



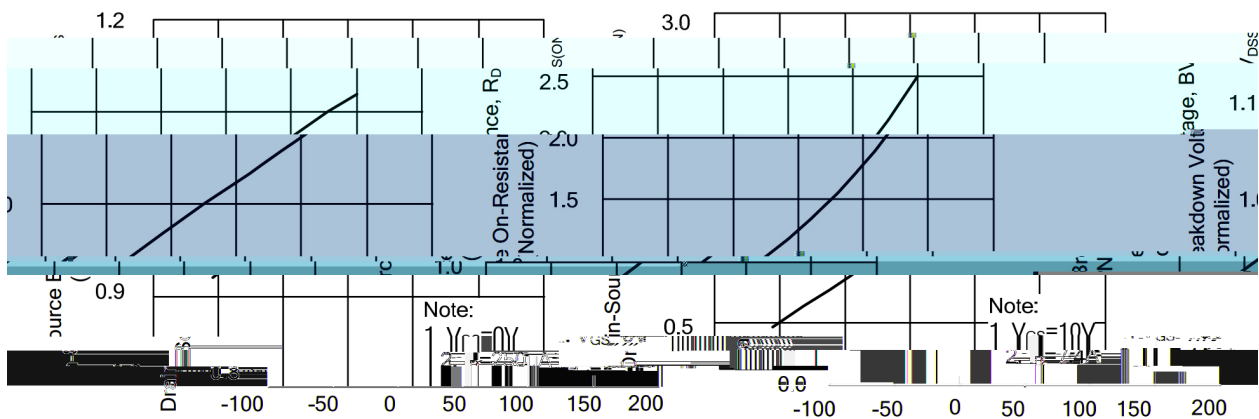
## / Absolute Maximum Ratings(Ta=25 )

| Parameter                               | Symbol                       | Rating     | Unit |
|-----------------------------------------|------------------------------|------------|------|
| Drain-Source Voltage                    | $V_{DS}$                     | 650        | V    |
| Drain Current                           | $I_D(T_c=25^\circ\text{C})$  | 7.0        | A    |
| Drain Current                           | $I_D(T_c=100^\circ\text{C})$ | 4.4        | A    |
| Drain Current - Pulsed                  | $I_{DM}$                     | 28         | A    |
| Gate-Source Voltage                     | $V_{GS}$                     | $\pm 30$   | V    |
| Single Pulsed Avalanche Energy          | $E_{AS}$                     | 425        | mJ   |
| Avalanche Current                       | $I_{AR}$                     | 9.9        | A    |
| Power Dissipation                       | $P_D(T_c=25^\circ\text{C})$  | 100        | W    |
| Operating and Storage Temperature Range | $T_j, T_{stg}$               | -55 to 150 |      |
| Junction to Ambient                     | $R_{JA}$                     | 110        | /W   |
| Junction to Case                        | $R_{JC}$                     | 1.25       | /W   |

