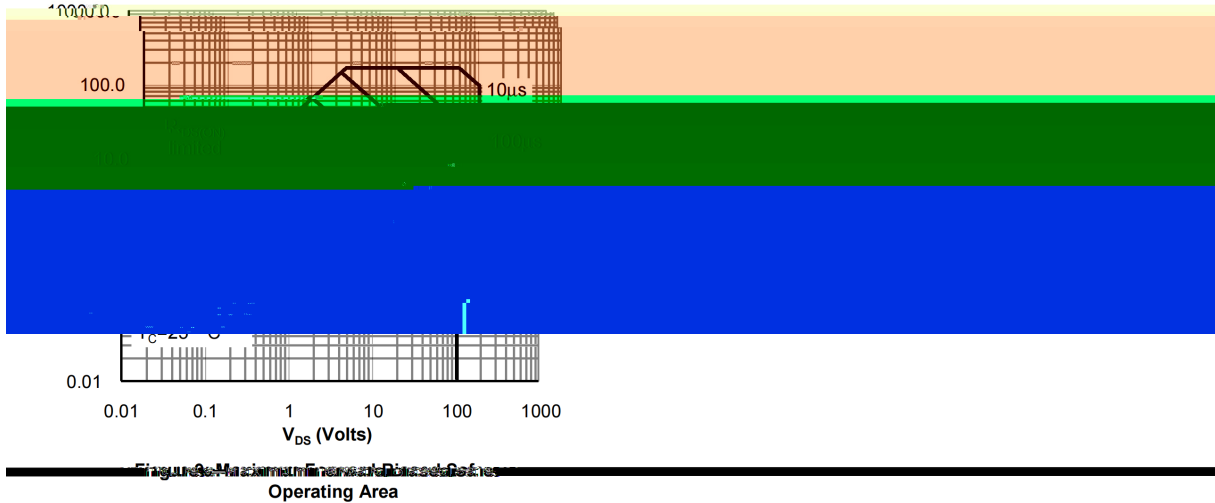
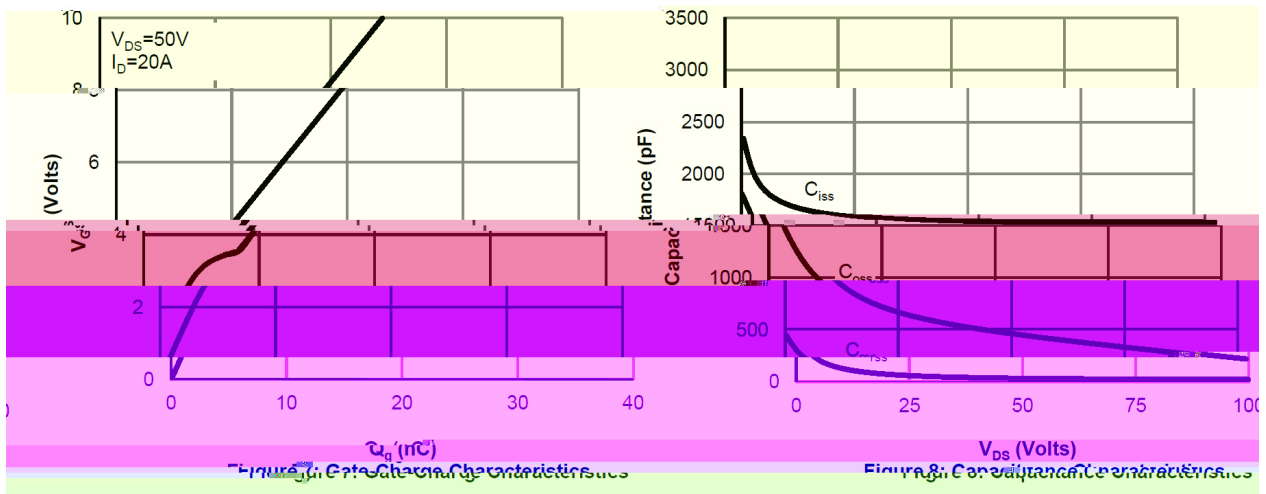
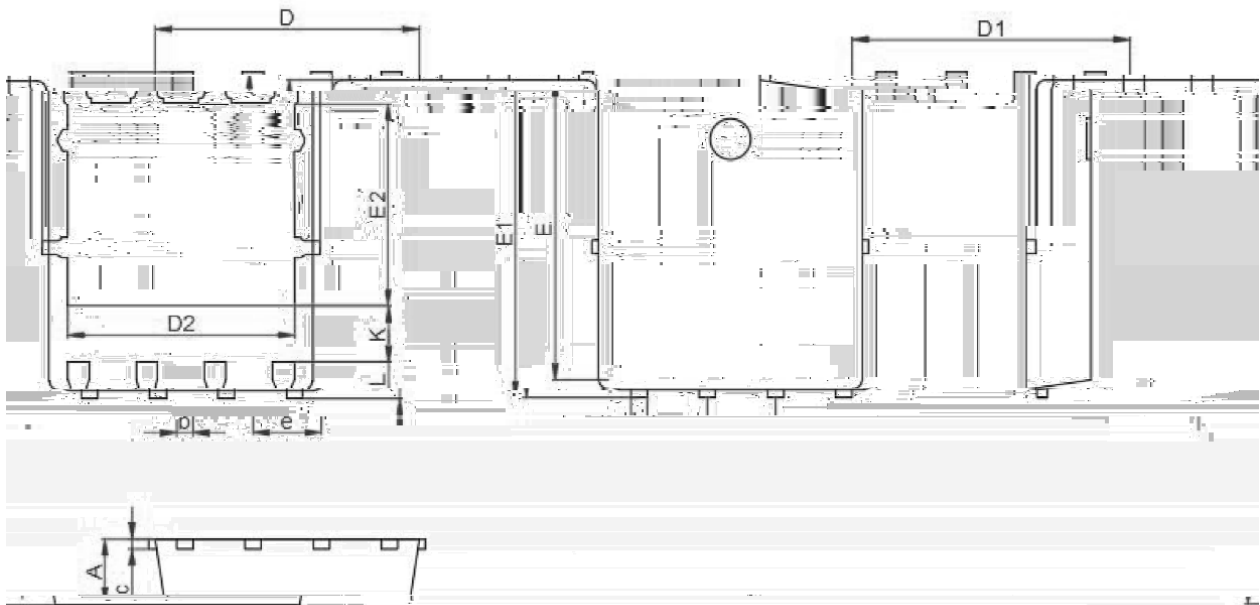
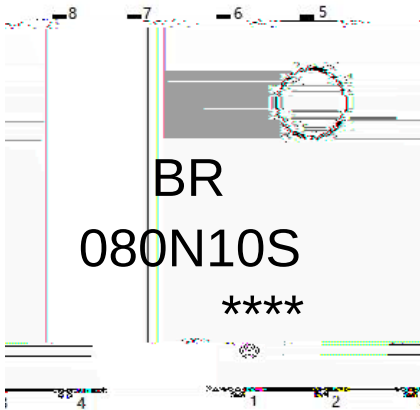


