

**/ Descriptions**

TOLL-8L N

N-Channel MOSFET in a TOLL-8L Plastic Package .

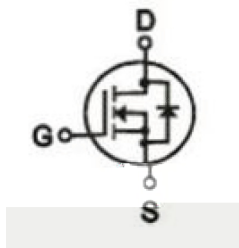
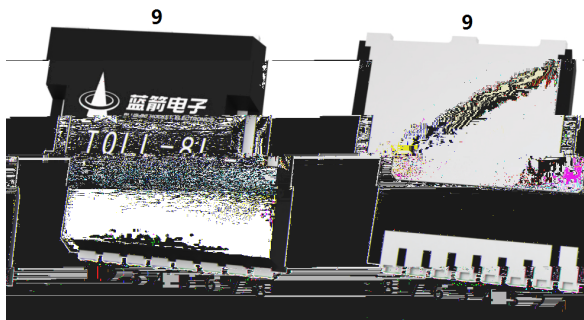
**/ Features** $V_{DS}(V)=100V$   $I_D=250A$  $R_{DS(ON)}@10V \leq 1.4m\Omega$  (Typ.1.2m $\Omega$ )

。 HF Product.

**/ Applications**

DC/DC

DC/DC converter,Power switch,Motor drives.

**/ Equivalent Circuit****/ Pinning**

PIN1: G      PIN2、3、4、5、6、7、8: S      PIN9: D

**/ Marking**

See Marking Instructions.

/ Absolute Maximum Ratings( $T_C=25^\circ\text{C}$ )

| Parameter                                                                               |              | Symbol                       | Rating     | Unit |
|-----------------------------------------------------------------------------------------|--------------|------------------------------|------------|------|
| Drain-Source Voltage                                                                    |              | $V_{DS}$                     | 100        | V    |
| Drain Current - Continuous                                                              |              | $I_D$                        | 250        | A    |
| Drain Current - Continuous                                                              |              | $I_D(T_C=100^\circ\text{C})$ | 212        | A    |
| Drain Current – Pulsed                                                                  |              | $I_{DM}$                     | 1000       | A    |
| Gate-Source Voltage                                                                     |              | $V_{GS}$                     | $\pm 20$   | V    |
| Power Dissipation                                                                       |              | $P_{tot}$                    | 313        | W    |
| Single Pulse Avalanche Energy( $V_{DS}=50\text{V}, V_{GS}=10\text{V}, L=0.3\text{mH}$ ) |              | $E_{AS}$                     | 626        | mJ   |
| Junction and Storage Temperature Range                                                  |              | $T_j, T_{stg}$               | -55 to 150 |      |
| Thermal resistance, junction - ambient                                                  | Steady-State | $R_{\theta JA}$              | 40         | / W  |
| Thermal resistance, junction - case                                                     | Steady-State | $R_{\theta JC}$              | 0.4        |      |

/ Electrical Characteristics( $T_C=25^\circ\text{C}$ )

| Parameter                         | Symbol       | Test Conditions                                                        | Min | Typ   | Max       | Unit             |
|-----------------------------------|--------------|------------------------------------------------------------------------|-----|-------|-----------|------------------|
| Drain-Source Breakdown Voltage    | $BV_{DSS}$   | $I_D=250\mu\text{A}, V_{GS}=0\text{V}$                                 | 100 |       |           | V                |
| Zero Gate Voltage Drain Current   | $I_{DSS}$    | $V_{DS}=100\text{V}, V_{GS}=0\text{V}$                                 |     |       | 1         | $\mu\text{A}$    |
| Gate-Body leakage current         | $I_{GSS}$    | $V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$                              |     |       | $\pm 100$ | nA               |
| Gate Threshold Voltage            | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu\text{A}$                                    | 2.5 | 3.3   | 4.1       | V                |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | $V_{GS}=10\text{V}, I_D=100\text{A}$                                   |     | 1.2   | 1.4       | $\text{m}\Omega$ |
| Diode Forward Voltage             | $V_{SD}$     | $I_S=100\text{A}, V_{GS}=0\text{V}$                                    |     | 0.9   | 1.2       | V                |
| Reverse recovery time             | $t_{rr}$     | $V_{DS}=50\text{V}, I_F=50\text{A}$<br>$di/dt=100\text{A}/\mu\text{s}$ |     | 92    |           | ns               |
| Reverse recovery charge           | $Q_{rr}$     |                                                                        |     | 236   |           | nC               |
| Gate Resistance                   | $R_g$        | $f=1\text{MHz}$                                                        |     | 1.7   |           | $\Omega$         |
| Input Capacitance                 | $C_{iss}$    | $V_{DS}=50\text{V}, V_{GS}=0\text{V}$<br>$f=1.0\text{MHz}$             |     | 12000 |           | pF               |
| Output Capacitance                | $C_{oss}$    |                                                                        |     | 3000  |           |                  |
| Reverse Transfer Capacitance      | $C_{rss}$    |                                                                        |     | 128   |           |                  |
| Total Gate Charge                 | $Q_g$        | $V_{GS}=10\text{V}, I_D=100\text{A}$<br>$V_{DS}=50\text{V}$            |     | 230   |           | nC               |
| Gate Source Charge                | $Q_{gs}$     |                                                                        |     | 67    |           |                  |
| Gate Drain Charge                 | $Q_{gd}$     |                                                                        |     | 80    |           |                  |