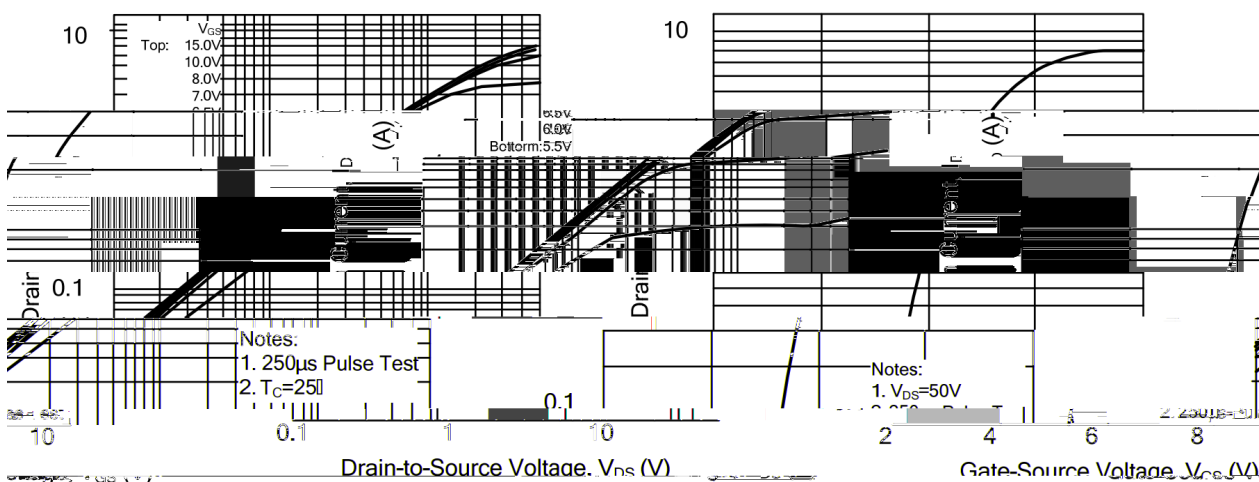
## / Electrical Characteristics(Ta=25 )

| Parameter                          | Symbol       | Test Conditions                                   | Min | Typ  | Max       | Unit |
|------------------------------------|--------------|---------------------------------------------------|-----|------|-----------|------|
| Drain-Source Breakdown Voltage     | $BV_{DS}$    | $V_{GS}=0V$ $I_D=250\text{ A}$                    | 650 | 690  |           | V    |
| Zero Gate Voltage Drain Current    | $I_{DSS}$    | $V_{DS}=650V$ $V_{GS}=0V$                         |     |      | 1.0       | A    |
| Gate-Body Leakage Current Forward  | $I_{GSS}$    | $V_{GS}=\pm 30V$ $V_{DS}=0V$                      |     |      | $\pm 100$ | nA   |
| Gate Threshold Voltage             | $V_{GS(th)}$ | $V_{DS}=V_{GS}$ $I_D=250\text{ A}$                | 2.0 | 3.2  | 4.0       | V    |
| Static Drain-Source On-Resistance  | $R_{DS(on)}$ | $V_{GS}=10V$ $I_D=3.5A$                           |     | 1.1  | 1.5       |      |
| Input Capacitance                  | $C_{iss}$    | $V_{DS}=25V$ $V_{GS}=0V$<br>$f=1.0MHz$            |     | 1000 |           | pF   |
| Output Capacitance                 | $C_{oss}$    |                                                   |     | 180  |           |      |
| Reverse Transfer Capacitance       | $C_{rss}$    |                                                   |     | 4    |           |      |
| Total Gate Charge                  | $Q_G$        | $V_{DS}=520V$ $I_D=7.0A$ ,<br>$V_{GS}=10V$        |     | 30   |           | nC   |
| Gate-Source Charge                 | $Q_{GS}$     |                                                   |     | 10   |           |      |
| Gate-Drain Charge                  | $Q_{GD}$     |                                                   |     | 21   |           |      |
| Turn-On Delay Time                 | $t_{d(on)}$  | $V_{DD}=325V$ $I_D=7.0A$<br>$R_G=25$ $V_{GS}=10V$ |     | 52   |           | ns   |
| Turn-On Rise Time                  | $t_r$        |                                                   |     | 160  |           |      |
| Turn-Off Delay Time                | $t_{d(off)}$ |                                                   |     | 400  |           |      |
| Turn-Off Fall Time                 | $t_f$        |                                                   |     | 190  |           |      |
| Drain-Source Diode Forward Voltage | $V_{SD}$     | $V_{GS}=0V$ , $I_S=7.0A$                          |     |      | 1.4       | V    |

