

# BRCS011N10SHCC

Rev.A Jul.-2025

## / Descriptions

TO-263-7L N

N-CHANNEL MOSFET in a TO-263-7L Plastic Package.

## / Features

$V_{DS}=100V$   $I_D=300A$

$R_{DS(on)}@10V \leq 1.3m\Omega$  (Type.  $1.1m\Omega$ )

$R_{DS(on)}@6V \leq 1.9m\Omega$  (Type.  $1.5m\Omega$ )

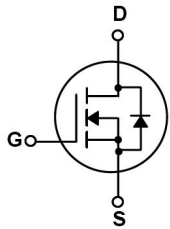
HF Product.

## / Applications

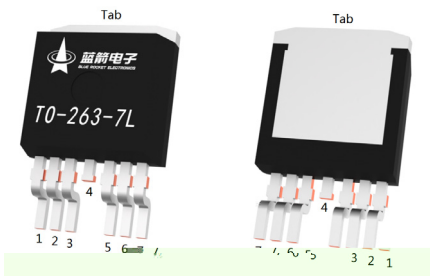
BMS

BMS, High power inverter system, Drones, Light electric vehicles.

## / Equivalent Circuit



## / Pinning



PIN 1 G PIN 2 3 5 6 7 S PIN 4 Tab D

## / Marking

See Marking Instructions.

## / Absolute Maximum Ratings(Ta=25 )

| Parameter                                         |              | Symbol                         | Rating     | Unit |
|---------------------------------------------------|--------------|--------------------------------|------------|------|
| Drain-Source Voltage                              |              | $V_{DS}$                       | 100        | V    |
| Drain Current (DC) ***                            |              | $I_D(T_C=25^{\circ}\text{C})$  | 300        | A    |
|                                                   |              | $I_D(T_C=100^{\circ}\text{C})$ | 150        | A    |
| Pulsed Drain Current ***,***                      |              | $I_{DM}$                       | 1200       | A    |
| Gate-Source Voltage                               |              | $V_{GS}$                       | $\pm 20$   | V    |
| Continuous-Source Current                         |              | $I_S(T_C=25^{\circ}\text{C})$  | 300        | A    |
| Single Pulsed Avalanche Energy $L=1.0\text{mH}^*$ |              | $E_{AS}$                       | 1250       | mJ   |
| Total Power Dissipation                           |              | $P_D(T_C=25^{\circ}\text{C})$  | 500        | W    |
| Junction and Storage Temperature Range            |              | $T_J, T_{STG}$                 | -55 to 175 |      |
| Thermal Resistance-Junction to Ambient*           | Steady-State | $R_{\theta JA}$                | 30         | /W   |
| Thermal Resistance-Junction to Case*              | Steady-State | $R_{\theta JC}$                | 0.3        |      |

Notes:

\* Surface Mounted on 1 in<sup>2</sup> pad area,  $t \leq 10\text{ sec}$ \*\* Pulse width  $\leq 300\text{ }\mu\text{s}$ , duty cycle  $\leq 2\%$ 

