

Rev.A May.-2023

TO-252 N

N-CHANNEL MOSFET in a TO-252 Plastic Package.

$V_{DS} (V) = 20V$   $I_D = 95A$  ( $V_{GS} = \pm 20V$ )

$R_{DS(ON)}@4.5V \leq 4mR$  (Typ.3.7mR)

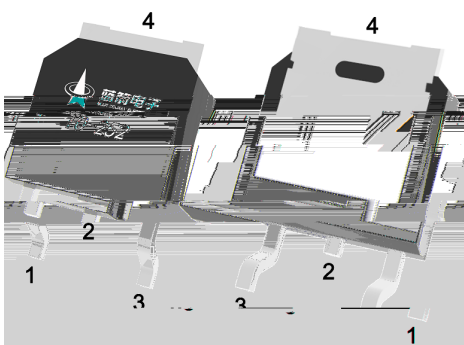
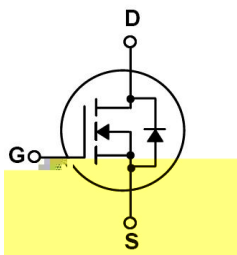
$R_{DS(ON)}@2.5V \leq 6mR$  (Typ.5.5mR)

$R_{DS(ON)}@2.0V \leq 15mR$  (Typ.8mR)

。 HF Product.

POL DC/DC

DC/DC Converters in Computing, Servers, and POL, Battery protection switch.



