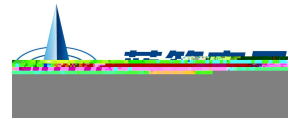


# BRI65R380C

Rev.F Apr.-2022



DATA SHEET

| D | 2015-11   |   |  |  |  |
|---|-----------|---|--|--|--|
| E | 2022-4-22 | 1 |  |  |  |

AOS-AOD380A60

F 2022.4.21 ALL

**/ Descriptions**

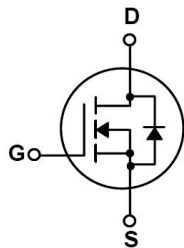
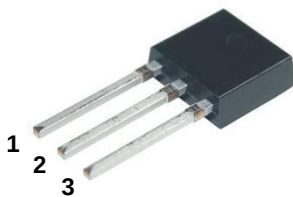
TO-251                  N                  650V

N-CHANNEL 650V Super-Junction Power MOSFET in a TO-251 Plastic Package.

**/ Features** $R_{DS(on)}$                    $C_{rss}$ Low  $R_{DS(on)}$ , low gate charge, low  $C_{rss}$ , fast switching, 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****/ Pinning**

PIN1    G

PIN 2    D

PIN 3    S

**/ Marking**

See Marking Instructions.

| Parameter                               | Symbol                        | Rating     | Unit                 |
|-----------------------------------------|-------------------------------|------------|----------------------|
| Drain-Source Voltage                    | $V_{DSS}$                     | 650        | V                    |
| Drain Current                           | $I_D(T_C=25^{\circ}\text{C})$ | 11         | A                    |
| Drain Current - Pulsed                  | $I_{DM}$                      | 44         | A                    |
| Gate-Source Voltage                     | $V_{GS}$                      | $\pm 30$   | V                    |
| Single Pulsed Avalanche Energy          | $E_{AS}$                      | 277        | mJ                   |
| Avalanche Current                       | $I_{AS}$                      | 8          | A                    |
| Power Dissipation                       | $P_D(T_C=25^{\circ}\text{C})$ | 125        | W                    |
| Operating and Storage Temperature Range | $T_J, T_{STG}$                | -55 to 150 | $^{\circ}\text{C}$   |
| Junction-to-Case                        | $R_{\theta JC}$               | 1          | $^{\circ}\text{C/W}$ |
| Junction-to-Ambient                     | $R_{\theta JA}$               | 55         | $^{\circ}\text{C/W}$ |

