

BRCS20P06DP

Rev.C Feb.-2025

/ Descriptions

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

/ Features

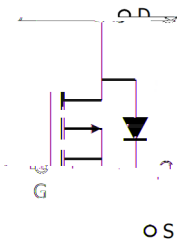
$V_{DS} (V) = -60V$ $I_D = -20A (V_{GS} = \pm 20V)$
 $R_{DS(ON)} @ -10V$ 75m (Typ.62m)
 $R_{DS(ON)} @ -4.5V$ 100m (Typ.70m)
HF Product.

/ Applications

DC/DC

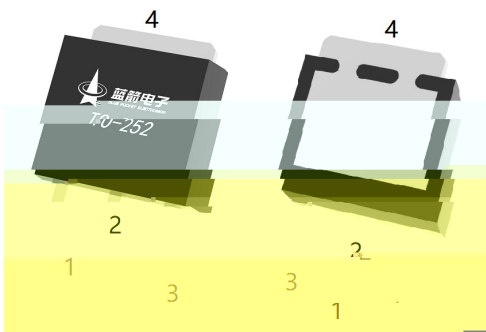
Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products.

/ Equivalent Circuit



o S

/ Pinning



PIN 1 G PIN 2 D PIN 3 S PIN 4 D

/ Marking

See Marking Instructions.