### / Electrical Characteristic Curve



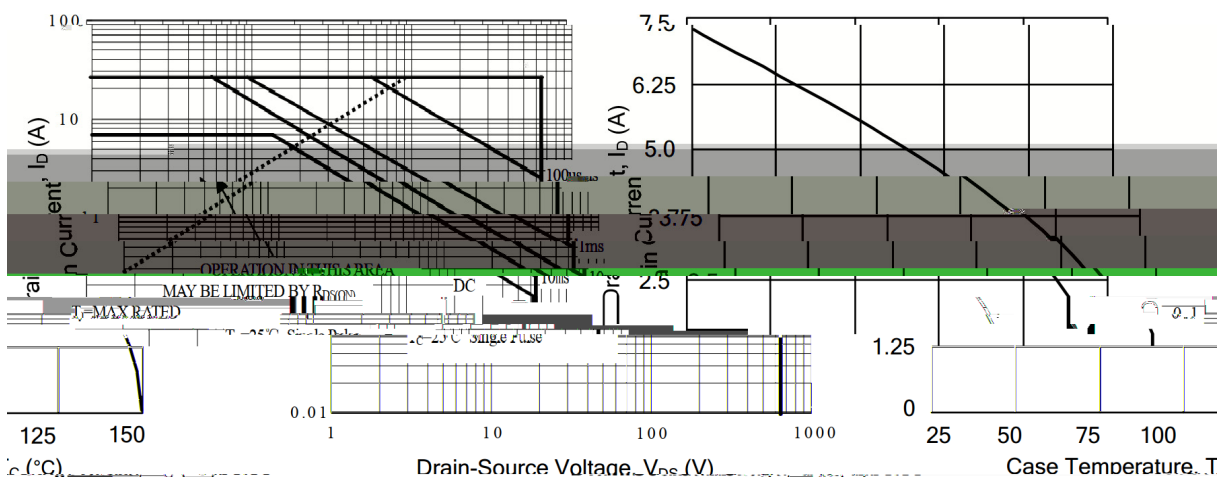
| Function                                              | On-resistance $R_{DS(on)}$ vs. Temperature | Drain current $I_{D(on)}$ vs. Junction Temperature |
|-------------------------------------------------------|--------------------------------------------|----------------------------------------------------|
| 1. Drain current $I_{D(on)}$ vs. Junction Temperature |                                            |                                                    |
| 2. On-resistance $R_{DS(on)}$ vs. Temperature         |                                            |                                                    |