Pin

-

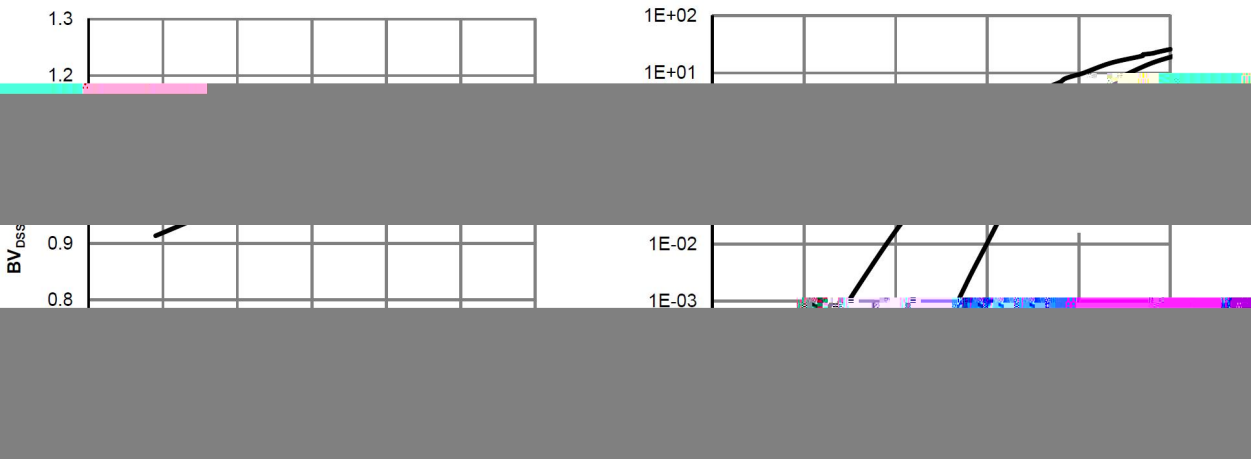
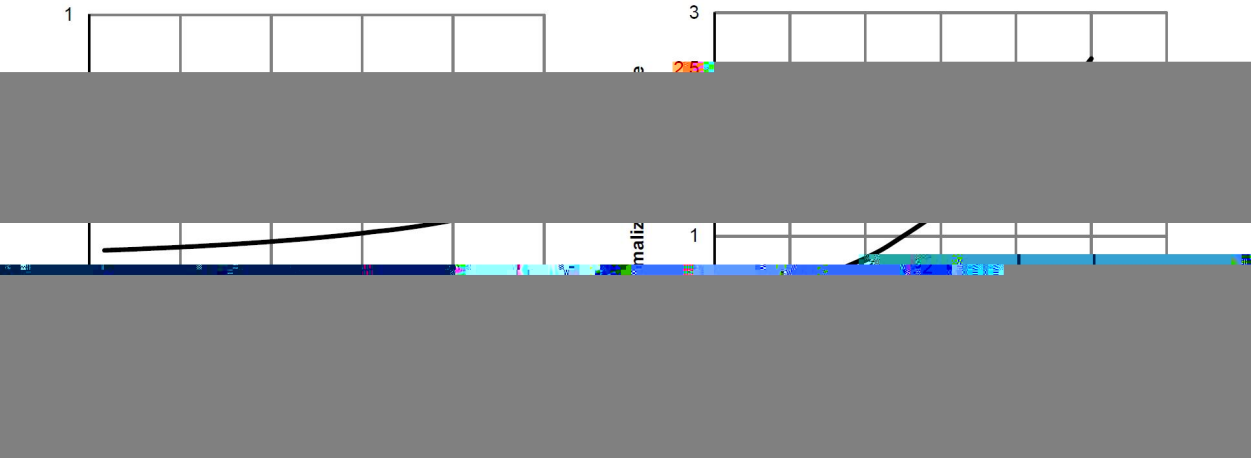
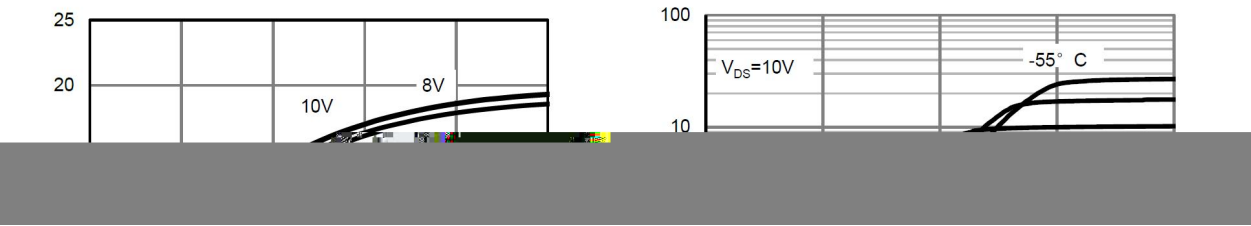
| Parameter                             | Symbol       | Test Conditions                                       | Min | Typ | Max       | Unit    |
|---------------------------------------|--------------|-------------------------------------------------------|-----|-----|-----------|---------|
| Drain-Source Breakdown Voltage        | $BV_{DSS}$   | $V_{GS}=0V$ $I_D=250\mu A$                            | 650 | 700 |           | V       |
| Zero Gate Voltage Drain Current       | $I_{DSS}$    | $V_{DS}=650V$ $V_{GS}=0V$<br>$T_J=25^{\circ}\text{C}$ |     |     | 1.0       | $\mu A$ |
| Gate-Body Leakage Current,<br>Forward | $I_{GSS}$    | $V_{GS}=\pm 30V$                                      |     |     | $\pm 100$ | nA      |
| Gate Threshold Voltage                | $V_{GS(th)}$ | $V_{DS}=V_{GS}$ $I_D=250\mu A$                        | 2.5 | 3.3 | 4.5       | V       |

pSn h)