\*\*\* Limited by bonding wire

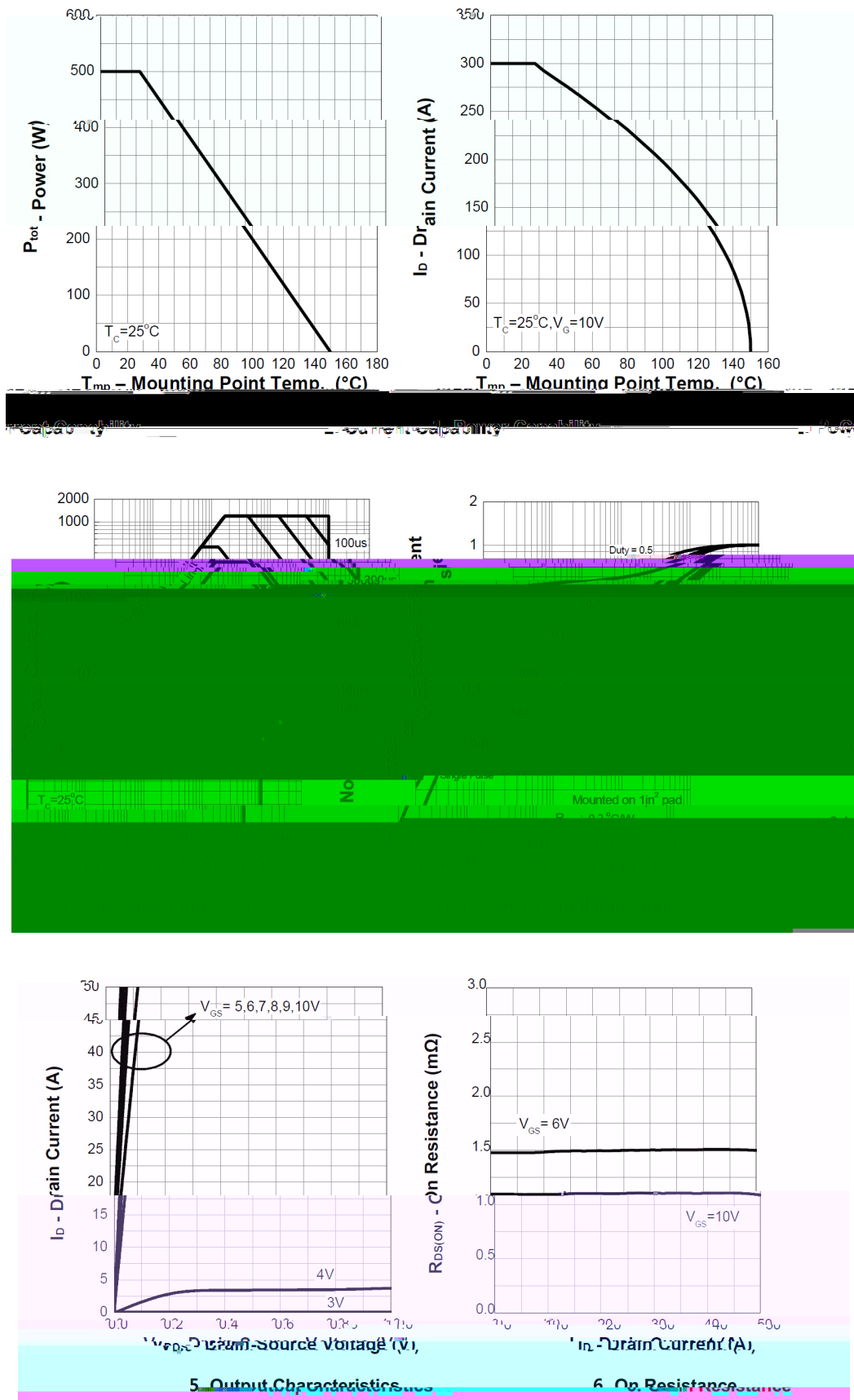
## / Electrical Characteristics(Ta=25 )

| Parameter                         | Symbol       | Test Conditions                                                                  | Min | Typ   | Max       | Unit          |
|-----------------------------------|--------------|----------------------------------------------------------------------------------|-----|-------|-----------|---------------|
| Drain-Source Breakdown Voltage    | $BV_{DSS}$   | $V_{GS}=0\text{V}$ $I_D=250\text{ }\mu\text{A}$                                  | 100 |       |           | V             |
| Zero Gate Voltage Drain Current   | $I_{DSS}$    | $V_{DS}=80\text{V}$ $V_{GS}=0\text{V}$                                           |     |       | 1         | $\mu\text{A}$ |
| Gate-Body Leakage Current Forward | $I_{GSS}$    | $V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$                                       |     |       | $\pm 100$ | nA            |
| Gate Threshold Voltage            | $V_{GS(th)}$ | $V_{DS}=V_{GS}$ $I_D=250\text{ }\mu\text{A}$                                     | 2   |       | 4         | V             |
| Static Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=10\text{V}$ $I_D=50\text{A}$                                             |     | 1.1   | 1.3       | m $\Omega$    |
|                                   |              | $V_{GS}=6\text{V}$ $I_D=25\text{A}$                                              |     | 1.5   | 1.9       |               |
| Forward On Voltage                | $V_{SD}$     | $V_{GS}=0\text{V}$ $I_S=50\text{A}$                                              |     |       | 1.3       | V             |
| Reverse Recovery Time             | $t_{rr}$     | $I_{DS}=50\text{A}$ , $V_{GS}=0\text{V}$<br>$dI_{SD}/dt=100\text{A}/\mu\text{s}$ |     | 137   |           | nS            |
| Reverse Recovery Charge           | $Q_{rr}$     |                                                                                  |     | 347   |           | nC            |
| Input Capacitance                 | $C_{iss}$    | $V_{DS}=50\text{V}$ $V_{GS}=0\text{V}$<br>$f=1\text{MHz}$                        |     | 11876 |           | pF            |
| Output Capacitance                | $C_{oss}$    |                                                                                  |     | 2041  |           |               |
| Reverse Transfer Capacitance      | $C_{rss}$    |                                                                                  |     | 106   |           |               |