Figure 10: Normalized Maximum Transient Thermal Impedance

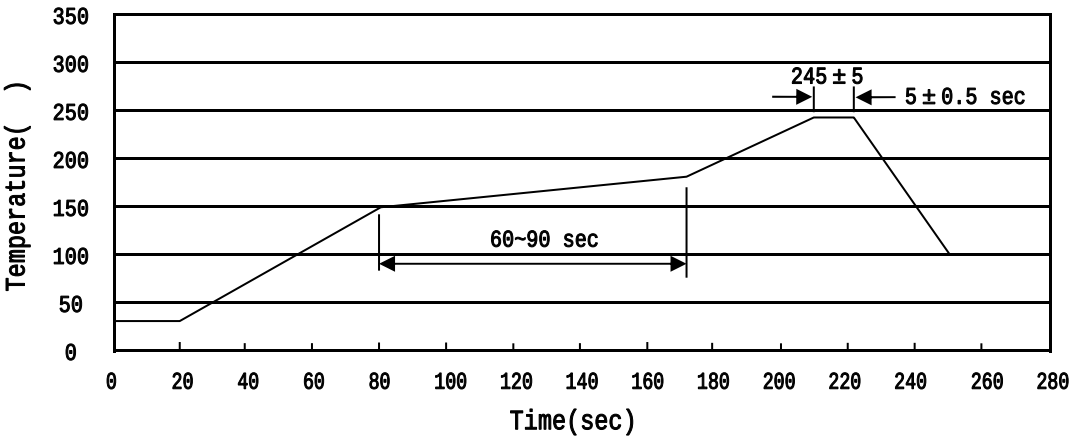


| Symbol | Dimensions In Millimeters |      |
|--------|---------------------------|------|
|        | Min                       | Max  |
| A      | 0.90                      | 1.10 |
| D      | 4.80                      | 5.00 |
| D1     | 4.80                      | 5.20 |
| D2     | 3.80                      | 4.20 |
| E      | 5.65                      | 5.85 |
| E1     | 5.80                      | 6.20 |
| E2     | 3.30                      | 3.65 |
| K      | 1.30 BSC                  |      |
| e      | 1.27 BSC                  |      |
| b      | 0.25                      | 0.35 |
| c      | 0.20                      | 0.30 |
| L      | 0.45                      | 0.75 |



BR  
080N10S  
\*\*\*\*

|         |                                       |
|---------|---------------------------------------|
| Note    |                                       |
| BR      | Company Code                          |
| 080N10S | Product Type Code                     |
| ****    | Lot No. Code, code change with Lot No |



Note:

- 1

150 180

60 90sec;

1.Preheating:150~180 °C , Time:60~90sec.
- 2

245±5

5±0.5sec;

2.Peak Temp.:245±5 °C , Duration:5±0.5sec.
- 3

2 10

/sec.

3. Cooling Speed: 2~10 °C /sec.

260±5

10±1 sec.

Temp.:260±5

Time:10±1 sec

/ REEL

| Package Type | Units |   |        |   |        | Dimension (unit mm <sup>3</sup> ) |            |             |
|--------------|-------|---|--------|---|--------|-----------------------------------|------------|-------------|
|              | /     | / | /      | / | /      |                                   |            |             |
| PDFN5×6      | 5,000 | 2 | 10,000 | 6 | 60,000 | 13"×12                            | 360×360×50 | 380×335×366 |

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