

### Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$ | $I_D$ |
|---------------|-----------------|-------|
| 100V          | 2.8mΩ@10V       | 180A  |

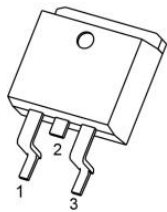
### Feature

- Fast Switching
- Low Gate Charge and R<sub>ds(on)</sub>
- 100% Single Pulse avalanche energy Test

### Applications

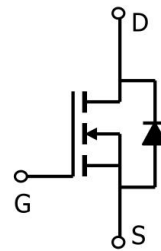
- Power switching application
- DC-DC Converter
- Power Management

### Package

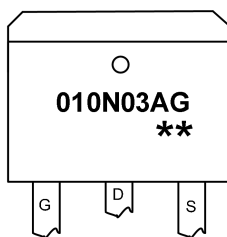


TO-263(1:G 2:D 3:S)

### Circuit diagram



### Marking



010N03AGH : Product code  
\*\* : Week code

**Absolute maximum ratings (Ta=25°C, unless otherwise noted)**

| Parameter                                    | Symbol          | Rating     | Unit |
|--|-----------------|------------|------|
| Drain source voltage                         | $V_{DS}$        | 100        | V    |
| Gate source voltage                          | $V_{GS}$        | $\pm 20$   | V    |
| Continuous drain current(Tc=25°C)            | $I_D$           | 180        | A    |
| Continuous drain current(Tc=100°C)           | $I_D$           | 127        | A    |
| Pulsed drain current                         | $I_{DM}$        | 720        | A    |
| Power dissipation(Tc=25°C)                   | $P_D$           | 280        | W    |
| Single pulsed avalanche energy <sup>1)</sup> | $E_{AS}$        | 1600       | mJ   |
| Thermal resistance, junction-case            | $R_{\theta JC}$ | 0.44       | °C/W |
| Operation and storage temperature            | $T_{stg}, T_j$  | -55 to 150 | °C   |