PIN1 G

PIN 2 D

PIN 3 S

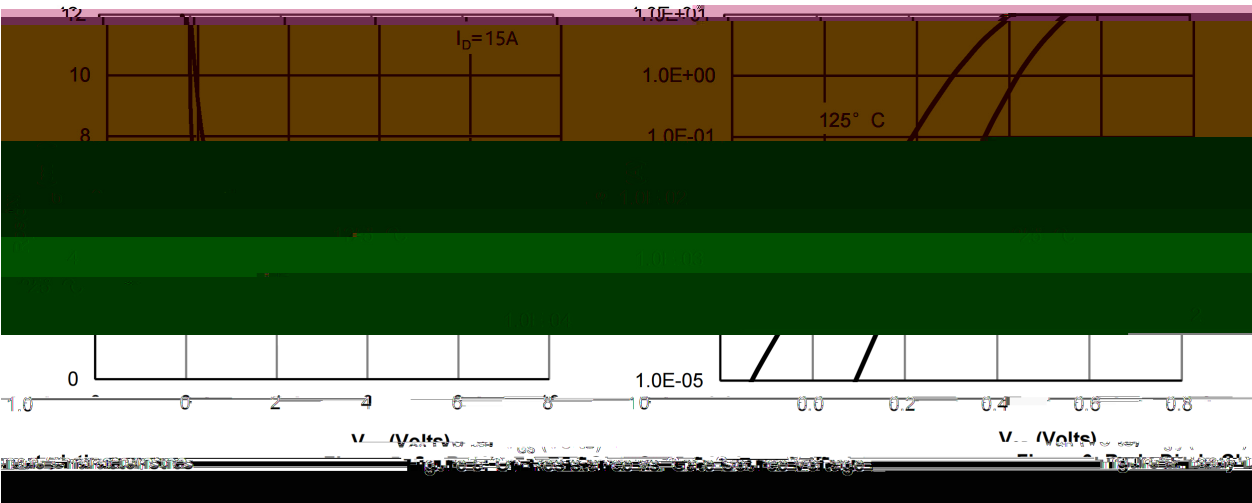
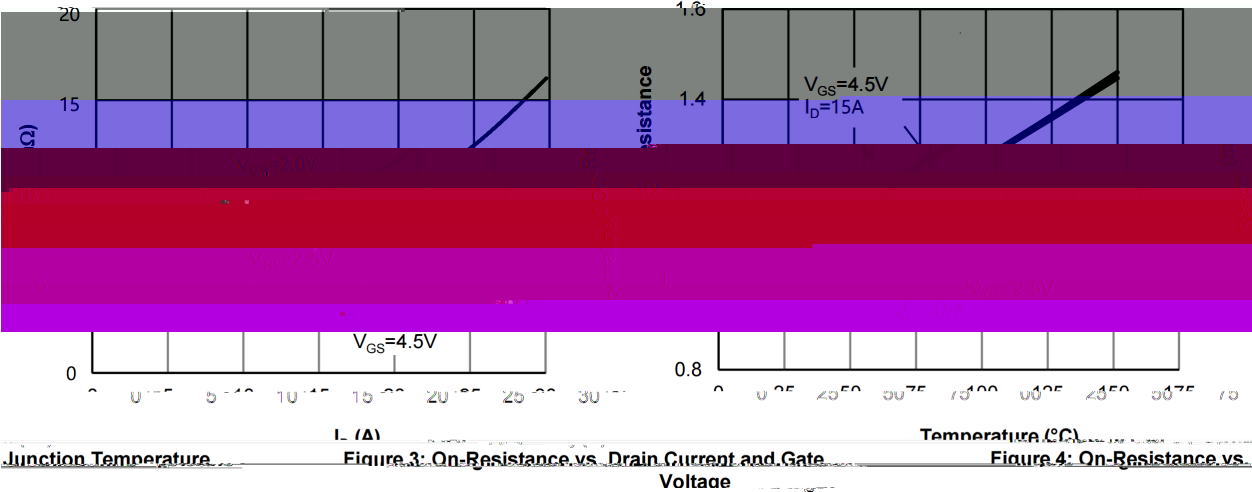
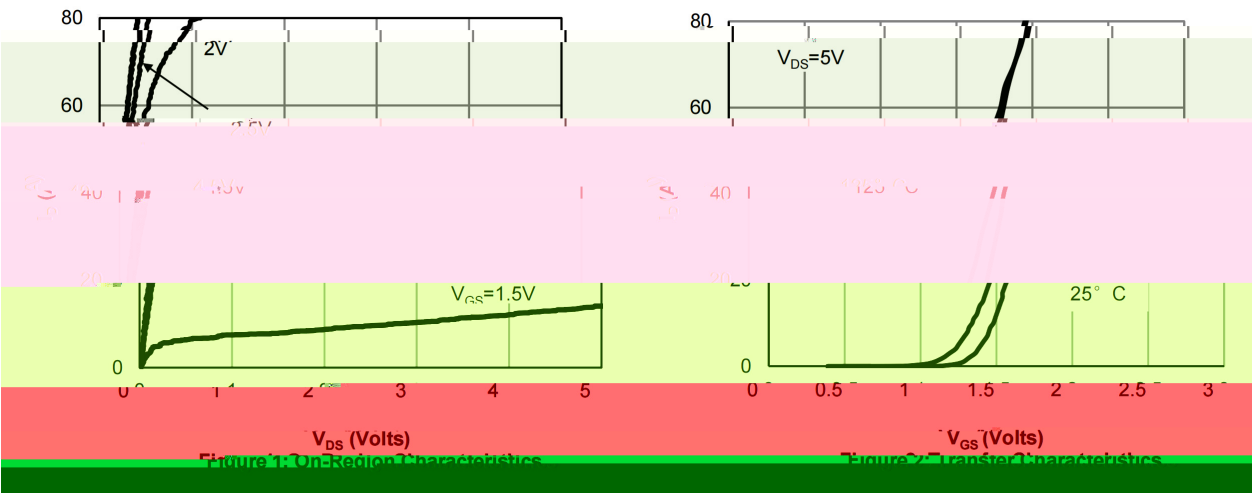
PIN 4 D