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DATA SHEET

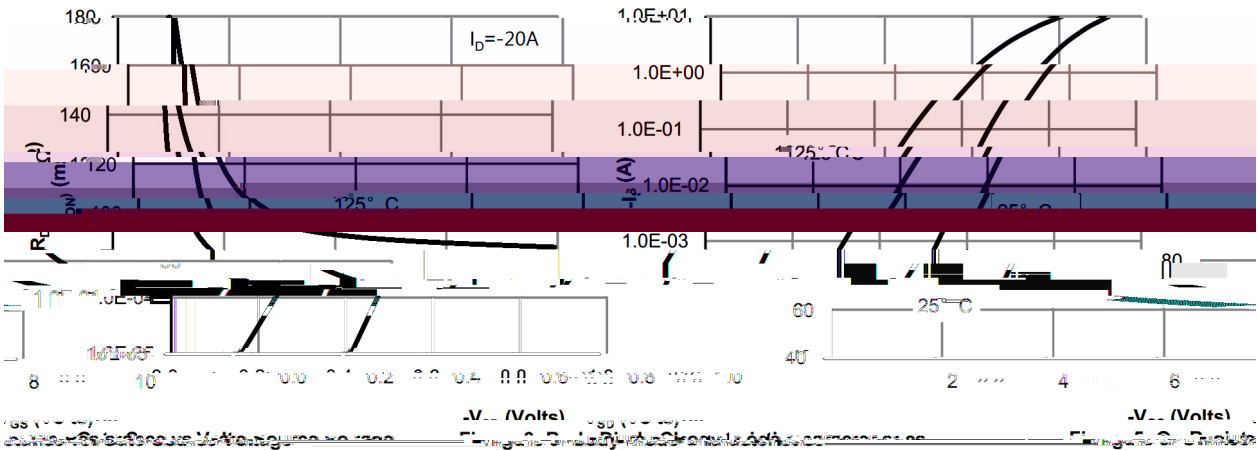
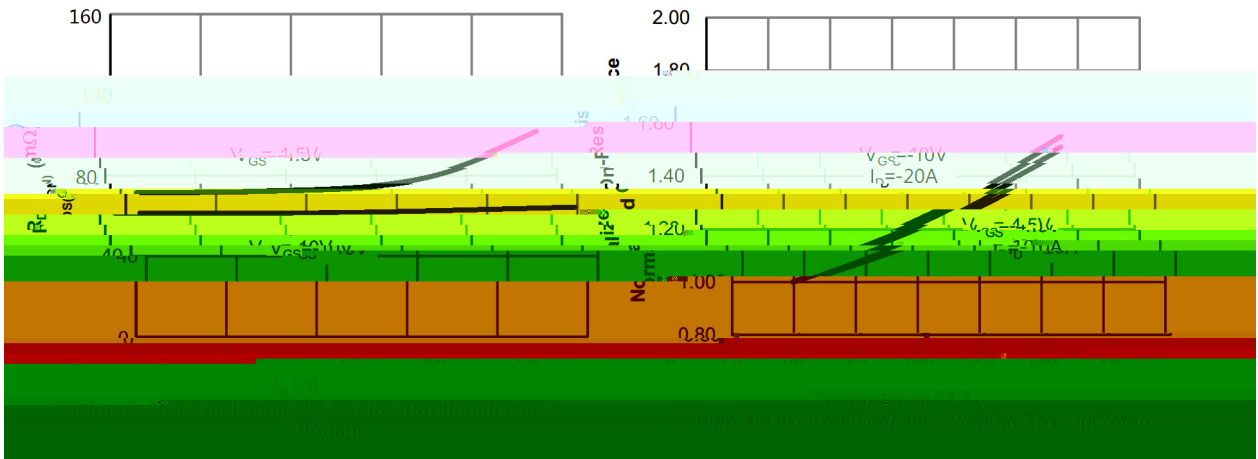
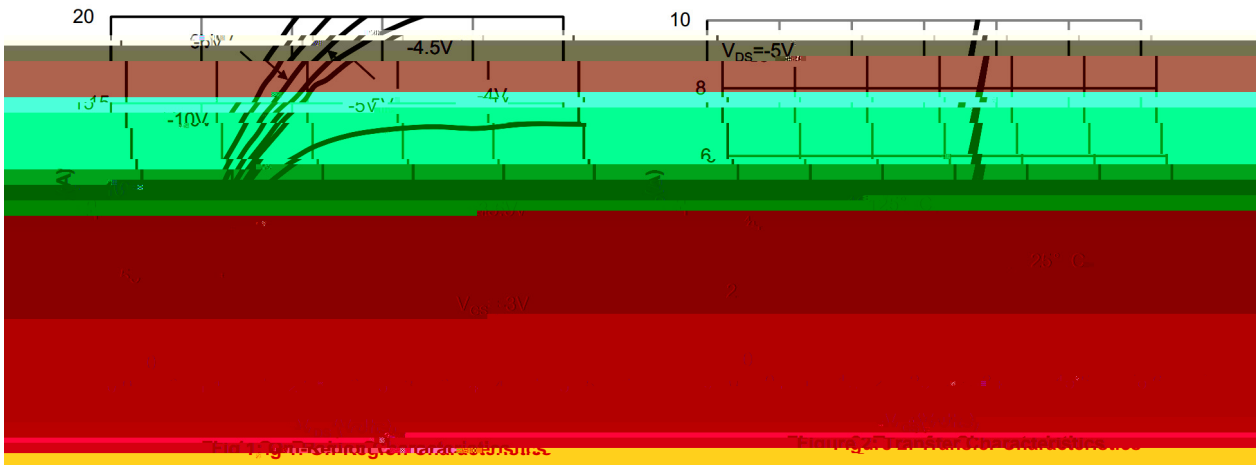
| Parameter | Symbol | Rating | Unit |
|---|------------------------|----------|------|
| Drain-Source Voltage | V_{DSS} | -60 | V |
| Gate-Source Voltage | V_{GSS} | ± 20 | V |
| Continuous Drain Current | $I_D (T_c=25^\circ C)$ | -20 | A |
| Pulsed Drain Current | I_{DM} | -80 | A |
| Avalanche Current | I_{AS} | -13.8 | A |
| Avalanche energy L=0.5mH | E_{AS} | 95 | mJ |
| Power Dissipation for Single Operation | $P_D (T_c=25^\circ C)$ | 45 | W |
| Maximum Junction Temperature | T_j | 150 | |
| Storage Temperature Range | T_{stg} | -55 150 | |
| Thermal Resistance- Junction-to-Ambient | R_{JA} | 50 | /W |
| Thermal Resistance- Junction-to-Case | R_{JC} | 2.8 | /W |