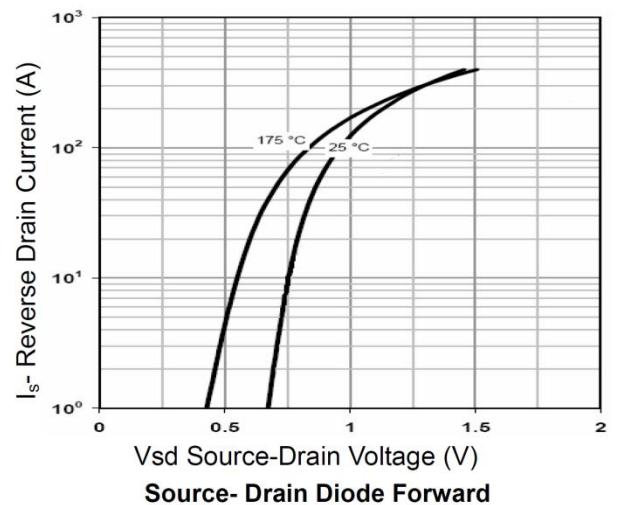
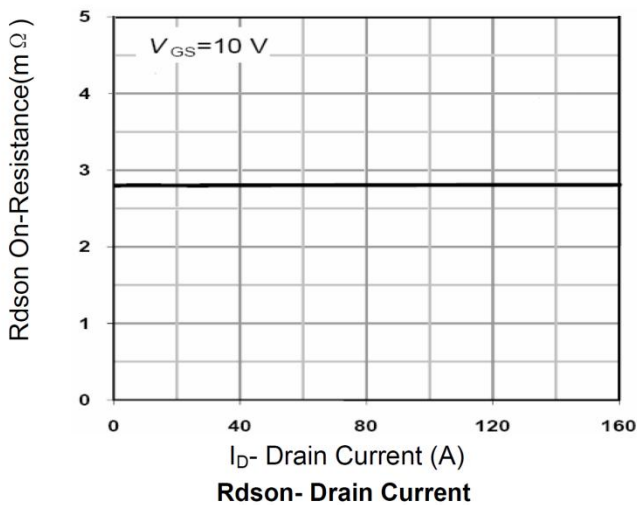
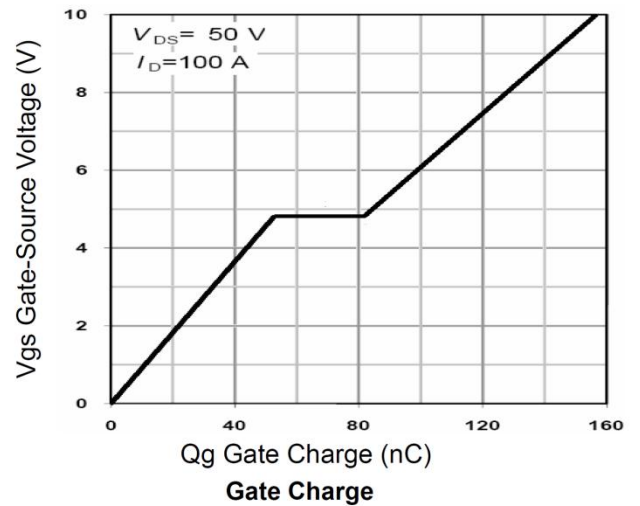
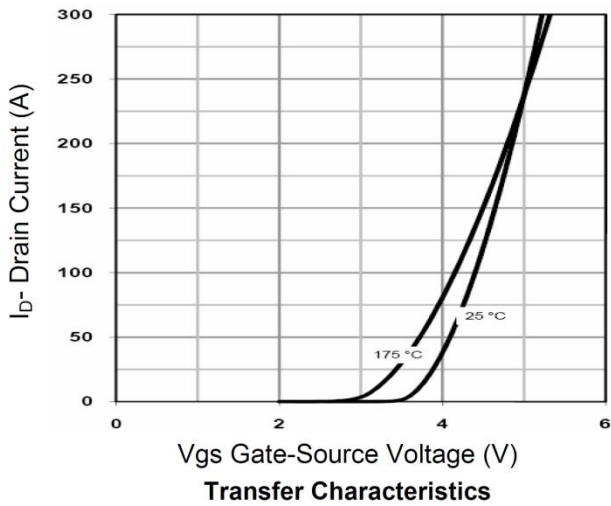
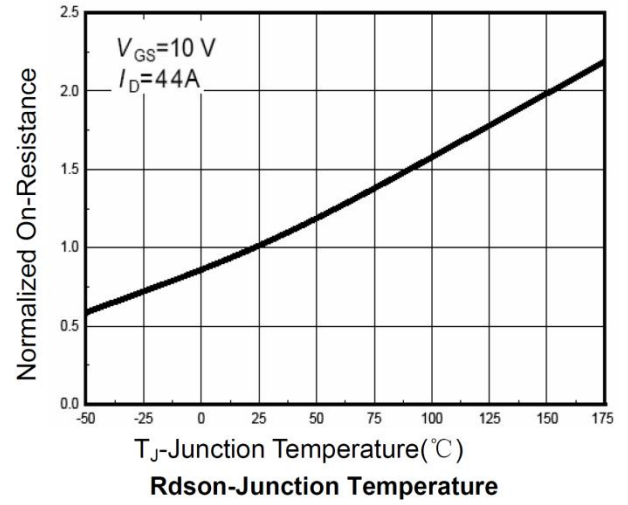
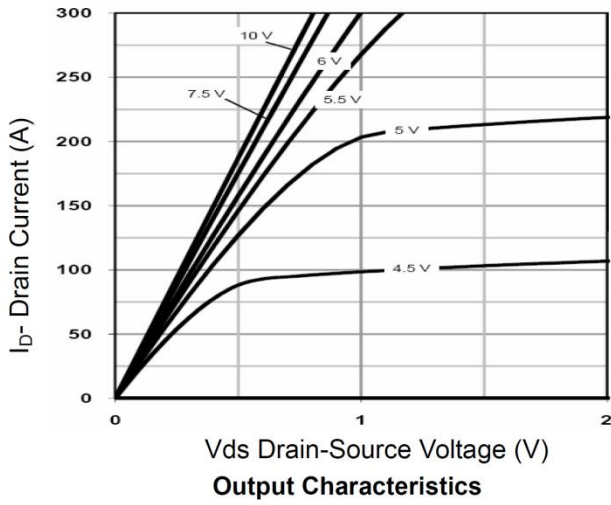
**Electrical characteristics (Ta=25°C, unless otherwise noted)**

