

Rev.B May-2026

TO-252          N          MOS

N-Channel Enhancement Mode Field Effect Transistor in a TO-252 Plastic Package.

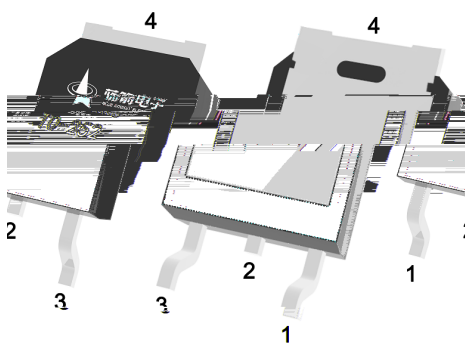
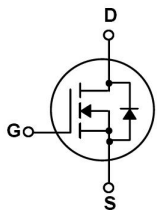
$V_{DS} (V) = 30V$      $I_D = 122 A$  ( $V_{GS} = \pm 20V$ )

$R_{DS(ON)} @ 10V \leq 3.5m\Omega$  (Typ. 3.4mΩ)

$R_{DS(ON)} @ 4.5V \leq 6.5m\Omega$  (Typ. 5.0mΩ)

。 HF Product.

Load Switch Applications, Battery Power Management.



PIN1   G          PIN 2   4   D          PIN 3   S

See Marking Instructions.

| Parameter                              |              | Symbol                       | Rating     | Unit               |
|----------------------------------------|--------------|------------------------------|------------|--------------------|
| Drain-Source Voltage                   |              | $V_{DSS}$                    | 30         | V                  |
| Drain Current                          |              | $I_D(T_C=25^\circ\text{C})$  | 122        | A                  |
|                                        |              | $I_D(T_C=100^\circ\text{C})$ | 86         | A                  |
| Drain Current - Pulsed                 |              | $I_{DM}$                     | 260        | A                  |
| Gate-Source Voltage                    |              | $V_{GSS}$                    | $\pm 20$   | V                  |
| Single Pulsed Avalanche Energy         |              | $E_{AS}$                     | 281        | mJ                 |
| Avalanche Current                      |              | $I_{AS}$                     | 26.5       | A                  |
| Power Dissipation                      |              | $P_D(T_C=25^\circ\text{C})$  | 88         | W                  |
| Junction and Storage Temperature Range |              | $T_J, T_{stg}$               | -55 to 150 |                    |
| Junction-to-Ambient                    | $t \leq 10$  | $R_{\theta JA}$              | 22         | $^\circ\text{C/W}$ |
| Junction-to-Ambient                    | Steady-State |                              | 50         |                    |
| Junction-to-Case                       | Steady-State | $R_{\theta JC}$              | 1.42       |                    |

| Parameter                          | Symbol        | Test Conditions          |                | Min | Typ  | Max       | Unit       |
|------------------------------------|---------------|--------------------------|----------------|-----|------|-----------|------------|
| Drain-Source Breakdown Voltage     | $BV_{DSS}$    | $V_{GS}=0V$              | $I_D=250\mu A$ | 30  | 33   |           | V          |
| Zero Gate Voltage Drain Current    | $I_{DSS}$     | $V_{DS}=30V$             | $V_{GS}=0V$    |     |      | 1         | $\mu A$    |
| Gate-Body Leakage Current Forward  | $I_{GSS}$     | $V_{GS}=\pm 20V$         | $V_{DS}=0V$    |     |      | $\pm 0.1$ | $\mu A$    |
| Gate Threshold Voltage             | $V_{GS(th)}$  | $V_{DS}=V_{GS}$          | $I_D=250\mu A$ | 1.0 | 1.7  | 3.0       | V          |
| Static Drain-Source On-Resistance  | $R_{DS(on)1}$ | $V_{GS}=10V$             | $I_D=20A$      |     | 3.4  | 3.5       | m $\Omega$ |
|                                    | $R_{DS(on)2}$ | $V_{GS}=4.5V$            | $I_D=10A$      |     | 5.0  | 6.5       | m $\Omega$ |
| Drain-Source Diode Forward Voltage | $V_{SD}$      | $V_{GS}=0V$              | $I_S=1A$       |     |      | 1.4       | V          |
| Input Capacitance                  | $C_{iss}$     | $V_{DS}=25V$<br>$f=1MHz$ | $V_{GS}=0V$    |     | 2200 |           | pF         |
| Output Capacitance                 | $C_{oss}$     |                          |                |     | 145  |           |            |
| Reverse Transfer Capacitance       | $C_{rss}$     |                          |                |     | 210  |           |            |
| Gate resistance                    | $R_g$         | $V_{GS}=0V$<br>$f=1MHz$  | $V_{DS}=0V$    |     | 2.0  |           | $\Omega$   |