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---------------------------------|--------------|----------------------------------|------|------|-----------|------|
| Drain-Source Breakdown Voltage | BV_{DSS} | $I_D=-250 A \quad V_{GS}=0V$ | -60 | -69 | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=-60V \quad V_{GS}=0V$ | | | -1.0 | |
| Gate-Body leakage current | I_{GSS} | $V_{DS}=0V \quad V_{GS}=\pm 20V$ | | | ± 100 | nA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS} \quad I_D=-250 A$ | -1.0 | -1.5 | -2.5 | V |
| | | $V_{GS}=-10V \quad I_D=-20A$ | | 62 | 75 | m |
| | | $V_{GS}=-4.5V \quad I_D=-10A$ | | 70 | 100 | |
| | | $I_D=-250 A \quad V_{GS}=0V$ | | | -1.0 | V |
| | | $V_{GS}=0V \quad V_{DS}=-25V$ | | 62 | | |

**/ Electrical Characteristics(Ta=25)**

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---------------------|--------------|--|-----|------|-----|------|
| Turn-on Delay Time | $t_{d(ON)}$ | $V_{GS}=-10V$ $V_{DS}=-30V$ $R_L=7.5$ $R_{GEN}=3$ | | 8 | | ns |
| Turn-on Rise Time | t_r | | | 3.8 | | |
| Turn-off Delay Time | $t_{d(OFF)}$ | | | 31.5 | | |
| Turn-off Fall Time | t_f | | | 7.5 | | |