## Characteristics

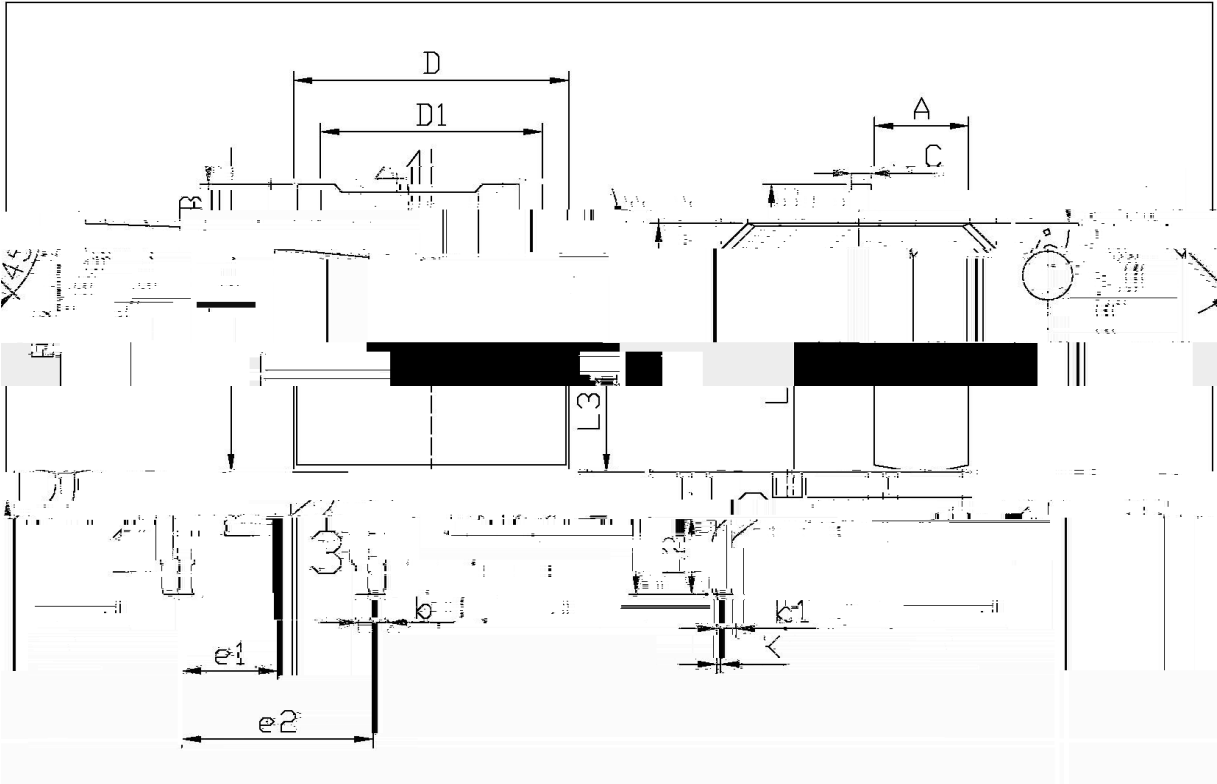
### 3. On-State Characteristics

#### 4. Transfer Cha



| Maximal Tire Temperature, °C | Maximal Tire Temperature, °F | Maximal Tire Temperature, °C | Maximal Tire Temperature, °F |
|------------------------------|------------------------------|------------------------------|------------------------------|
| 100                          | 212                          | 100                          | 212                          |
| 110                          | 230                          | 110                          | 230                          |
| 120                          | 248                          | 120                          | 248                          |
| 130                          | 266                          | 130                          | 266                          |
| 140                          | 284                          | 140                          | 284                          |
| 150                          | 302                          | 150                          | 302                          |
| 160                          | 320                          | 160                          | 320                          |
| 170                          | 338                          | 170                          | 338                          |
| 180                          | 356                          | 180                          | 356                          |
| 190                          | 374                          | 190                          | 374                          |
| 200                          | 392                          | 200                          | 392                          |
| 210                          | 410                          | 210                          | 410                          |
| 220                          | 428                          | 220                          | 428                          |
| 230                          | 446                          | 230                          | 446                          |
| 240                          | 464                          | 240                          | 464                          |
| 250                          | 482                          | 250                          | 482                          |
| 260                          | 500                          | 260                          | 500                          |
| 270                          | 518                          | 270                          | 518                          |
| 280                          | 536                          | 280                          | 536                          |
| 290                          | 554                          | 290                          | 554                          |
| 300                          | 572                          | 300                          | 572                          |
| 310                          | 590                          | 310                          | 590                          |
| 320                          | 608                          | 320                          | 608                          |
| 330                          | 626                          | 330                          | 626                          |
| 340                          | 644                          | 340                          | 644                          |
| 350                          | 662                          | 350                          | 662                          |
| 360                          | 680                          | 360                          | 680                          |
| 370                          | 698                          | 370                          | 698                          |
| 380                          | 716                          | 380                          | 716                          |
| 390                          | 734                          | 390                          | 734                          |
| 400                          | 752                          | 400                          | 752                          |
| 410                          | 770                          | 410                          | 770                          |
| 420                          | 788                          | 420                          | 788                          |
| 430                          | 806                          | 430                          | 806                          |
| 440                          | 824                          | 440                          | 824                          |
| 450                          | 842                          | 450                          | 842                          |
| 460                          | 860                          | 460                          | 860                          |
| 470                          | 878                          | 470                          | 878                          |
| 480                          | 896                          | 480                          | 896                          |
| 490                          | 914                          | 490                          | 914                          |
| 500                          | 932                          | 500                          | 932                          |
| 510                          | 950                          | 510                          | 950                          |
| 520                          | 968                          | 520                          | 968                          |
| 530                          | 986                          | 530                          | 986                          |
