

## / Descriptions

TO-252 P MOS

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

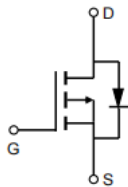
## / Features

Low  $R_{DS(on)}$ , low gate charge, low  $C_{rss}$ , fast switching, HF Product.

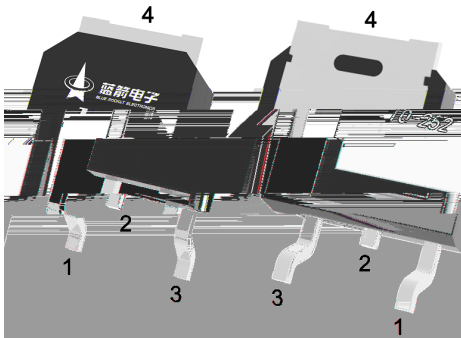
## / Applications

Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products.

## / Equivalent Circuit



## / Pinning



PIN1 G

PIN 2 D

PIN 3 S

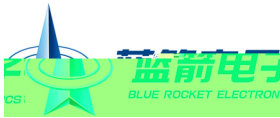
PIN 4 D

## / Marking

See Marking Instructions.

| Parameter                              |                  | Symbol                      | Rating     | Unit |
|----------------------------------------|------------------|-----------------------------|------------|------|
| Drain-Source Voltage                   |                  | $V_{DS}$                    | -60        | V    |
| Drain Current                          |                  | $I_D(T_C=25^\circ\text{C})$ | -50        | A    |
| Drain Current - Pulsed                 |                  | $I_{DM}$                    | -200       | A    |
| Gate-Source Voltage                    |                  | $V_{GS}$                    | $\pm 20$   | V    |
| Power Dissipation                      |                  | $P_D(T_C=25^\circ\text{C})$ | 85         | W    |
| Single Pulsed Avalanche Energy         |                  | $E_{AS}$                    | 250        | mJ   |
| Avalanche Current( $L=0.5\text{mH}$ )  |                  | $I_{AS}$                    | 25         | A    |
| Junction and Storage Temperature Range |                  | $T_j, T_{stg}$              | -55 to 150 |      |
| Thermal resistance, junction - ambient | $t = 10\text{s}$ | $R_{JA}$                    | 25         | / W  |
|                                        | Steady-State     |                             | 50         |      |
| Thermal resistance, junction - case    | Steady-State     | $R_{JC}$                    | 1.5        |      |