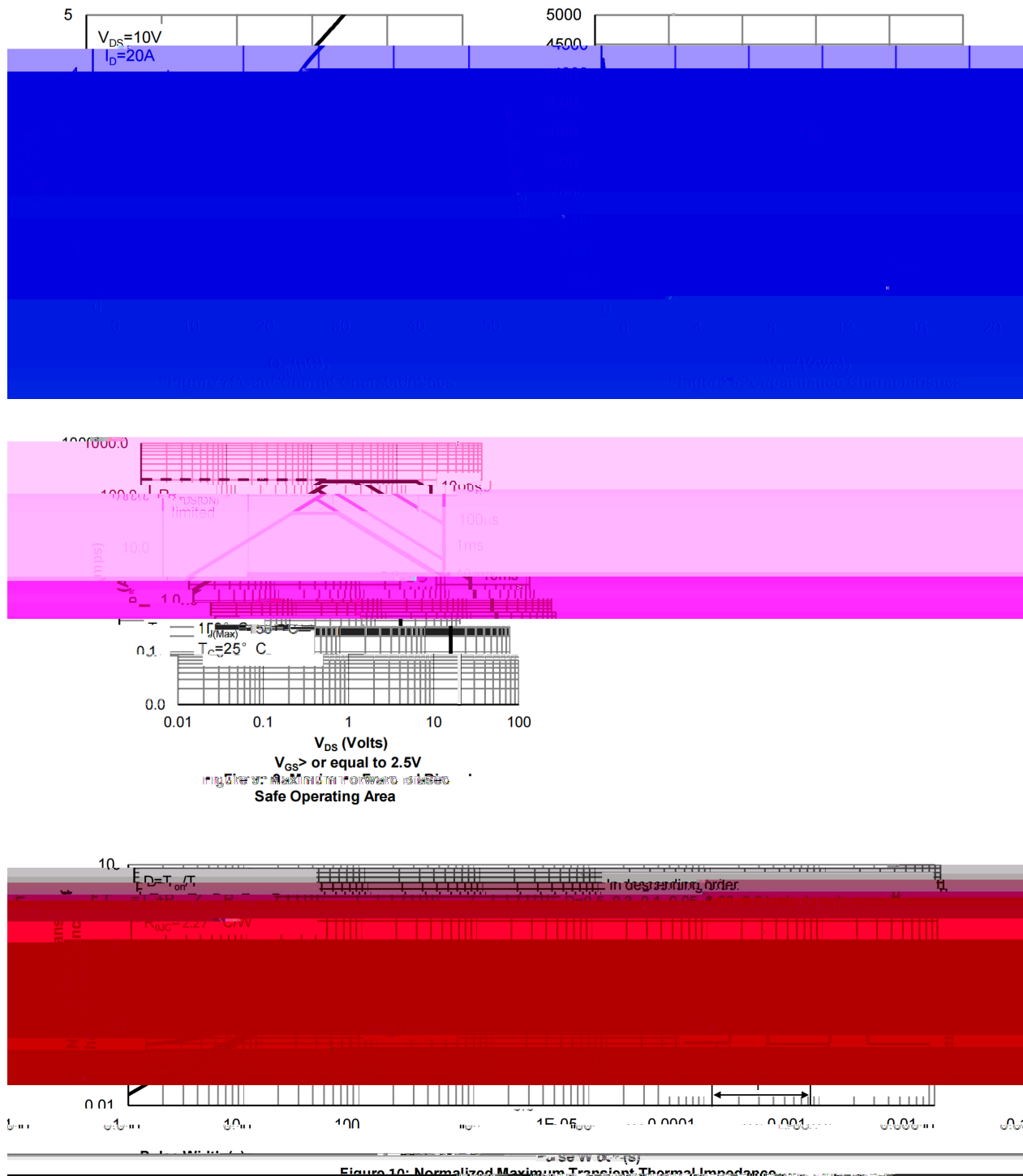
See Marking Instructions.