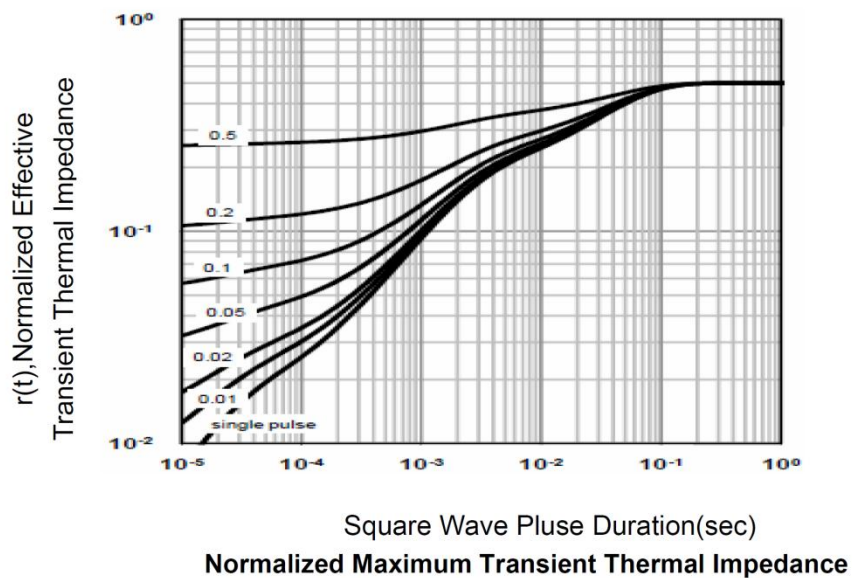
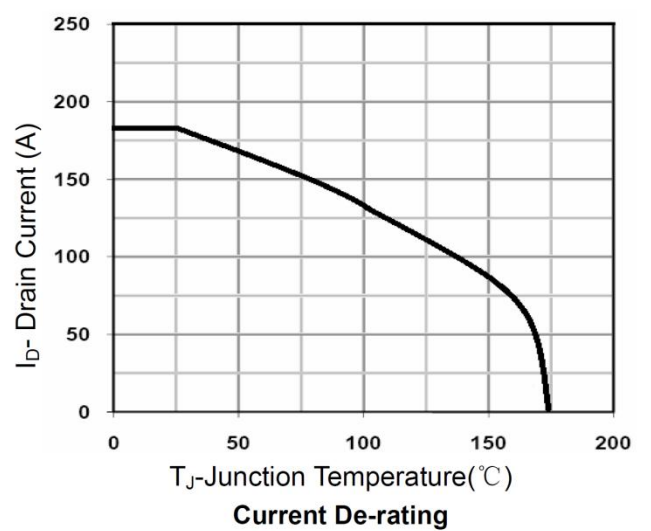
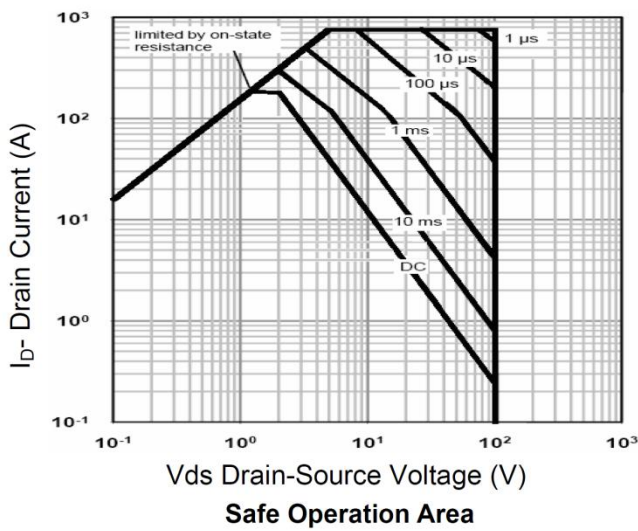
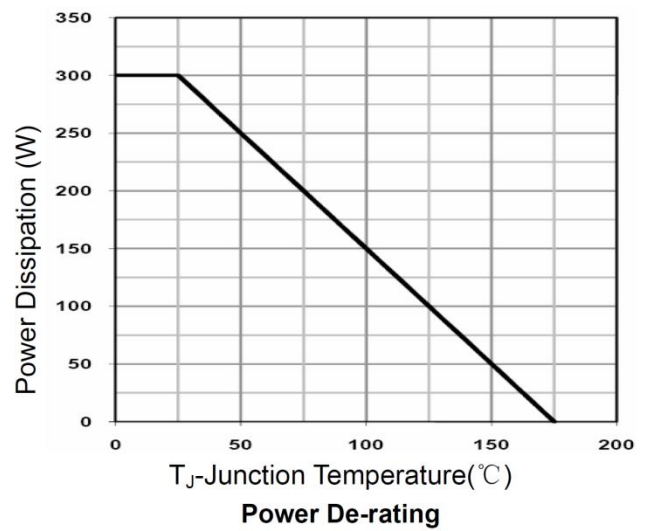
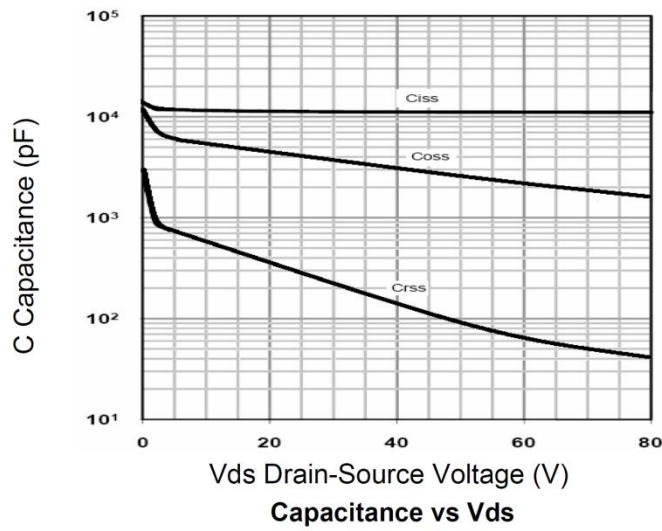
| Characteristics                                | Symbol       | Test Condition  | Min | Typ  | Max       | Unit       |
|--|--------------|---|-----|------|-----------|------------|
| <b>Static Characteristics</b>                  |              |   |     |      |           |            |
| Drain-Source Breakdown Voltage                 | $BV_{DSS}$   | $I_D = 250\mu A, V_{GS} = 0V$                           | 100 | -    | -         | V          |
| Drain Cut-Off Current                          | $I_{DSS}$    | $V_{DS} = 80V, V_{GS} = 0V$                             | -   | -    | 1         | $\mu A$    |
| Gate Leakage Current                           | $I_{GSS}$    | $V_{GS} = \pm 20V, V_{DS} = 0V$                         | -   | -    | $\pm 0.1$ |            |
| Gate Threshold Voltage                         | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$                       | 2.0 | 2.5  | 4.0       | V          |
| Drain-Source ON Resistance                     | $R_{DS(ON)}$ | $V_{GS} = 10V, I_D = 30A$                               | -   | 2.8  | 3.5       | m $\Omega$ |
| <b>Dynamic Characteristics</b>                 |              |   |     |      |           |            |
| Input Capacitance                              | $C_{iss}$    | $V_{DS} = 50V, V_{GS} = 0V, f = 1.0MHz$                 | -   | 6980 | -         | $\mu F$    |