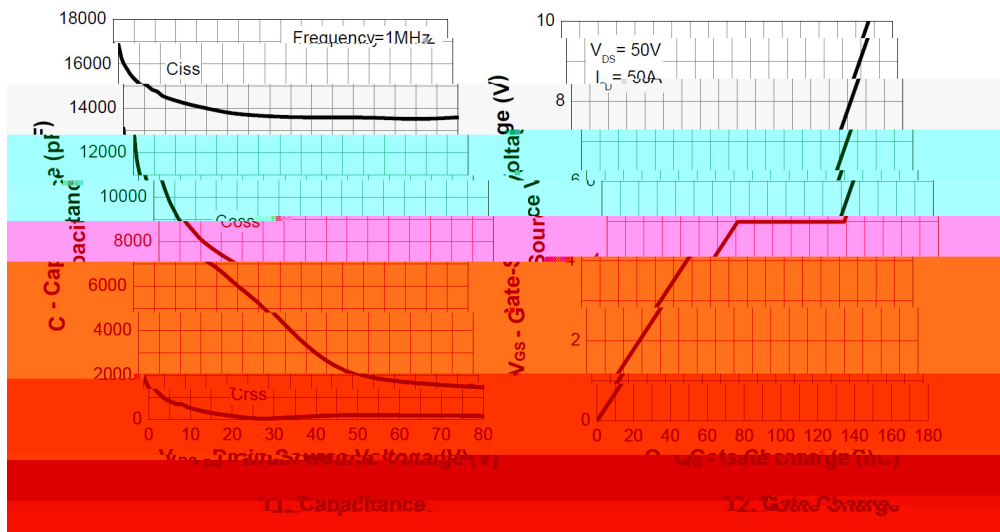
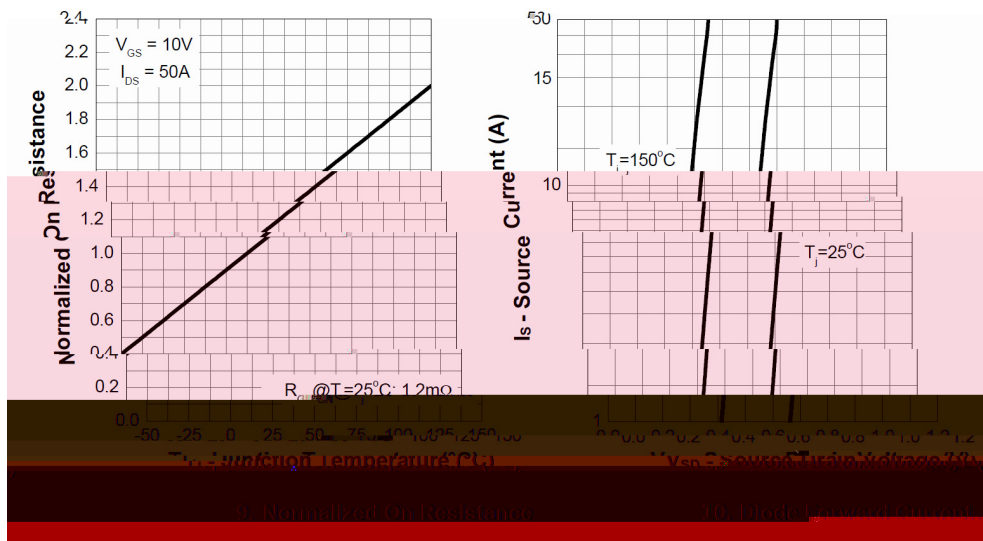
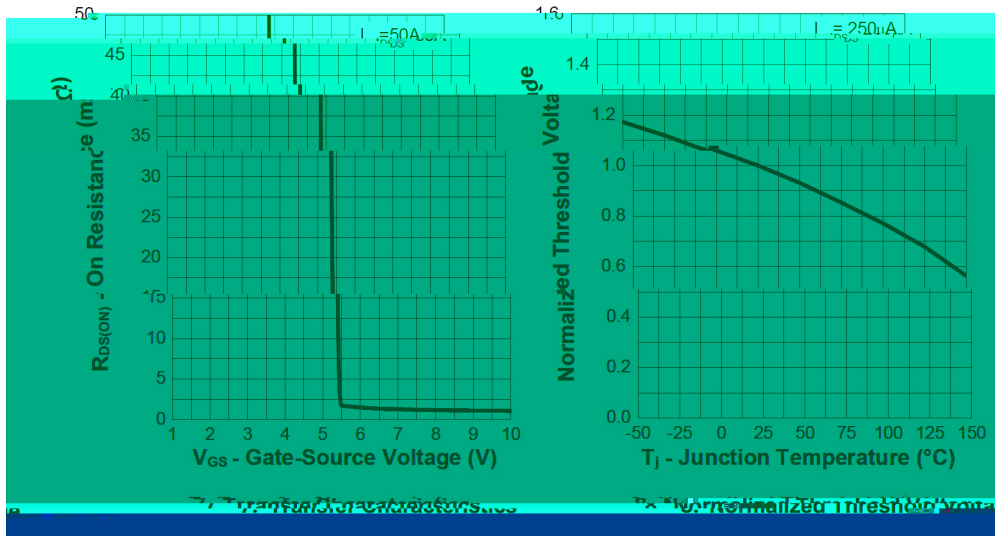