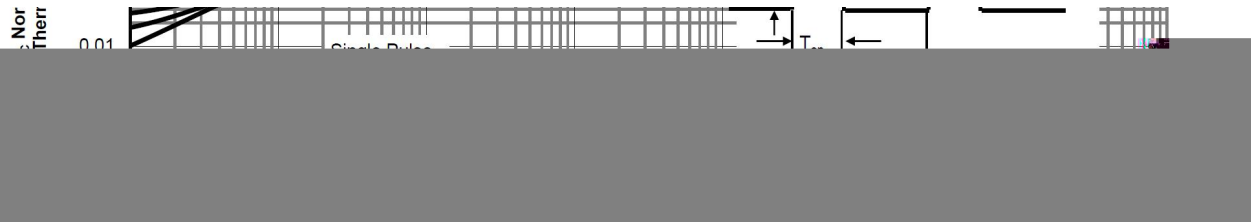
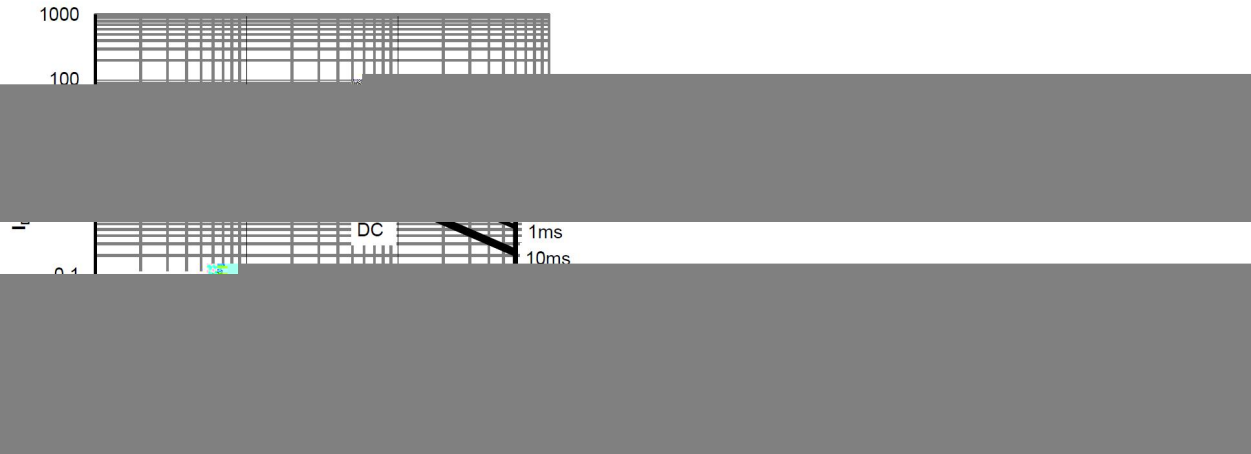
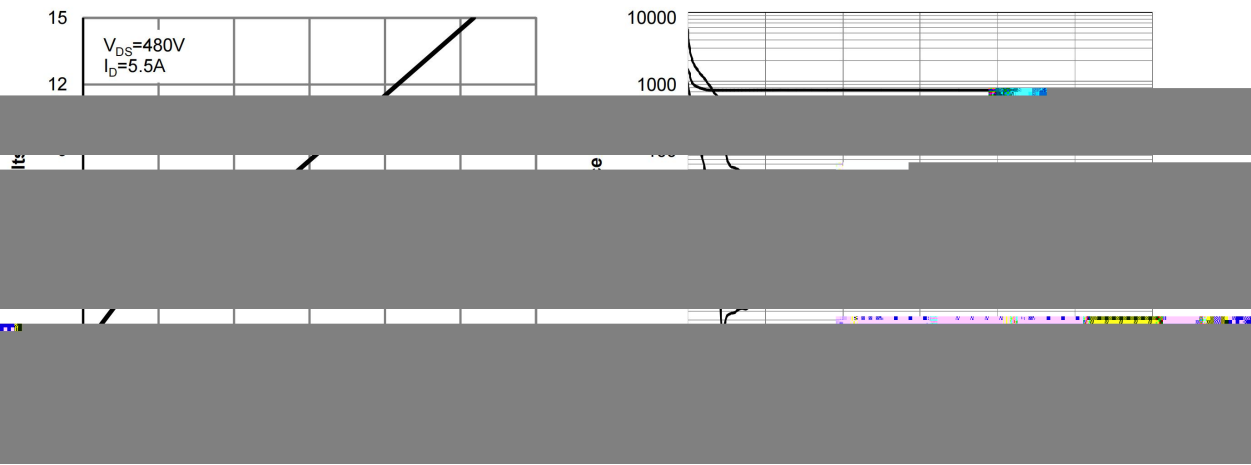
## / Electrical Characteristics(Ta=25 )

| Parameter                        | Symbol   | Test Conditions                          | Min | Typ | Max | Unit |
|----------------------------------|----------|------------------------------------------|-----|-----|-----|------|
| Continuous Diode Forward Current | $I_S$    |                                          |     |     | 11  | A    |
| Total Gate Charge                | $Q_g$    | $V_{DS}=480V$ $I_D=5.5A$<br>$V_{GS}=10V$ |     | 18  |     | nC   |
| Gate-Source Charge               | $Q_{gs}$ |                                          |     | 7   |     | nC   |
| Gate-Drain Charge                | $Q_{gd}$ |                                          |     | 4.5 |     | nC   |