| Output Capacitance                             | $C_{oss}$    |   | -   | 653  | -         |            |
| Reverse Transfer Capacitance                   | $C_{rss}$    |   | -   | 24   | -         |            |
| <b>Switching Characteristics</b>               |              |   |     |      |           |            |
| Total Gate Charge                              | $Q_g$        | $V_{DS} = 50V, V_{GS} = 10V, I_D = 100A$                | -   | 158  | -         | $nC$       |
| Gate-Source Charge                             | $Q_{gs}$     |   | -   | 53   | -         |            |
| Gate-Drain Charge                              | $Q_{gd}$     |   | -   | 27   | -         |            |
| Turn-On Delay Time                             | $t_{d(on)}$  | $V_{GS} = 10V, V_{DS} = 50V, I_D = 100A, R_G = 6\Omega$ | -   | 26   | -         | $ns$       |
| Rise Time                                      | $t_r$        |   | -   | 75   | -         |            |
| Turn-Off Delay Time                            | $t_{d(off)}$ |   | -   | 87   | -         |            |
| Fall Time                                      | $t_f$        |   | -   | 30   | -         |            |
| <b>Drain-Source Body Diode Characteristics</b> |              |   |     |      |           |            |
| Source-Drain Diode Forward Voltage             | $V_{SD}$     | $I_S = 1A, V_{GS} = 0V$                                 | -   | -    | 1.2       | V          |