| Parameter           | Symbol        | Test Conditions                                                     | Min | Typ | Max | Unit |
|---------------------|---------------|---------------------------------------------------------------------|-----|-----|-----|------|
| Total Gate Charge   | $Q_{g(10V)}$  | $V_{GS}=10V$ $V_{DS}=15V$<br>$I_D=20A$                              |     | 32  |     | nC   |
| Total Gate Charge   | $Q_{g(4.5V)}$ |                                                                     |     | 15  |     |      |
| Gate Source Charge  | $Q_{gs}$      |                                                                     |     | 5.2 |     |      |
| Gate Drain Charge   | $Q_{gd}$      |                                                                     |     | 6.5 |     |      |
| Turn-On Delay Time  | $t_{d(on)}$   | $V_{GS}=10V$ $V_{DS}=15V$<br>$R_L=0.75\ \Omega$ $R_{GEN}=3\ \Omega$ |     | 8.5 |     | ns   |
| Turn-On Rise Time   | $t_r$         |                                                                     |     | 4.2 |     |      |
| Turn-Off Delay Time | $t_{d(off)}$  |                                                                     |     | 30  |     |      |
| Turn-Off Fall Time  | $t_f$         |                                                                     |     | 5.7 |     |      |

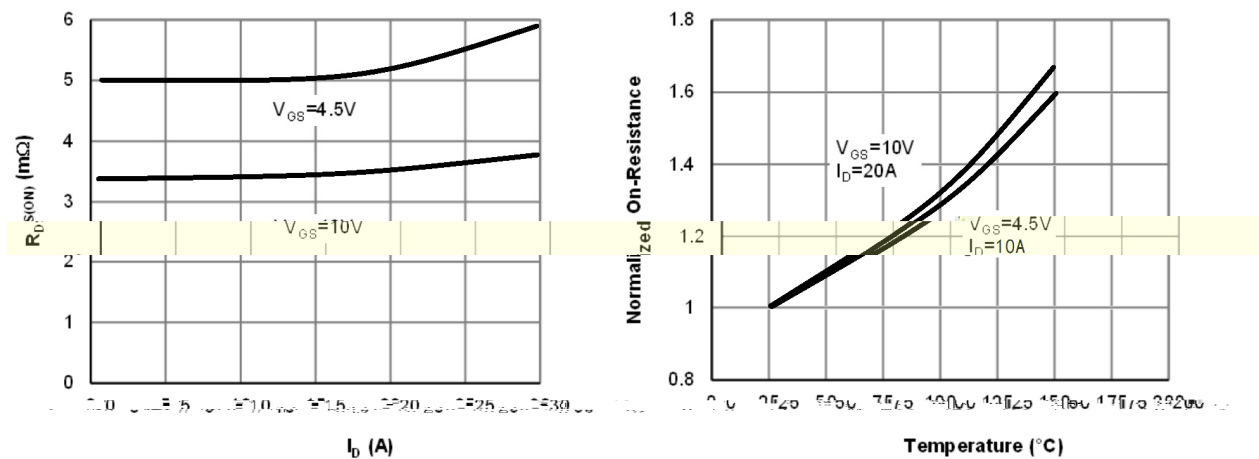
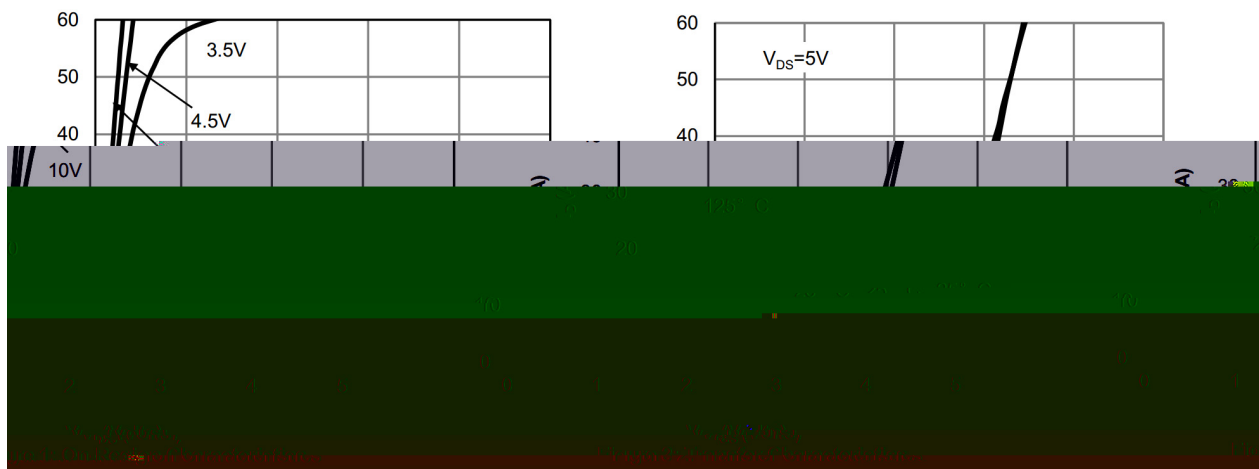