| 540                          | 1004                         | 540                          | 1004                         |
| 550                          | 1022                         | 550                          | 1022                         |
| 560                          | 1040                         | 560                          | 1040                         |
| 570                          | 1058                         | 570                          | 1058                         |
| 580                          | 1076                         | 580                          | 1076                         |
| 590                          | 1094                         | 590                          | 1094                         |
| 600                          | 1112                         | 600                          | 1112                         |
| 610                          | 1130                         | 610                          | 1130                         |
| 620                          | 1148                         | 620                          | 1148                         |
| 630                          | 1166                         | 630                          | 1166                         |
| 640                          | 1184                         | 640                          | 1184                         |
| 650                          | 1202                         | 650                          | 1202                         |
| 660                          | 1220                         | 660                          | 1220                         |
| 670                          | 1238                         | 670                          | 1238                         |
| 680                          | 1256                         | 680                          | 1256                         |
| 690                          | 1274                         | 690                          | 1274                         |
| 700                          | 1292                         | 700                          | 1292                         |
| 710                          | 1310                         | 710                          | 1310                         |
| 720                          | 1328                         | 720                          | 1328                         |
| 730                          | 1346                         | 730                          | 1346                         |
| 740                          | 1364                         | 740                          | 1364                         |
| 750                          | 1382                         | 750                          | 1382                         |
| 760                          | 1400                         | 760                          | 1400                         |
| 770                          | 1418                         | 770                          | 1418                         |
| 780                          | 1436                         | 780                          | 1436                         |
| 790                          | 1454                         | 790                          | 1454                         |
| 800                          | 1472                         | 800                          | 1472                         |
| 810                          | 1490                         | 810                          | 1490                         |
| 820                          | 1508                         | 820                          | 1508                         |
| 830                          | 1526                         | 830                          | 1526                         |
| 840                          | 1544                         | 840                          | 1544                         |
| 850                          | 1562                         | 850                          | 1562                         |
| 860                          | 1580                         | 860                          | 1580                         |
| 870                          | 1598                         | 870                          | 1598                         |
| 880                          | 1616                         | 880                          | 1616                         |
| 890                          | 1634                         | 890                          | 1634                         |
| 900                          | 1652                         | 900                          | 1652                         |
| 910                          | 1670                         | 910                          | 1670                         |
| 920                          | 1688                         | 920                          | 1688                         |
| 930                          | 1706                         | 930                          | 1706                         |
| 940                          | 1724                         | 940                          | 1724                         |
| 950                          | 1742                         | 950                          | 1742                         |
| 960                          | 1760                         | 960                          | 1760                         |
| 970                          | 1778                         | 970                          | 1778                         |
| 980                          | 1796                         | 980                          | 1796                         |
| 990                          | 1814                         | 990                          | 1814                         |
| 1000                         | 1832                         | 1000                         | 1832                         |