/ Electrical Characteristic Curve



/ Electrical Characteristic Curve

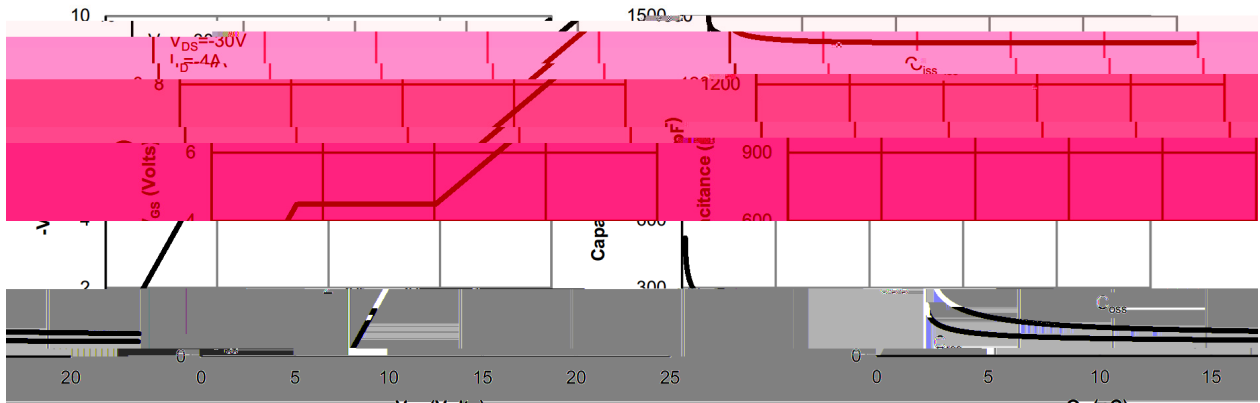
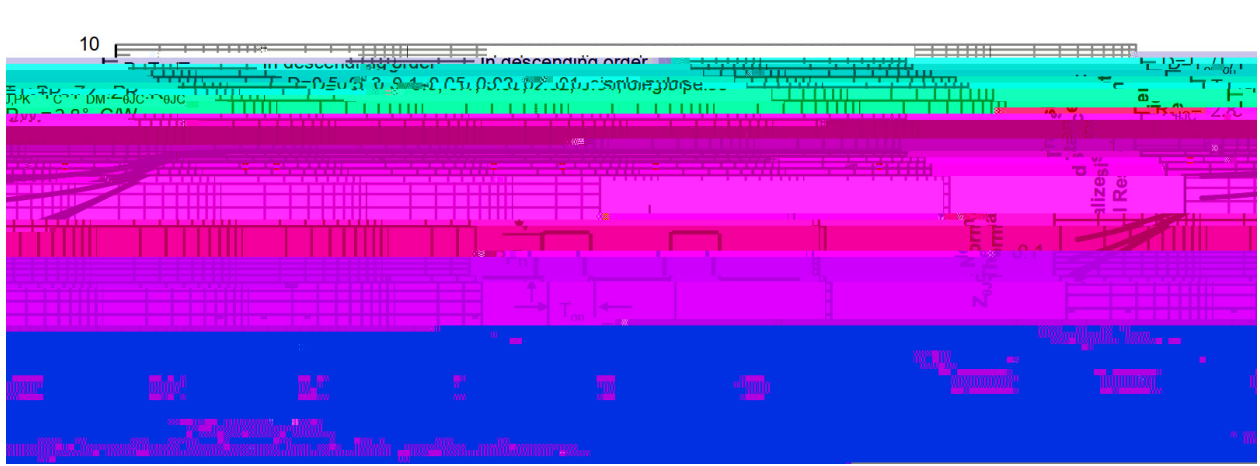
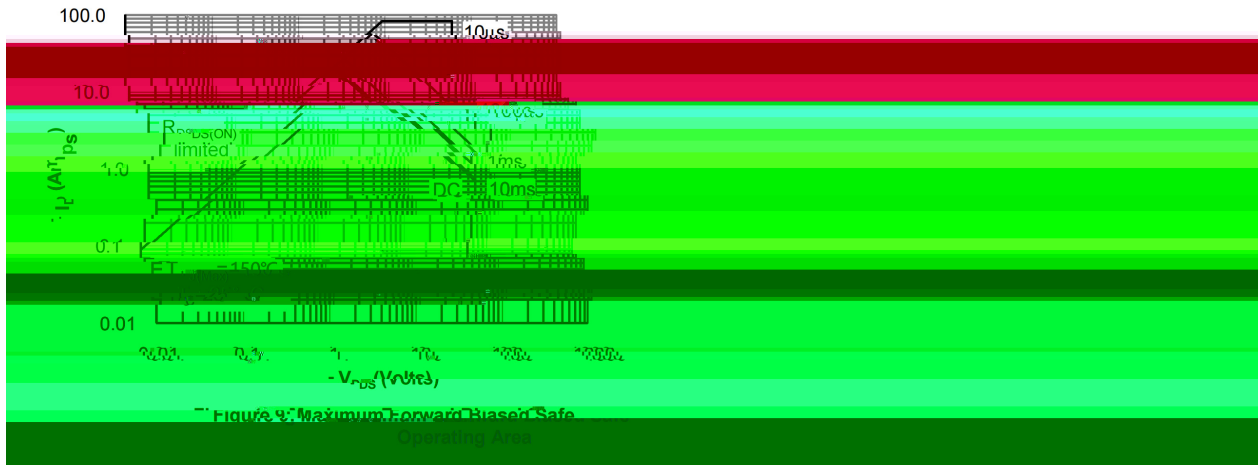
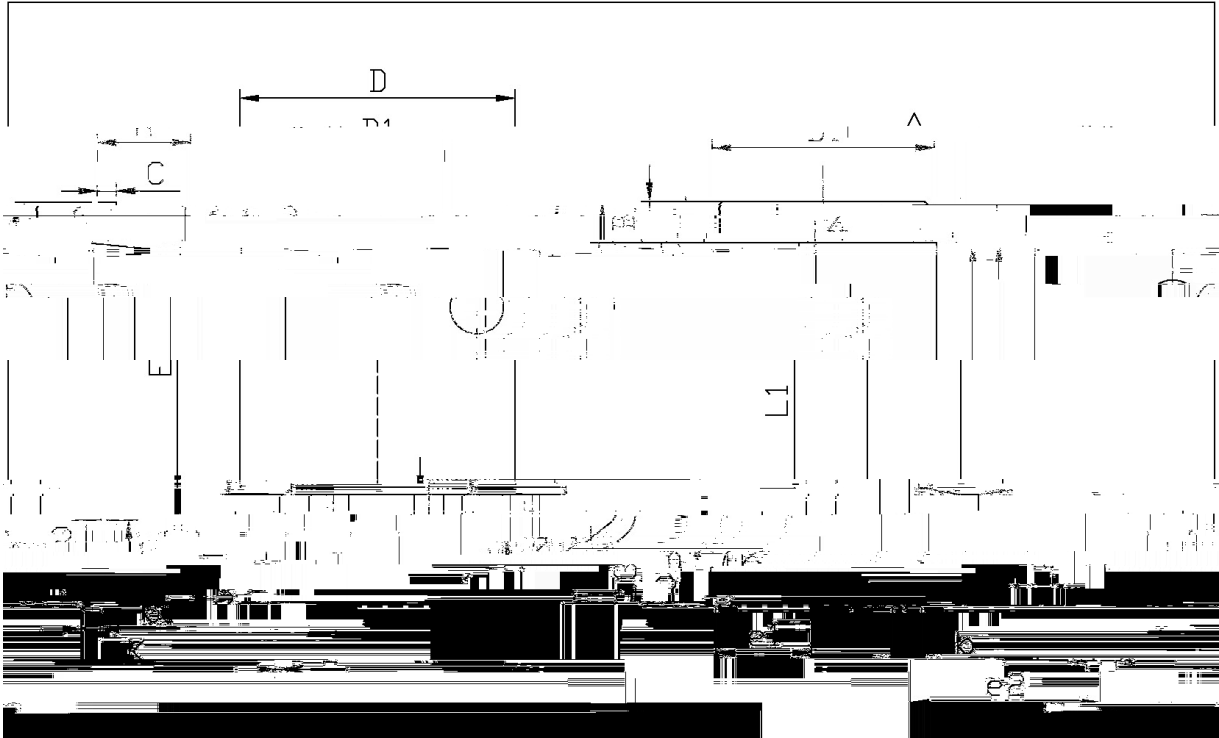