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

Figure 4: On-Resistance vs. Junction Temperature

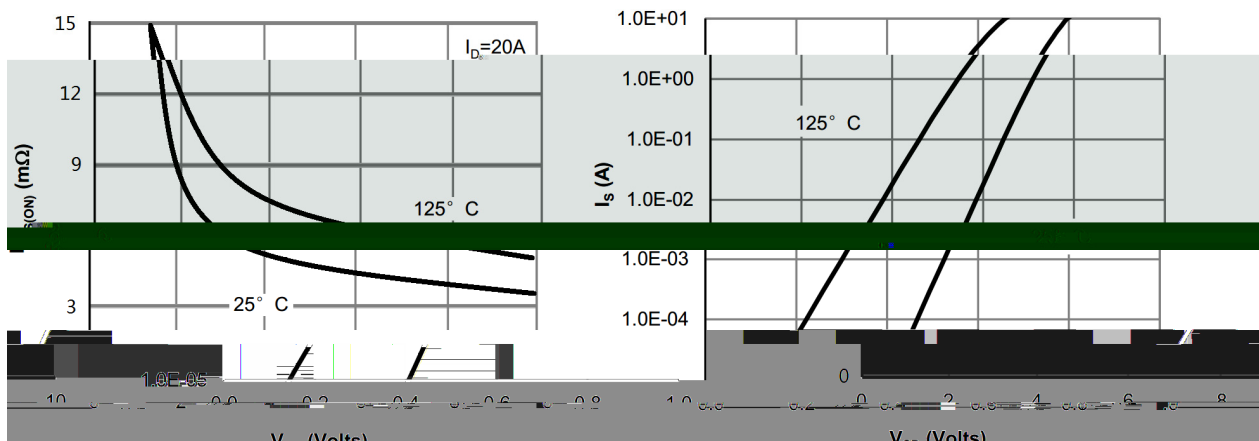


Figure 5: On-Resistance vs. Gate-Source Voltage