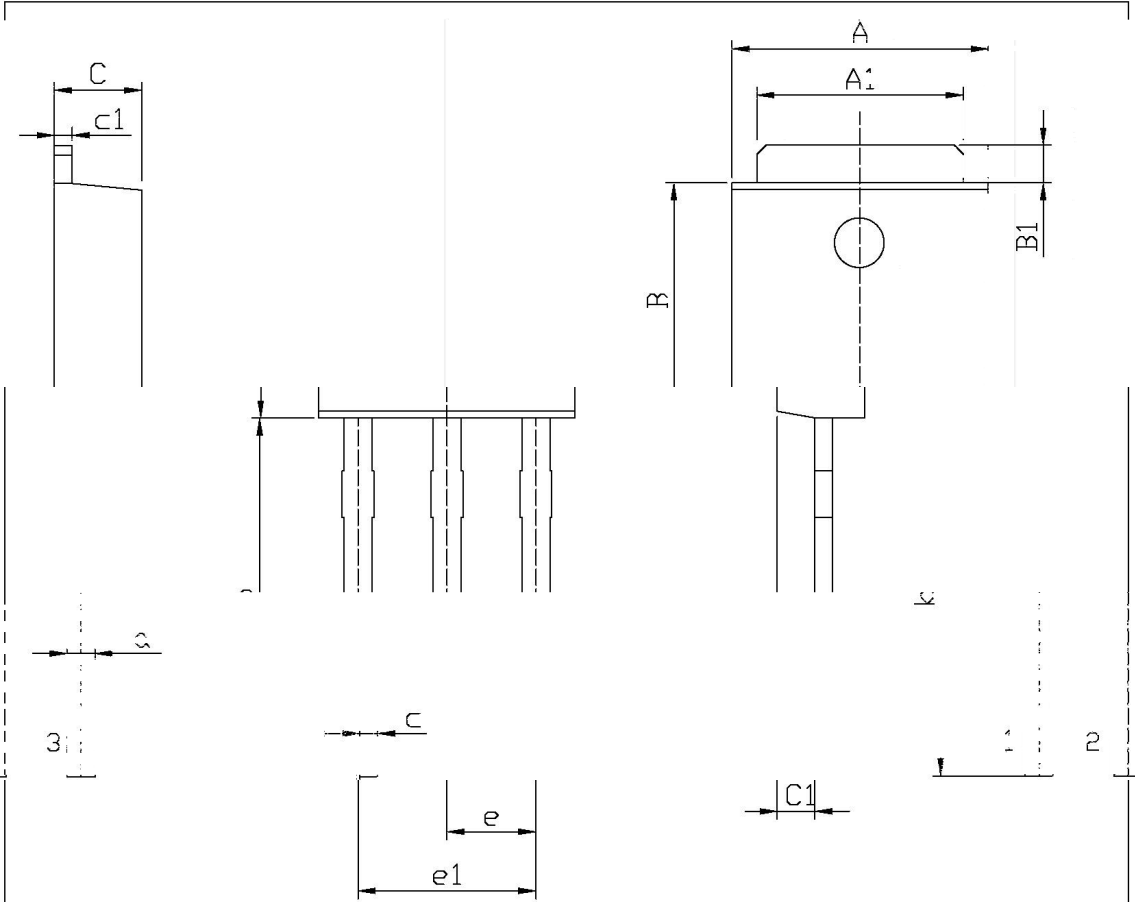
/ Electrical Characteristic Curve



/ Electrical Characteristic Curve

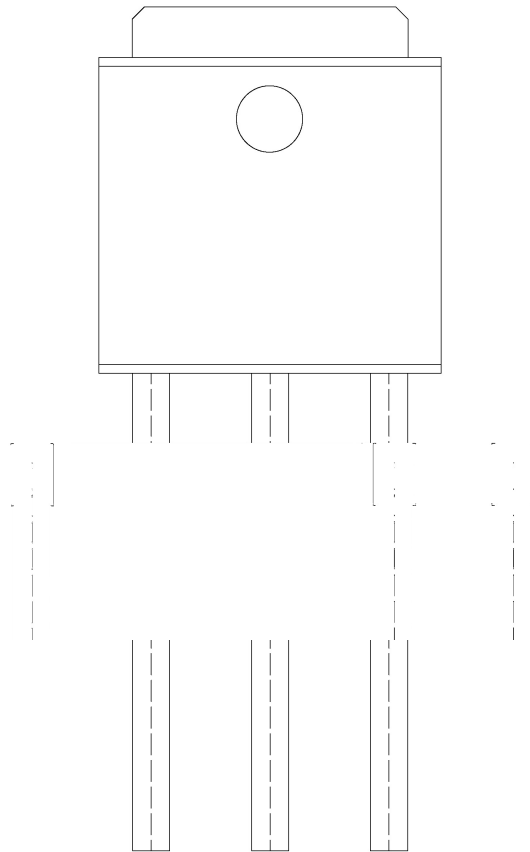


/ Package Dimensions

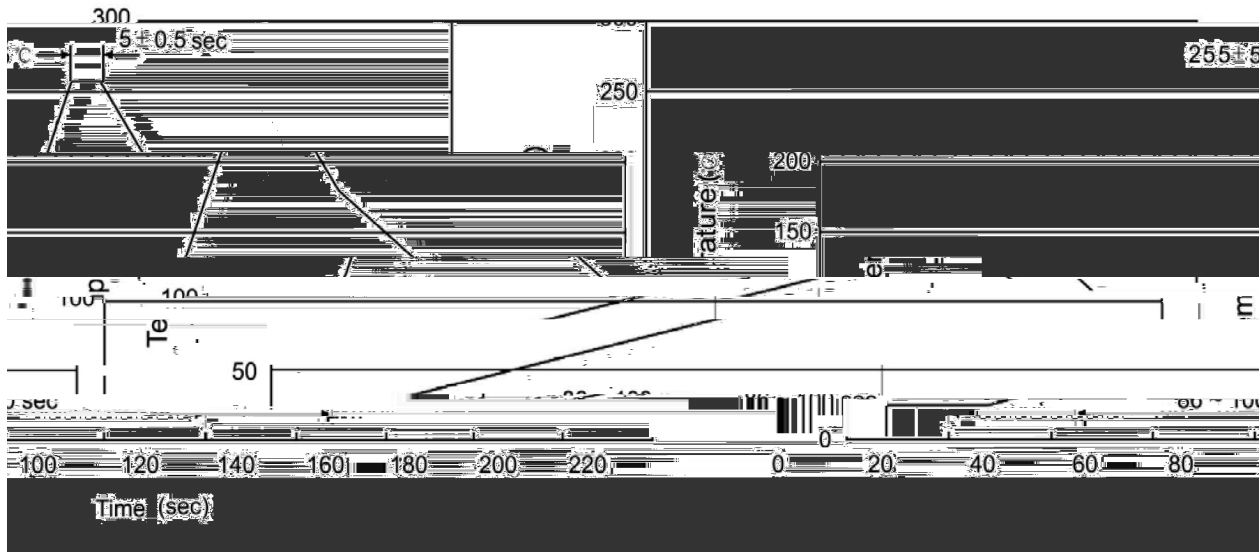


单位: mm

| Symbol | Dimensions In Millimeters |      | Symbol | Dimensions In Millimeters |      |
|--------|---------------------------|------|--------|---------------------------|------|
|        | Min                       | Max  |        | Min                       | Max  |
| B1     | 0.95                      | 1.25 | C1     | 0.45                      | 0.55 |
| C      | 2.25                      | 2.40 | e      | 2.25                      | 2.34 |
| e1     | 4.73                      | 4.73 |        |                           |      |



## ( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- 1 25 150 60 90sec;
- 2 255±5 5±0.5sec;
- 3 2 10°C/sec.

- 1.Preheating:25~150°C, Time:60~90sec.
- 2.Peak Temp.:255±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

## / Resistance to Soldering Heat Test Conditions

270±5°C

10±1 sec.

Temp.:270±5

Time:10±1 sec

## / Packaging SPEC.

## / BULK

| Package Type<br>封装形式 | Units 包装数量     |                     |                      |                            |                      | Dimension 包装尺寸 (unit: mm <sup>3</sup> ) |             |             |
|----------------------|----------------|---------------------|----------------------|----------------------------|----------------------|-----------------------------------------|-------------|-------------|
|                      | Units/Bag<br>/ | Bags/Inner Box<br>/ | Units/Inner Box<br>/ | Inner Boxes/Outer Box<br>/ | Units/Outer Box<br>/ | Bag 袋                                   | Inner Box 盒 | Outer Box 箱 |
| TO-251               | 1,000          | 10                  | 10,000               | 5                          | 50,000               | 135×190                                 | 237×172×102 | 560×245×195 |

## / TUBE

| Package Type<br>封装形式 | Units 包装数量      |                      |                      |                            |                      | Dimension 包装尺寸 (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 套管                                 | Inner Box 盒 | Outer Box 箱 |
| TO-251/252           | 75              | 48                   | 3,600                | 5                          | 18,000               | 526×20.5×5.25                           | 555×164×50  | 575×290×180 |

## / Notices