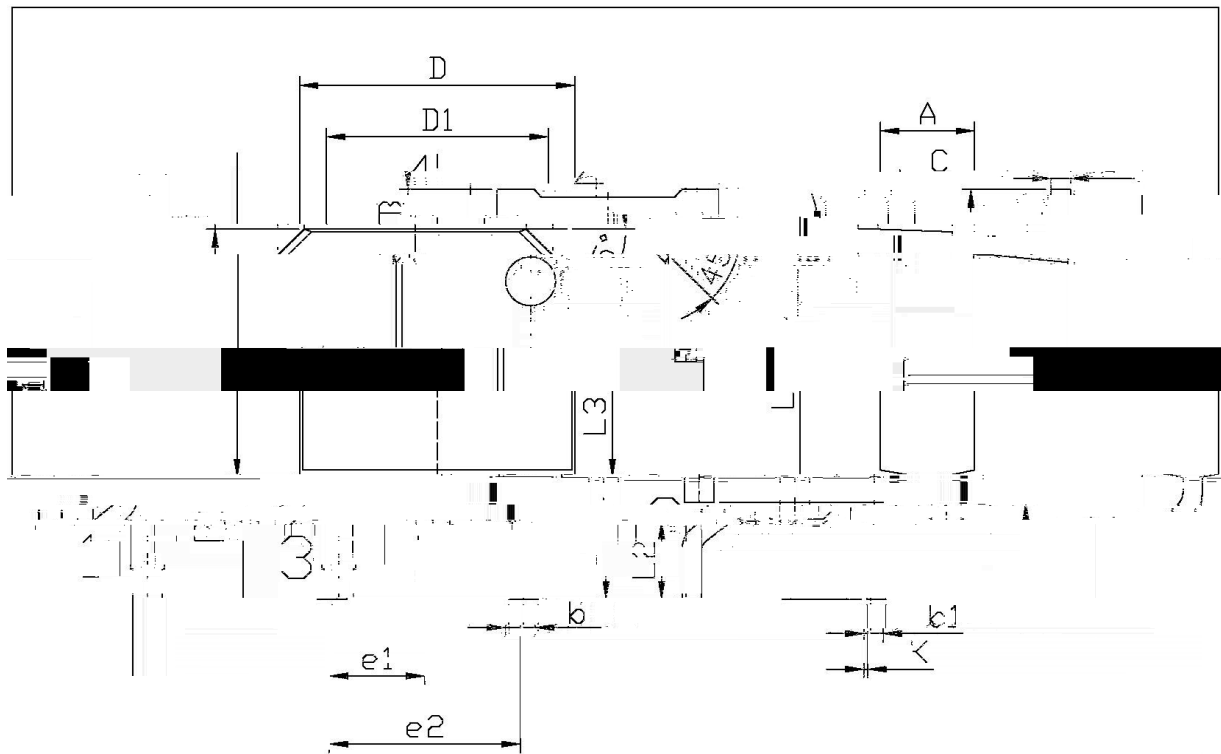
| Parameter                              |              | Symbol                 | Rating   | Unit          |
|----------------------------------------|--------------|------------------------|----------|---------------|
| Drain-Source Voltage                   |              | $V_{DS}$               | 20       | V             |
| Drain Current                          |              | $I_D(T_c=25^{\circ}C)$ | 95       | A             |
| Drain Current - Pulsed                 |              | $I_{DM}$               | 212      | A             |
| Gate-Source Voltage                    |              | $V_{GS}$               | $\pm 12$ | V             |
| Avalanche Current                      |              | $I_{AS}$               | 24       | A             |
| Single Pulsed Avalanche Energy         |              | $E_{AS}$               | 201      | mJ            |
| Power Dissipation                      |              | $P_D(T_c=25^{\circ}C)$ | 55       | W             |
| Storage Temperature Range              |              | $T_{stg}$              | -55~150  | $^{\circ}C$   |
| Thermal Resistance-Junction to Ambient | $t \leq 10s$ | $R_{\theta JA}$        | 20       | $^{\circ}C/W$ |
|                                        | Steady-State |                        | 50       |               |
| Thermal Resistance-Junction to Case    | Steady-State | $R_{\theta JC}$        | 2.27     |               |

| Parameter                          | Symbol       | Test Conditions                         | Min | Typ  | Max       | Unit       |
|------------------------------------|--------------|-----------------------------------------|-----|------|-----------|------------|
| Drain-Source Breakdown Voltage     | $BV_{DS}$    | $V_{GS}=0V$ $I_D=250\mu A$              | 20  | 24   |           | V          |
| Zero Gate Voltage Drain Current    | $I_{DSS}$    | $V_{DS}=20V$ $V_{GS}=0V$                |     |      | 1.0       | $\mu A$    |
| Gate-Body Leakage Current Forward  | $I_{GSS}$    | $V_{GS}=\pm 12V$ $V_{DS}=0V$            |     |      | $\pm 100$ | nA         |
| Gate Threshold Voltage             | $V_{GS(th)}$ | $V_{DS}=V_{GS}$ $I_D=250\mu A$          | 0.4 | 0.7  | 1         | V          |
| Static Drain-Source On-Resistance  | $R_{DS(on)}$ | $V_{GS}=4.5V$ $I_D=15A$                 |     | 3.7  | 4         | m $\Omega$ |
|                                    |              | $V_{GS}=2.5V$ $I_D=10A$                 |     | 5.5  | 6         |            |
|                                    |              | $V_{GS}=2.0V$ $I_D=6.0A$                |     | 8    | 15        |            |
| Drain-Source Diode Forward Voltage | $V_{SD}$     | $V_{GS}=0V$ $I_S=1A$                    |     |      | 1.25      | V          |
| Gate resistance                    | $R_g$        | $V_{GS}=0V$ $V_{DS}=0V$ ,<br>$f=1MHz$   |     | 2.2  |           | $\Omega$   |
| Input Capacitance                  | $C_{iss}$    | $V_{DS}=10V$ $V_{GS}=0V$<br>$f=1.0MHz$  |     | 2700 |           | pF         |
| Output Capacitance                 | $C_{oss}$    |                                         |     | 370  |           |            |
| Reverse Transfer Capacitance       | $C_{rss}$    |                                         |     | 360  |           |            |
| Total Gate Charge                  | $Q_g(4.5V)$  | $V_{GS}=4.5V$ $V_{DS}=10V$<br>$I_D=20A$ |     | 31   |           | nC         |
| Gate Source Charge                 | $Q_{gs}$     |                                         |     | 5.2  |           |            |
| Gate Drain Charge                  | $Q_{gd}$     |                                         |     | 8    |           |            |