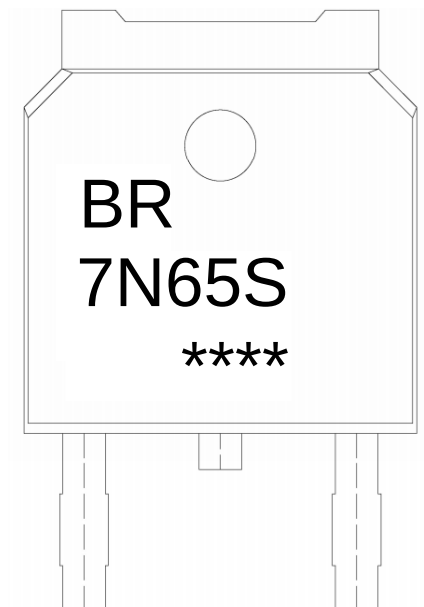
/ Package Dimensions



单位: mm

| Symbol |  | Dimensions In Millimeters |  | Symbol |  | Dimensions In Millimeters |  |
|--------|--|---------------------------|--|--------|--|---------------------------|--|
| A      |  | 5.95                      |  | B      |  | 6.25                      |  |
| C      |  | 2.24                      |  | D      |  | 2.34                      |  |
| E      |  | 2.00                      |  | F      |  | 2.20                      |  |
| G      |  | 2.52                      |  | H      |  | 2.40                      |  |
| I      |  | 2.55                      |  | J      |  | 2.55                      |  |
| L1     |  | 9.85                      |  | L2     |  | 10.35                     |  |
| D      |  | 6.45                      |  | L3     |  | 6.75                      |  |
| D1     |  | 5.10                      |  | L4     |  | 5.50                      |  |
| K      |  | 0.00                      |  | L5     |  | 6.75                      |  |

## / Marking Instructions



BR

7N65S

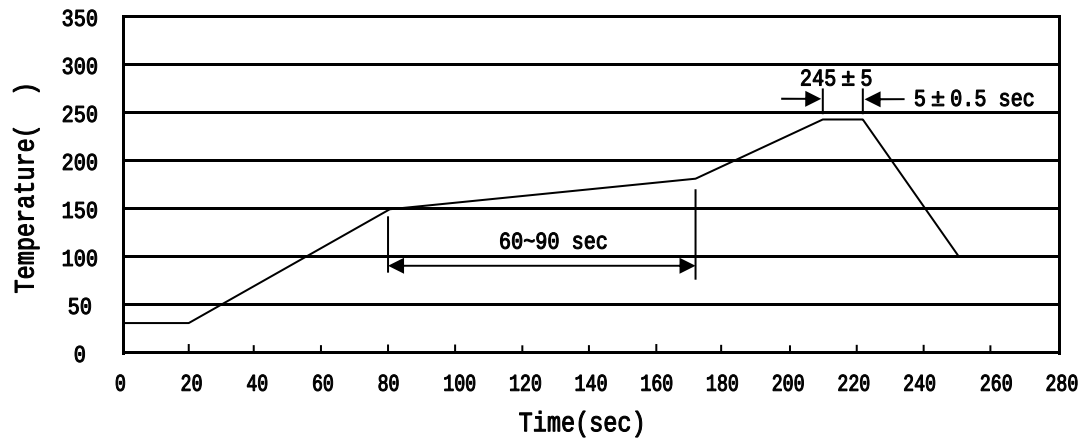
Note:

BR: Company Code

7N65S: Product Type Code

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

( ) /



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<br>/ | Reels/Inner Box<br>/ | Units/Inner Box<br>/ | Inner Boxes/Outer Box<br>/ | Units/Outer Box<br>/ | Reel                              | Inner Box  | Outer Box   |
| TO-252       | 2,500           | 2                    | 5,000                | 6                          | 30,000               | 13 ×16                            | 360×360×50 | 380×335×366 |

/ TUBE

| Package Type | Units           |                      |                      |                            |                      | Dimension (unit mm <sup>3</sup> ) |            |             |
|--------------|-----------------|----------------------|----------------------|----------------------------|----------------------|-----------------------------------|------------|-------------|
|              | Units/Tube<br>/ | Tubes/Inner Box<br>/ | Units/Inner Box<br>/ | Inner Boxes/Outer Box<br>/ | Units/Outer Box<br>/ | Tube                              | Inner Box  | Outer Box   |
| TO-251/252   | 75              | 48                   | 3,600                | 5                          | 18,000               | 526×20.5×5.25                     | 555×164×50 | 575×290×180 |

## / Notices