Note:

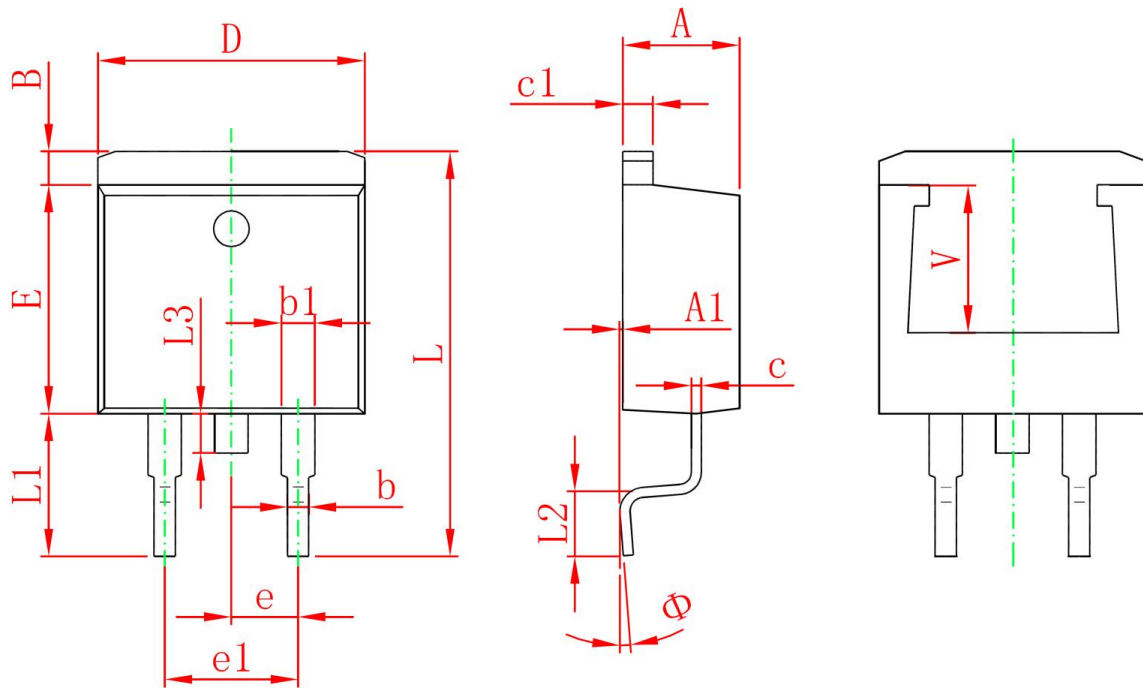
- $E_{AS}$  is tested at starting  $T_j = 25^\circ C, V_{DD} = 75V, V_{GS} = 10V, L = 0.5mH, R_g = 25\Omega$ ;

**Typical Characteristics**





**TO-263 Package Outline Dimensions**



| Symbol | Dimensions In Millimeters |        | Dimensions In Inches |       |
|--------|---------------------------|--------|----------------------|-------|
|        | Min.                      | Max.   | Min.                 | Max.  |
| A      | 4.470                     | 4.670  | 0.176                | 0.184 |
| A1     | 0.000                     | 0.150  | 0.000                | 0.006 |
| B      | 1.120                     | 1.420  | 0.044                | 0.056 |
| b      | 0.710                     | 0.910  | 0.028                | 0.036 |
| b1     | 1.170                     | 1.370  | 0.046                | 0.054 |
| c      | 0.310                     | 0.530  | 0.012                | 0.021 |
| c1     | 1.170                     | 1.370  | 0.046                | 0.054 |
| D      | 10.010                    | 10.310 | 0.394                | 0.406 |
| E      | 8.500                     | 8.900  | 0.335                | 0.350 |
| e      | 2.540 TYP.                |        | 0.100 TYP.           |       |
| e1     | 4.980                     | 5.180  | 0.196                | 0.204 |
| L      | 14.940                    | 15.500 | 0.588                | 0.610 |
| L1     | 4.950                     | 5.450  | 0.195                | 0.215 |
| L2     | 2.340                     | 2.740  | 0.092                | 0.108 |
| L3     | 1.300                     | 1.700  | 0.051                | 0.067 |
| Φ      | 0°                        | 8°     | 0°                   | 8°    |
| V      | 5.600 REF.                |        | 0.220 REF.           |       |

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