## / Electrical Characteristics(Ta=25 )

| Parameter           | Symbol       | Test Conditions                                         | Min | Typ | Max | Unit |
|---------------------|--------------|---------------------------------------------------------|-----|-----|-----|------|
| Turn-On Delay Time  | $t_{d(on)}$  | $V_{GS}=10V$ $V_{DS}=50V$<br>$R_G=4.7\Omega$ $I_D=100A$ |     | 55  |     | ns   |
| Turn-On Rise Time   | $t_r$        |                                                         |     | 92  |     |      |
| Turn-Off Delay Time | $t_{d(off)}$ |                                                         |     | 26  |     |      |
| Turn-Off Fall Time  | $t_f$        |                                                         |     | 35  |     |      |

## / Electrical Characteristic Curve

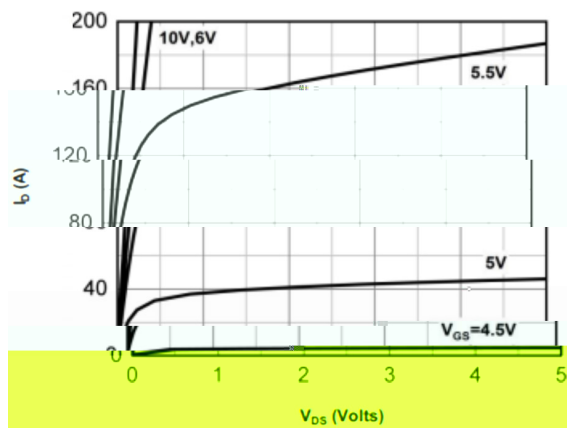


Figure 1: On-Region Characteristics

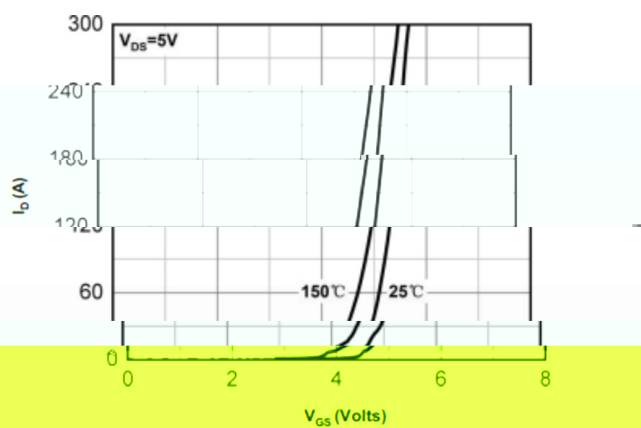


Figure 2: Transfer Characteristics

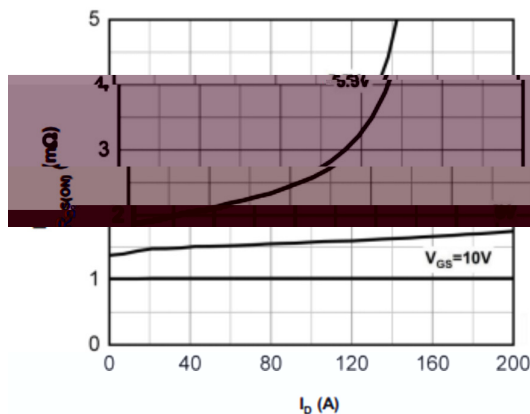


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

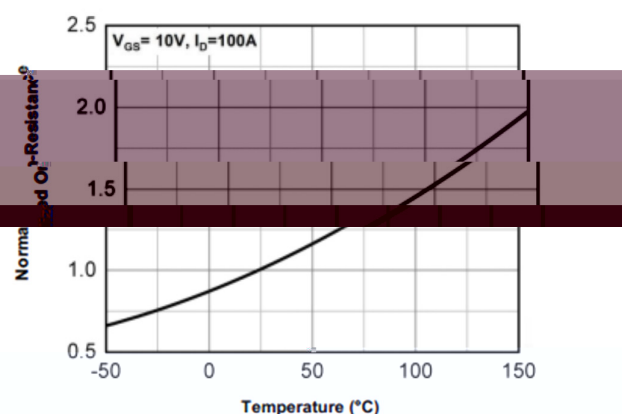
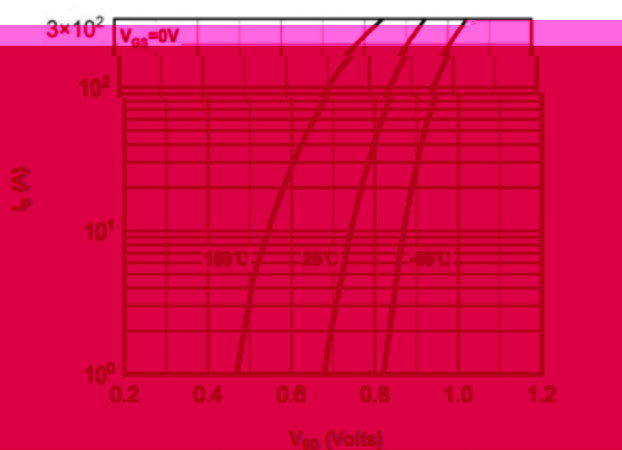
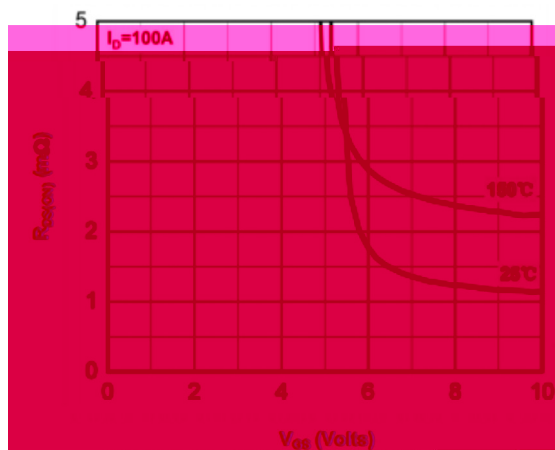