Figure 6: Body Diode Characteristics

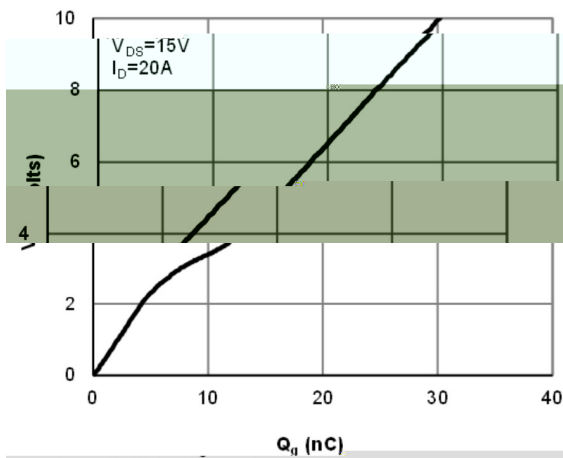


Figure 7: Gate-Charge Characteristics

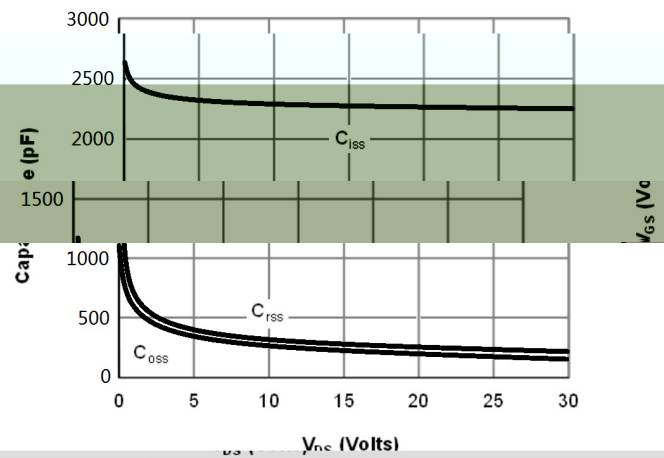