Figure 6: Capacitance Characteristics Figure 7: Gate Charge Characteristics



/ Package Dimensions



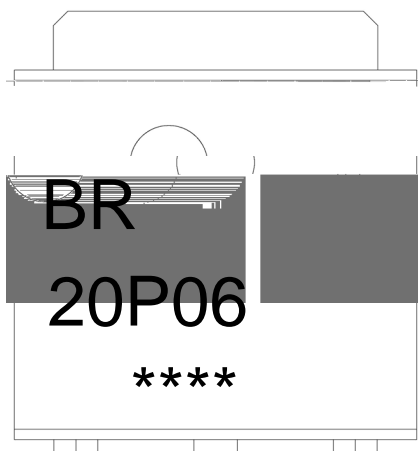
单位: mm

| Symbol | Min | Max | Symbol | Min |
|--------|------|------|--------|------|
| A | 2.30 | 2.40 | F | 5.95 |
| B | 0.50 | 0.55 | G | 0.43 |
| C | 0.45 | 0.55 | H | 0.45 |
| D | 0.50 | 0.55 | I | 0.45 |
| E | 0.60 | 0.65 | J | 0.45 |
| K | 0.60 | 0.65 | L | 0.45 |
| M | 0.60 | 0.65 | N | 0.45 |
| O | 0.60 | 0.65 | P | 0.45 |
| Q | 0.60 | 0.65 | R | 0.45 |
| S | 0.60 | 0.65 | T | 0.45 |
| U | 0.60 | 0.65 | V | 0.45 |
| W | 0.60 | 0.65 | X | 0.45 |
| Y | 0.60 | 0.65 | Z | 0.45 |

02-252



/ Marking Instructions



BR

20P06

Note:

BR: Company Code

20P06: Product Type Code

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

BRCS20P06DP