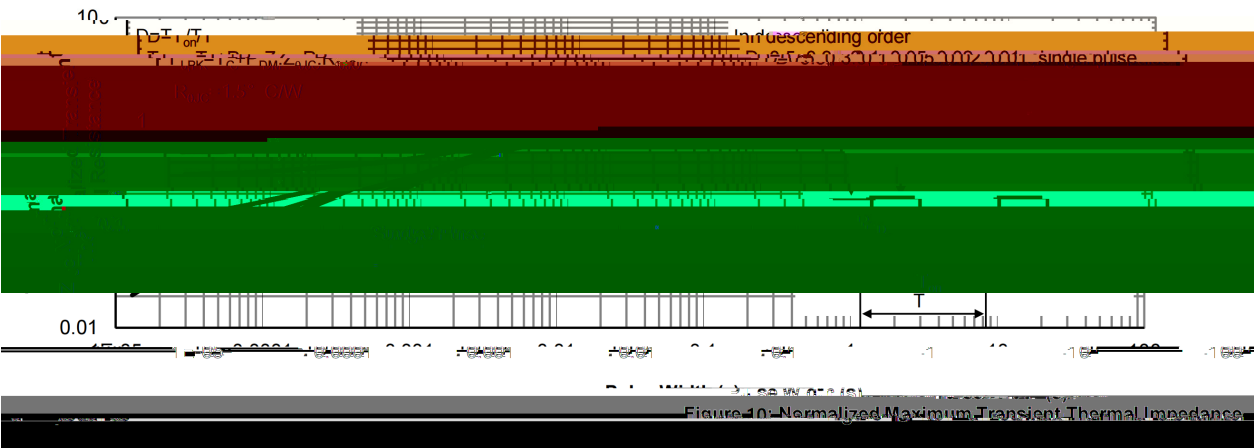
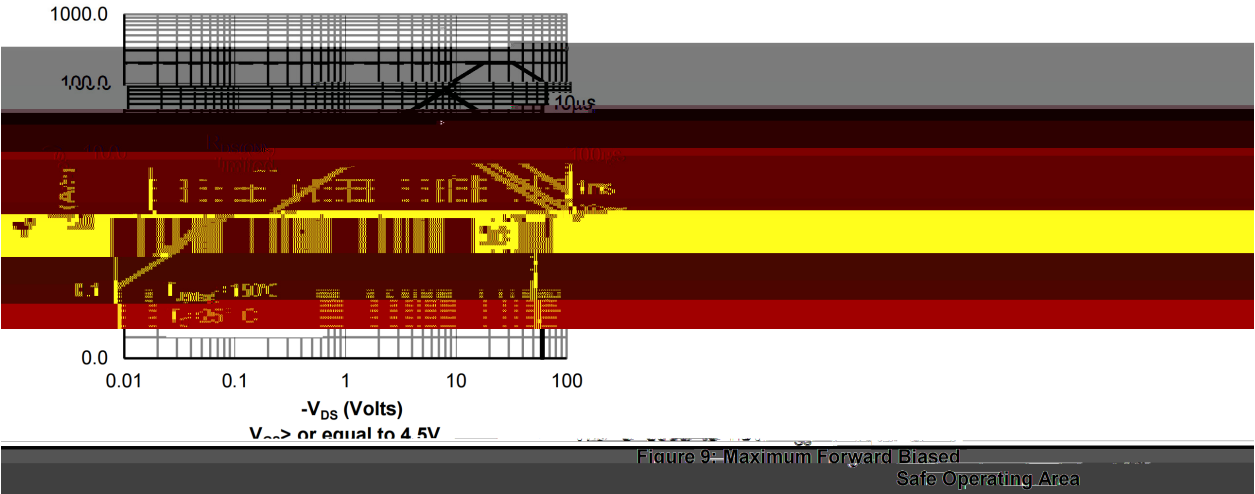
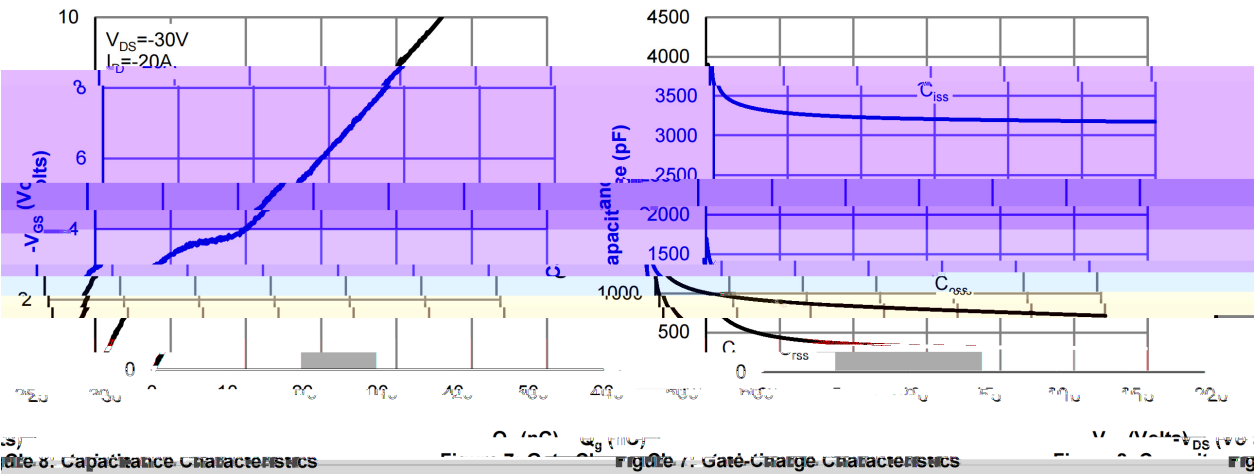
| Parameter                          | Symbol       | Test Conditions                                           | Min | Typ  | Max       | Unit |
|------------------------------------|--------------|-----------------------------------------------------------|-----|------|-----------|------|
| Drain-Source Breakdown Voltage     | $BV_{DSS}$   | $V_{GS}=0\text{V}$ $I_D=-250\text{ A}$                    | -60 | -68  |           | V    |
| Zero Gate Voltage Drain Current    | $I_{DSS}$    | $V_{DS}=-60\text{V}$ $V_{GS}=0\text{V}$                   |     |      | -1.0      | A    |
|                                    |              | $V_{DS}=-48\text{V}$ $T_C=150$                            |     |      | -10       |      |
| Gate-Body Leakage Current Forward  | $I_{GSS}$    | $V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$                |     |      | $\pm 0.1$ | A    |
| Gate Threshold Voltage             | $V_{GS(th)}$ | $V_{DS}=V_{GS}$ $I_D=-250\text{ A}$                       | -1  | -1.6 | -3        | V    |
| Static Drain-Source On-Resistance  | $R_{DS(on)}$ | $V_{GS}=-10\text{V}$ $I_D=-20\text{A}$                    |     | 30   | 35        | m    |
|                                    | $R_{DS(on)}$ | $V_{GS}=-4.5\text{V}$ $I_D=-10\text{A}$                   |     | 40   | 45        | m    |
| Drain-Source Diode Forward Voltage | $V_{SD}$     | $V_{GS}=0\text{V}$ $I_S=-1\text{A}$                       |     |      | -1.2      | V    |
| Gate resistance                    | $R_g$        |                                                           |     | 10   |           |      |
| Input Capacitance                  | $C_{iss}$    |                                                           |     | 3200 |           | pF   |
| Output Capacitance                 | $C_{oss}$    | $V_{DS}=-25\text{V}$ $V_{GS}=0\text{V}$ $f=1.0\text{MHz}$ |     | 800  |           | pF   |