Figure 8: Capacitance Characteristics

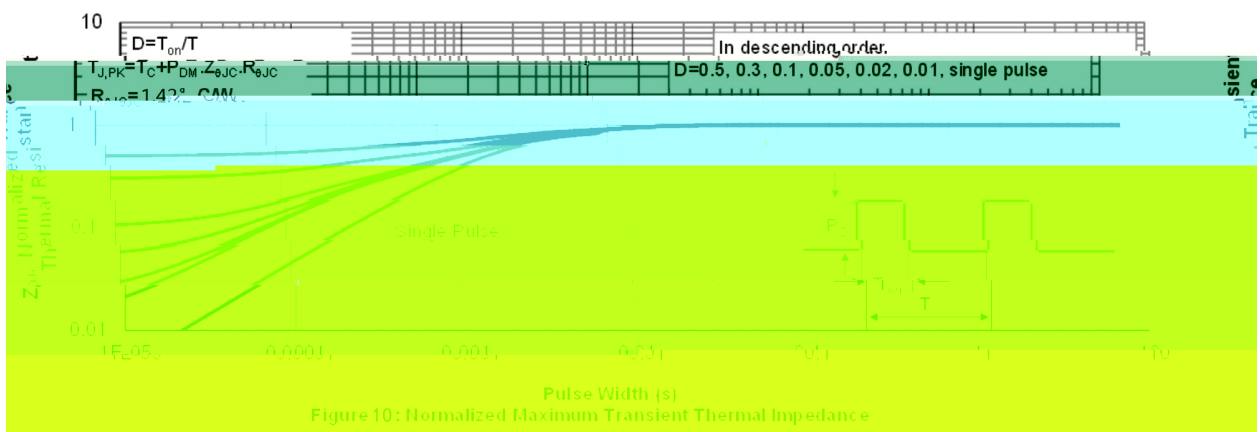
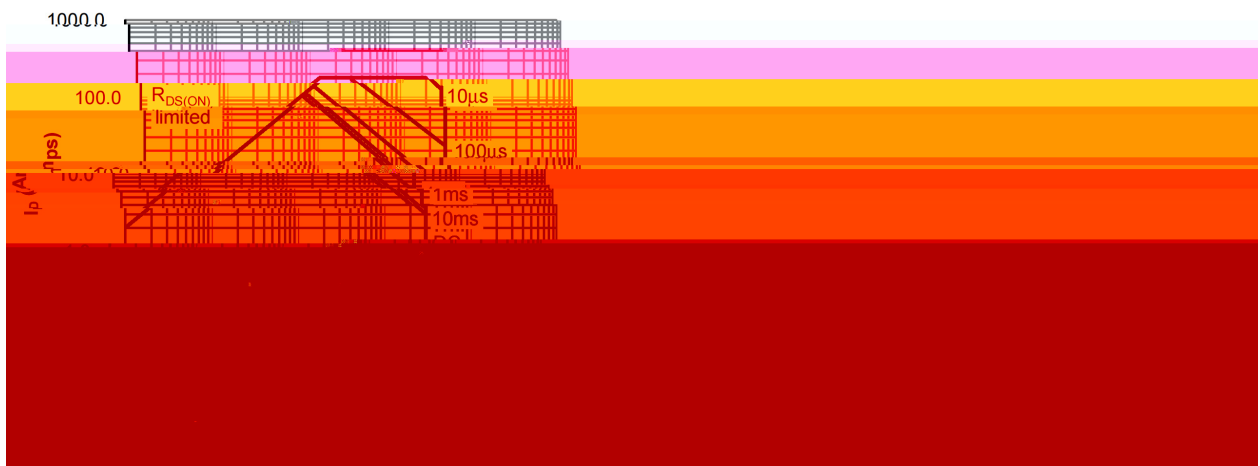
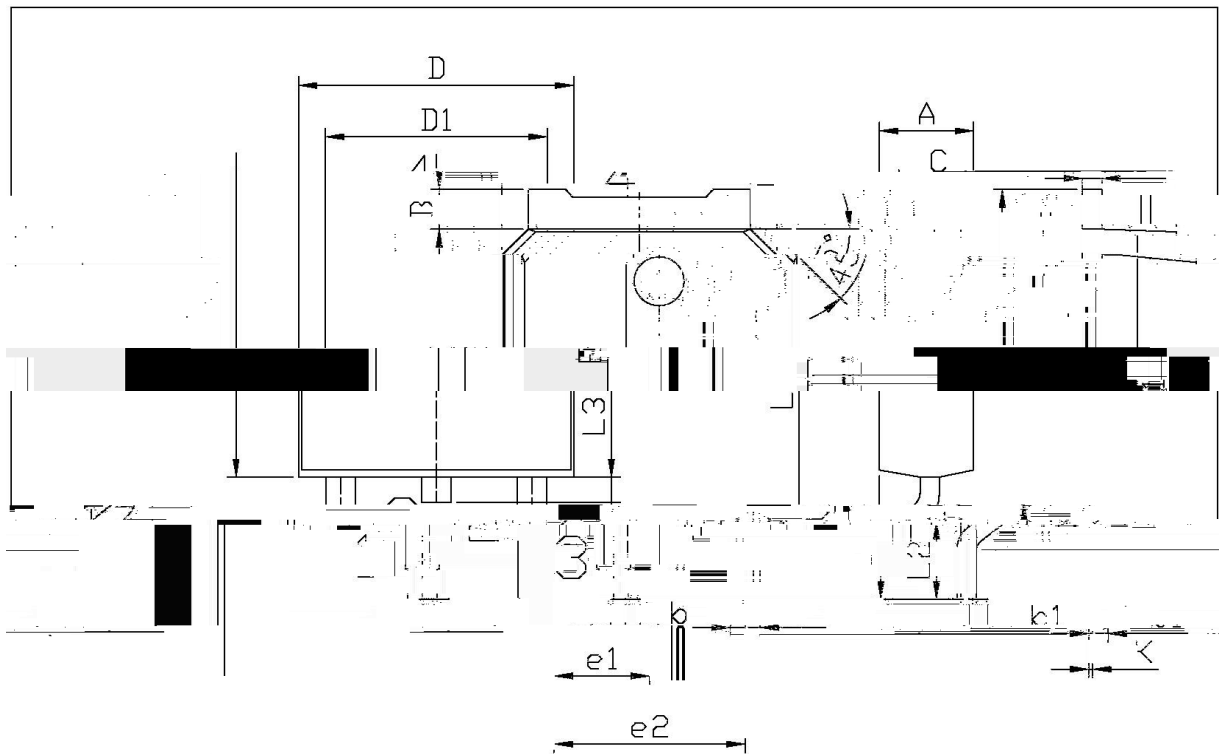