Figure 4: On-Resistance vs. Junction Temperature



## / Electrical Characteristic Curve

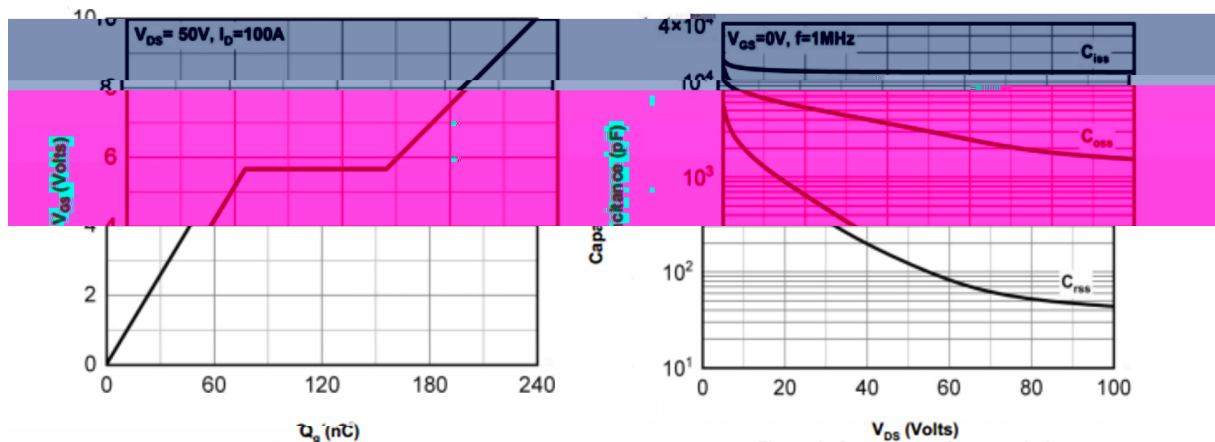


Figure 7: Gate Charge Characteristics

Figure 8: Capacitance Characteristics

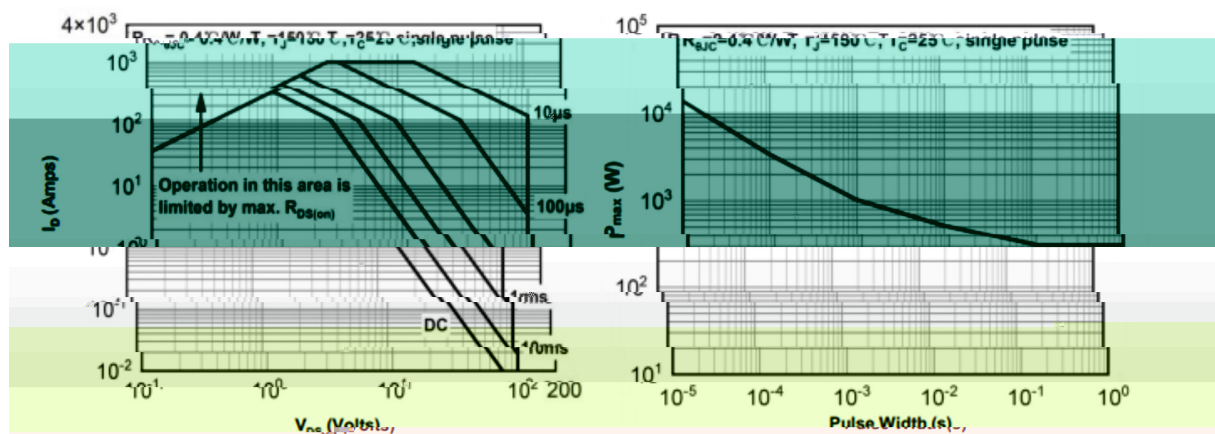
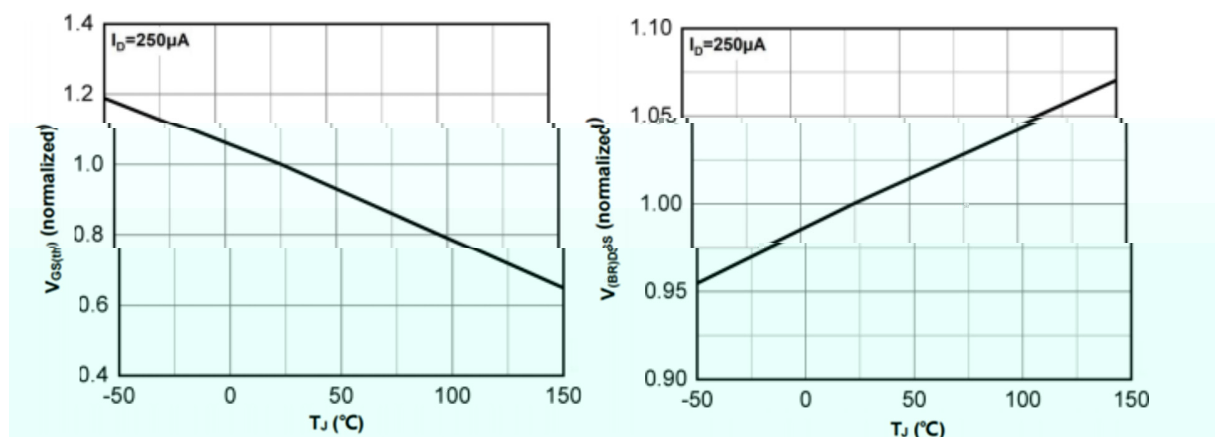


Figure 9: Maximum Power Dissipation and Operation Area

Figure 10: Single Pulse Power Rating

Figure 11: Normalized  $V_{GS(th)}$  vs. Junction TemperatureFigure 12: Normalized  $V_{DS(on)}$  vs. Junction Temperature