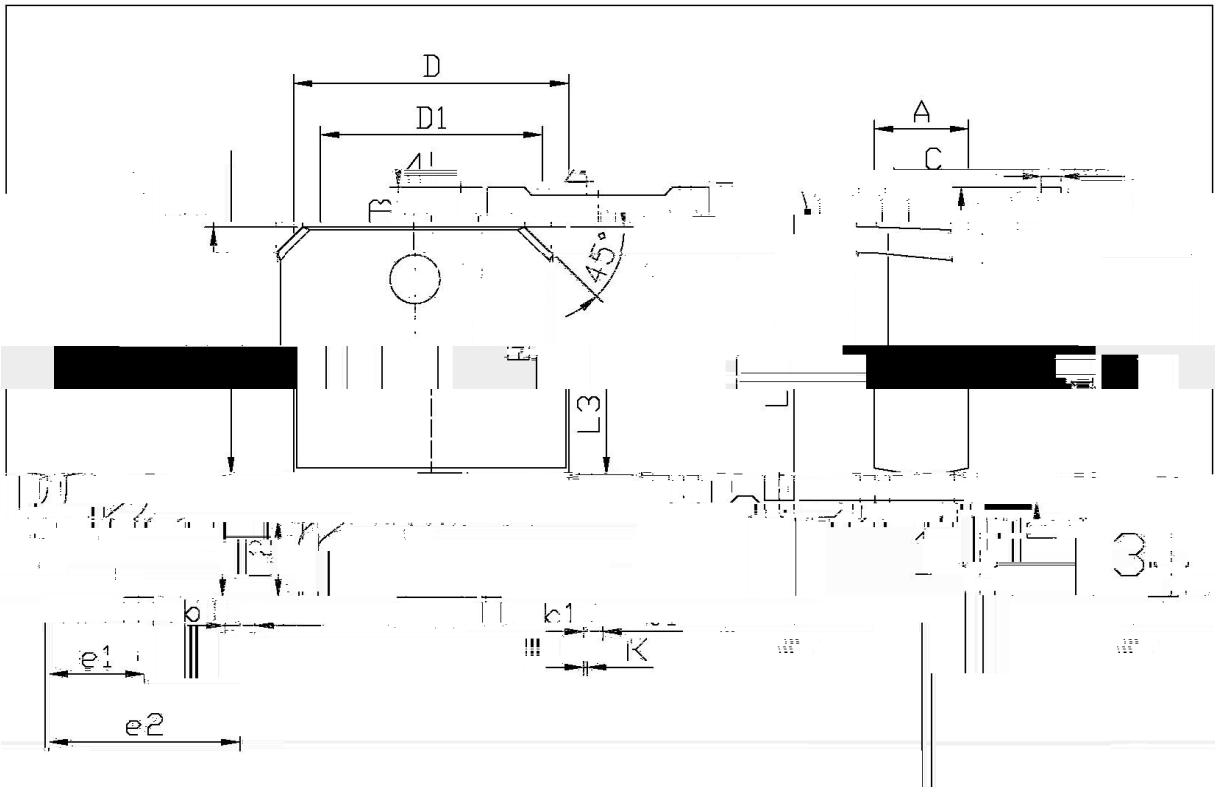
| Parameter          | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--------------------|--------|-----------------|-----|-----|-----|------|
| Turn-On Delay Time | t      |                 |     |     |     |      |