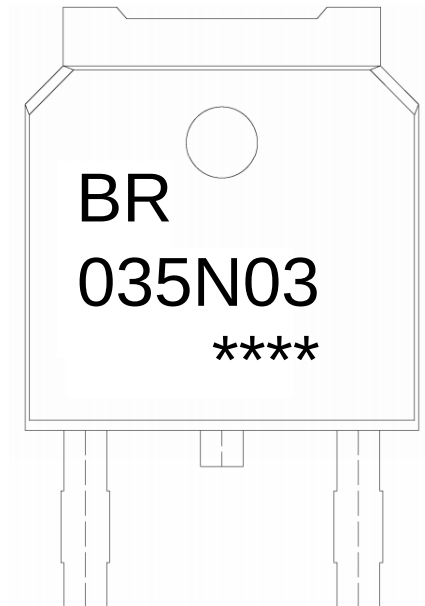
Figure 10: Normalized Maximum Transient Thermal Impedance



单位: mm

| Symbol |      | Dimensions In Millimeters |      | Symbol |       | Dimensions In Millimeters |       |
|--------|------|---------------------------|------|--------|-------|---------------------------|-------|
|        |      | Min                       | Max  |        |       | Min                       | Max   |
| 5.95   | 6.25 | 1.25                      | 1.50 | 2.24   | 2.34  | 2.24                      | 2.34  |
| 0.95   | 1.25 | 0.95                      | 1.25 | 4.43   | 4.73  | 4.43                      | 4.73  |
| 0.73   | 0.90 | 0.73                      | 0.90 | 9.85   | 10.35 | 9.85                      | 10.35 |
| 0.45   | 0.55 | 0.45                      | 0.55 | 1.70   | 2.00  | 1.70                      | 2.00  |
| 0.45   | 0.55 | 0.45                      | 0.55 | 6.75   | 7.25  | 6.75                      | 7.25  |
| 0.45   | 0.55 | 0.45                      | 0.55 | 6.75   | 7.25  | 6.75                      | 7.25  |
| 0.45   | 0.55 | 0.45                      | 0.55 | 6.75   | 7.25  | 6.75                      | 7.25  |

T0-252



BR

035N03

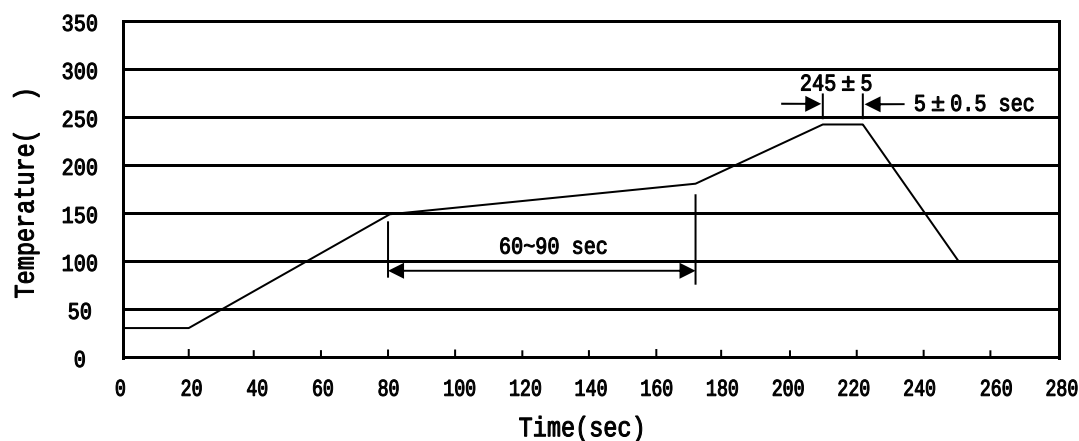
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Note:

BR: Company Code

035N03: 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.            |

260±5

10±1 sec.

Temp.:260±5

Time:10±1 sec

/ REEL

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

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