| Parameter           | Symbol                                                                  | Test Conditions                                                  | Min | Typ | Max | Unit |
|---------------------|-------------------------------------------------------------------------|------------------------------------------------------------------|-----|-----|-----|------|
| Turn-On Delay Time  | $t_{d(on)}$                                                             | $V_{GS}=10V$ $V_{DS}=10V$<br>$R_L=0.5\ \Omega$ $R_{GEN}=3\Omega$ |     | 7.5 |     | ns   |
| Turn-On Rise Time   | $t_r$                                                                   |                                                                  |     | 15  |     |      |
| Turn-Off Delay Time | $t_{d(off)}$                                                            |                                                                  |     | 72  |     |      |
| Turn-Off Fall Time  | $t_{rn}$ c0 64mW* n.068001Tm095.2 -8001Tm 10W n..777 .87.069(R)rg057.54 |                                                                  |     |     |     |      |

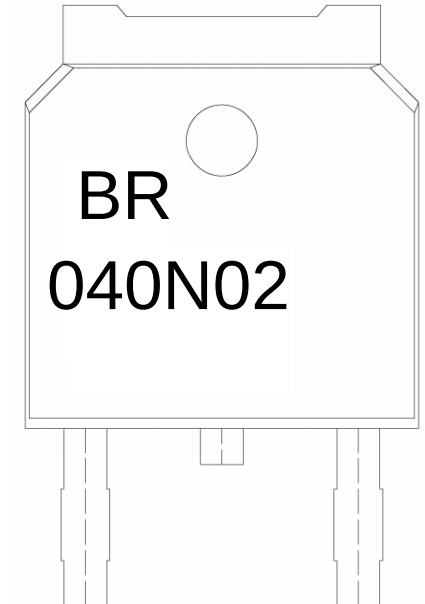






| 单位: mm |  |                           |      |
|--------|--|---------------------------|------|
| Symbol |  | Dimensions In Millimeters |      |
|        |  | Min                       | Max  |
| R      |  | 5.95                      | 6.25 |
| P      |  | 0.95                      | 1.25 |
| f      |  | 0.35                      | 0.45 |
| f      |  | 0.15                      | 0.55 |
| 6.45   |  | 6.75                      | L3   |
| 5.10   |  | 5.50                      | K    |
|        |  | 0.00                      | 0.90 |
|        |  | 0.40                      |      |
|        |  |                           | D1   |
| Symbol |  | Dimensions In Millimeters |      |
|        |  | Min                       | Max  |
| A      |  | 2.90                      | 3.20 |
| e1     |  | 2.24                      | 2.34 |
| L1     |  | 0.55                      | 0.85 |
| L2     |  | 1.20                      | 2.00 |
| D1     |  |                           |      |

T0-252



BR

040N02

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Note:

BR: Company Code

040N02: Product Type Code

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

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- 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.

260±510±1 sec.Temp.:260±5℃Time:10±1 sec

/ REEL

| Package Type | Units |   |       |   |        | Dimension (unit mm³) |            |             |
|--------------|-------|---|-------|---|--------|----------------------|------------|-------------|
|              |       |   |       |   |        |                      |            |             |
| TO-252       | 2,500 | 2 | 5,000 | 6 | 30,000 | 13" ×16              | 360×360×50 | 380×335×366 |

/ TUBE

| Package Type | Units |    |       |   |        | Dimension (unit mm³) |            |             |
|--------------|-------|----|-------|---|--------|----------------------|------------|-------------|
|              |       |    |       |   |        |                      |            |             |
| TO-251/252   | 75    | 48 | 3,600 | 5 | 18,000 | 526×20.5×5.25        | 555×164×50 | 575×290×180 |