## / Electrical Characteristic Curve

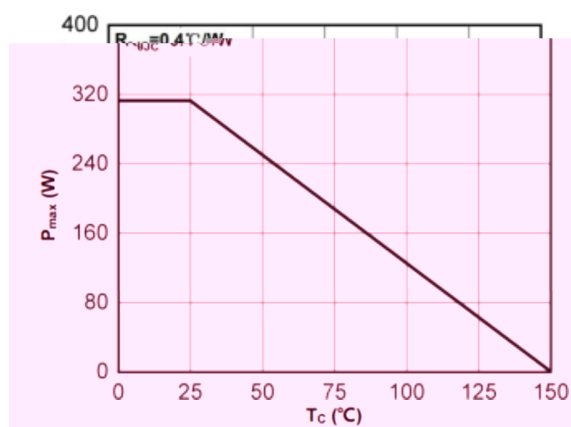


Figure 13: Max. Power Dissipation vs. Case Temperature

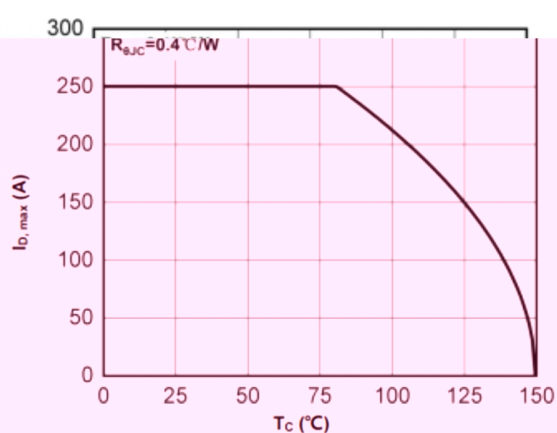
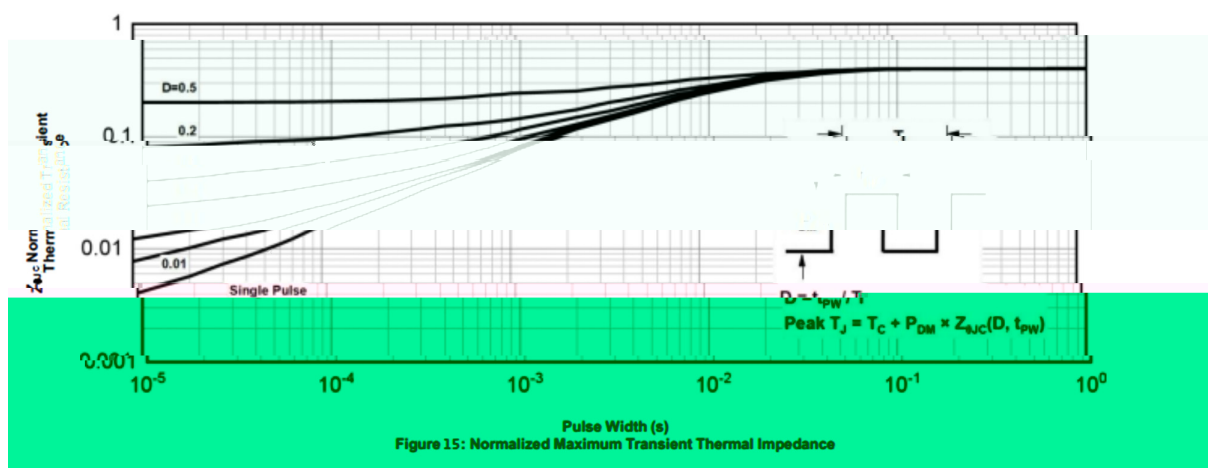
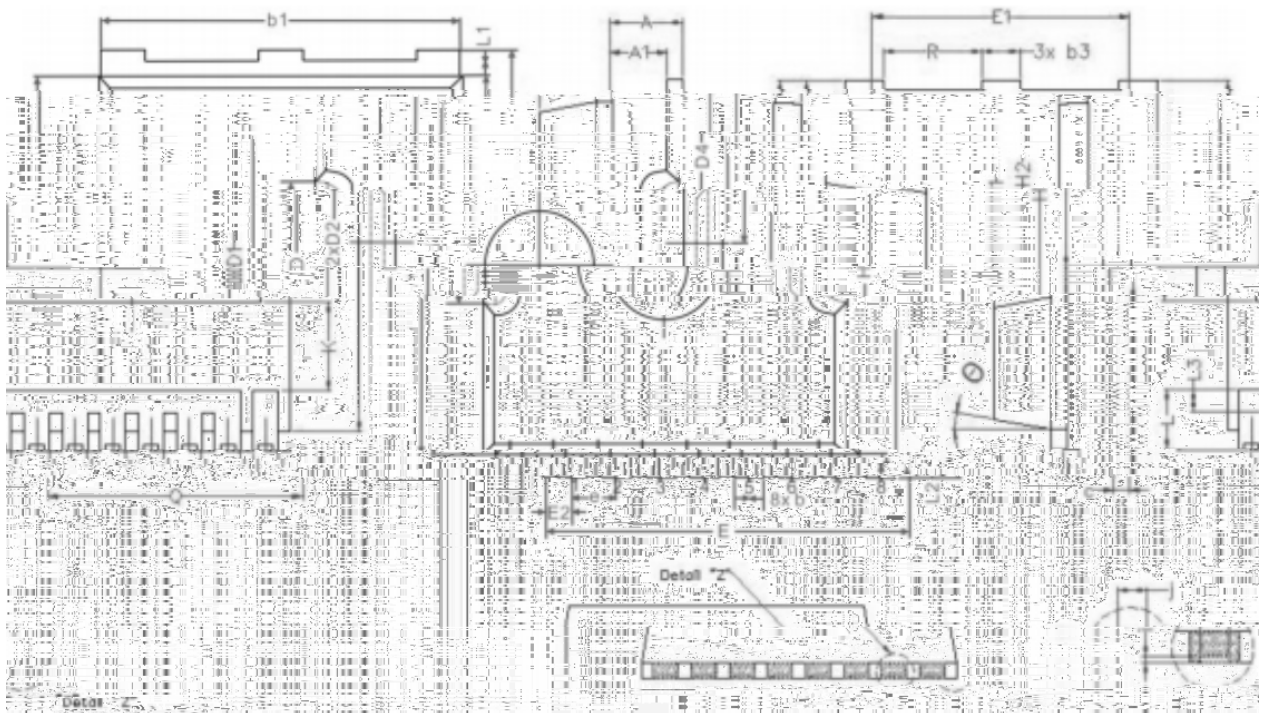