/ Electrical Characteristic Curve



/ Package Dimensions

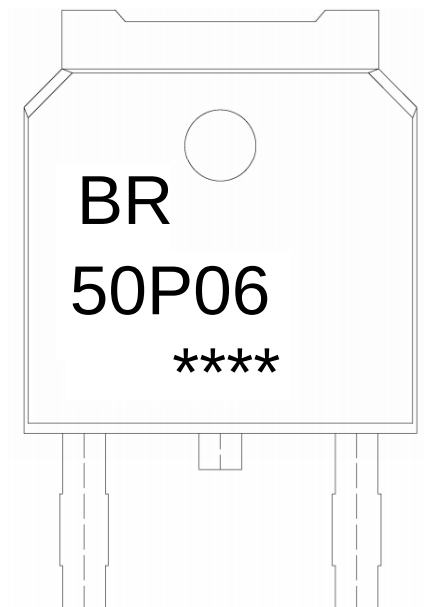


单位: mm

| Symbol |  |  | Dimensions In Millimeters |  |       | Symbol |  |  | Dimensions In Millimeters |  |      |
|--------|--|--|---------------------------|--|-------|--------|--|--|---------------------------|--|------|
|        |  |  | MIN                       |  | MAX   |        |  |  | MIN                       |  | MAX  |
| 5.95   |  |  | 6.25                      |  |       | A      |  |  | 2.20                      |  | 2.40 |
| 2.24   |  |  | 2.34                      |  |       | B      |  |  | 0.95                      |  | 1.25 |
| 4.73   |  |  | 4.73                      |  |       | C      |  |  | 0.30                      |  | 0.90 |
| L1     |  |  | 9.85                      |  | 10.35 | D      |  |  | 5.10                      |  | 0.45 |
|        |  |  | 0.45                      |  | 0.55  | E      |  |  | 1.70                      |  | 2.00 |
| 6.75   |  |  | 6.75                      |  | 0.60  | F      |  |  | 0.90                      |  | 6.4  |
| 5.50   |  |  | 5.50                      |  | 0.00  | G      |  |  | 0.10                      |  | 5.1  |
|        |  |  |                           |  |       | H      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | I      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | J      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | K      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | L      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | M      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | N      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | O      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | P      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | Q      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | R      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | S      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | T      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | U      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | V      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | W      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | X      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | Y      |  |  | 0.10                      |  |      |
|        |  |  |                           |  |       | Z      |  |  | 0.10                      |  |      |

T0-252

**/ Marking Instructions**



BR

Note:

BR: Company Code

50P06: 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.

/ 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> ) |            |             |
|--------------|-------|---|-------|---|--------|-----------------------------------|------------|-------------|
|              |       |   |       |   |        |                                   |            |             |
| 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 |