**/ Electrical Characteristics(Ta=25 )**

| Parameter           | Symbol       | Test Conditions                                                                        | Min | Typ | Max | Unit |
|---------------------|--------------|----------------------------------------------------------------------------------------|-----|-----|-----|------|
| Total Gate Charge   | $Q_g(10V)$   | $V_{GS} = 10V$ $V_{DS} = 50V$<br>$I_D = 50A$                                           |     | 244 |     | nC   |
| Gate Source Charge  | $Q_{gs}$     |                                                                                        |     | 46  |     |      |
| Gate Drain Charge   | $Q_{gd}$     |                                                                                        |     | 67  |     |      |
| Turn-On Delay Time  | $t_{d(on)}$  | $V_{GS} = 10V$ $V_{DS} = 50V$<br>$R_L = 2.5\Omega$ $R_G = 4.5\Omega$<br>$I_{DS} = 50A$ |     | 29  |     | nS   |
| Turn-On Rise Time   | $t_r$        |                                                                                        |     | 121 |     |      |
| Turn-Off Delay Time | $t_{d(off)}$ |                                                                                        |     | 198 |     |      |
| Turn-Off Fall Time  | $t_f$        |                                                                                        |     | 175 |     |      |

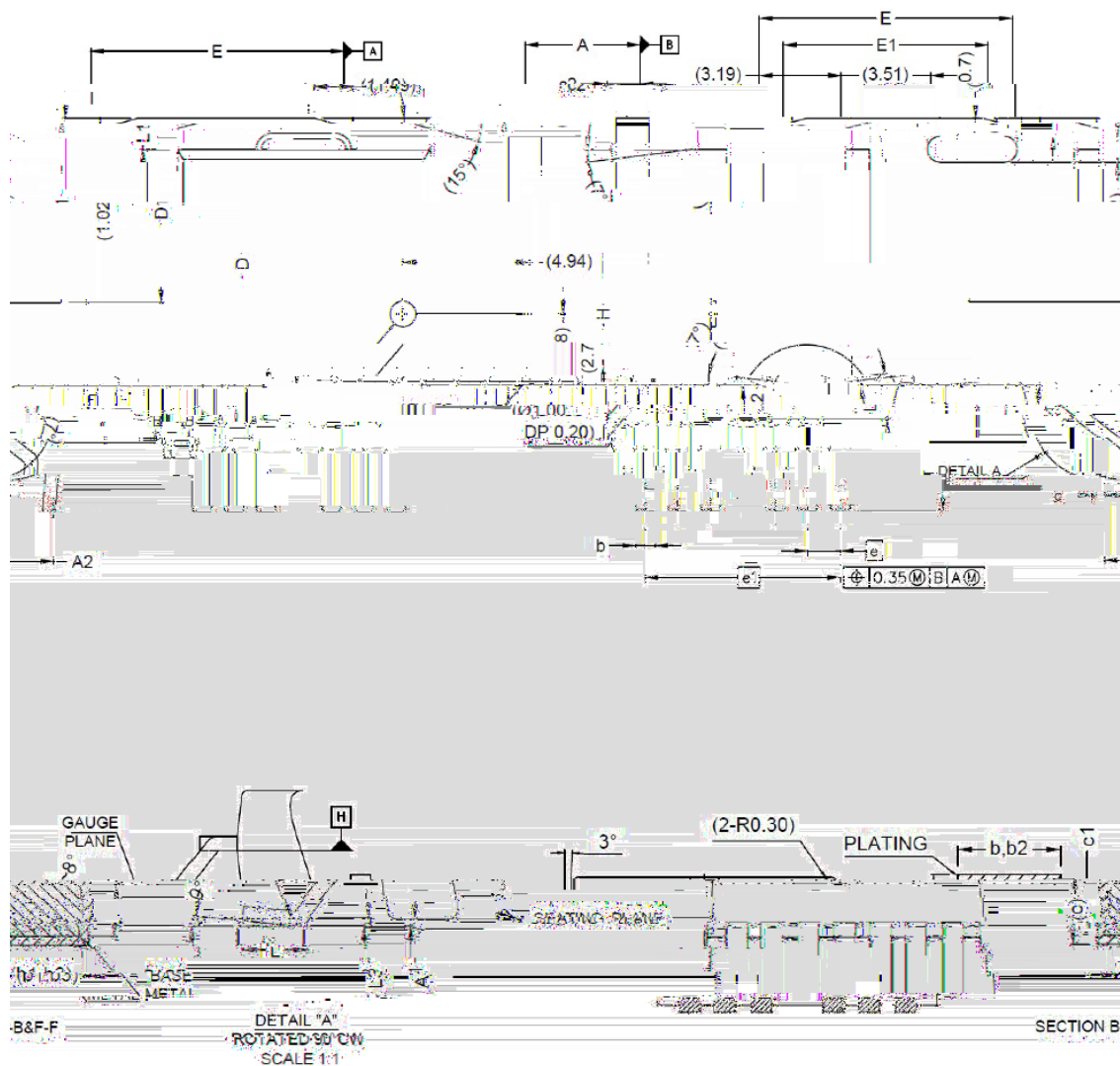
## / Electrical Characteristic Curve



## / Electrical Characteristic Curve

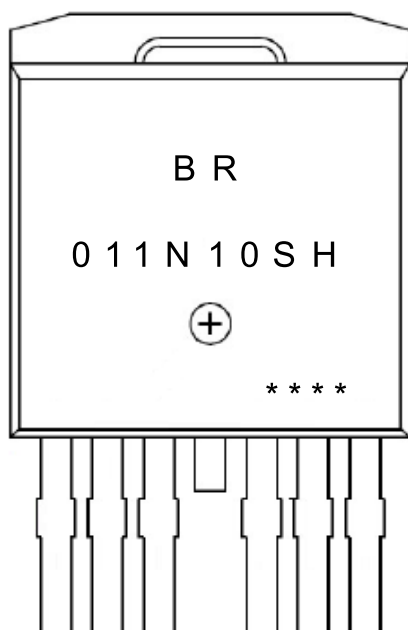


## / Package Dimensions



| Symbol | Dimensions In Millimeters |      | Symbol | Dimensions In Millimeters |       |
|--------|---------------------------|------|--------|---------------------------|-------|
|        | MIN.                      | MAX. |        | MIN.                      | MAX.  |
| A      | 4.30                      | 4.70 | D1     | 6.86                      | 7.42  |
| A1     | -                         | 0.25 | E      | 9.68                      | 10.08 |
| A2     | 2.20                      | 2.60 | E1     | 7.70                      | 8.30  |