Figure 14: Max. Continuous Drain Current vs. Case Temperature



## / Package Dimensions



| Symbol | Dimensions In Millimeters |       |       |
|--------|---------------------------|-------|-------|
|        | Min                       | Typ   | Max   |
| A      | 2.20                      | 2.30  | 2.40  |
| A1     | 1.70                      | 1.80  | 1.90  |
| b      | 0.70                      | 0.80  | 0.90  |
| b1     | 9.70                      | 9.80  | 9.90  |
| b3     | 1.10                      | 1.20  | 1.30  |
| c      | 0.40                      | 0.50  | 0.60  |
| D      | 10.28                     | 10.38 | 10.48 |
| D1     | 10.98                     | 11.08 | 11.18 |
| D2     | 3.20                      | 3.30  | 3.40  |
| D4     | 4.45                      | 4.55  | 4.65  |
| E      | 9.80                      | 9.90  | 10.00 |
| E1     | 8.00                      | 8.10  | 8.20  |
| E2     | 0.60                      | 0.70  | 0.80  |
| e      | 1.20 BSC                  |       |       |
| H      | 11.58                     | 11.68 | 11.78 |
| e      |                           |       |       |
| e      |                           |       |       |
| K      |                           |       |       |
| L      |                           |       |       |
| M      |                           |       |       |
| N      |                           |       |       |
| P      |                           |       |       |
| R      |                           |       |       |
| S      |                           |       |       |
| T      |                           |       |       |
| V      |                           |       |       |
| W      |                           |       |       |
| X      |                           |       |       |
| Y      |                           |       |       |
| Z      |                           |       |       |

# BRCS015N10SHTL

Rev.B Jun.-2026



DATA SHEET

## / Marking Instructions



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

|  |
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|  |
|  |
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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