| b      | 0.65                      | 0.85 | e      | 1.27 BSC                  |       |
| b1     | 0.65                      | 0.80 | e1     | 7.62 BSC                  |       |
| b2     | 0.80                      | 1.00 | L      | 1.78                      | 2.79  |
| SD     | 1.78                      | 0.45 | L2     | -                         | -     |
|        | c                         | 0.45 | L3     | 0.25 BSC                  |       |
|        | c1                        | 0.45 | H      | 14.61                     | -     |
|        | c2                        | 1.25 |        |                           |       |
|        | D                         | 9.00 |        |                           |       |

## / Marking Instructions



BR

011N10SH

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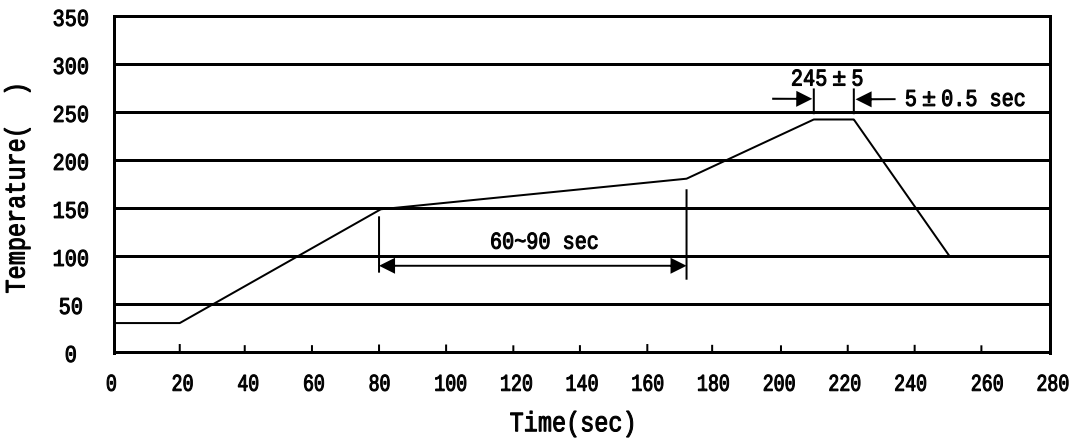
Note:

BR: Company Code

011N10SH: Product Type Code

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

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



Note :

- |   |         |     |    |              |                                              |
|---|---------|-----|----|--------------|----------------------------------------------|
| 1 | 150     | 180 | 60 | 90sec;       | 1.Pre heating:150~180 , Time:60~90sec.       |
| 2 | 245 ± 5 |     |    | 5 ± 0.5 sec; | 2.Peak Temp.:245 ± 5 , Duration:5 ± 0.5 sec. |
| 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> ) |                |                 |
|--------------|------------|-----------------|-----------------|-----------------------|-----------------|-----------------------------------|----------------|-----------------|
|              | Units/Reel | Reels/Inner Box | Units/Inner Box | Inner Boxes/Outer Box | Units/Outer Box | Reel                              | Inner Box      | Outer Box       |
| TO-263-7L    | 800        | 1               | 800             | 6                     | 4,800           | 13" × 24                          | 360 × 360 × 50 | 380 × 335 × 366 |

/ Notices

All information provided in this document is subject to legal disclaimers.