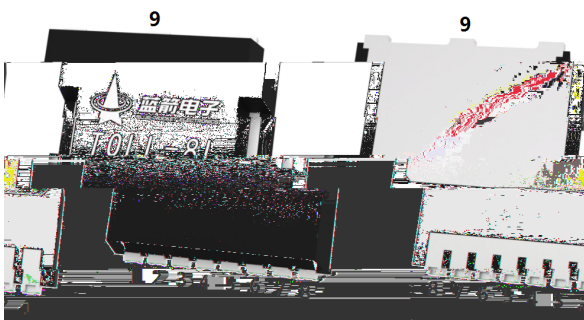
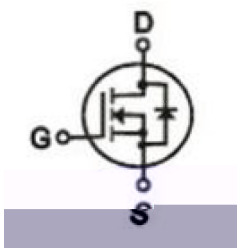


Rev.B Jun.-2026

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

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

DC/DC  
DC/DC converter, Power switch, Motor drives.



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

See Marking Instructions.

| 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( $V_{DS}=50V, V_{GS}=10V, L=0.3mH$ ) |              | $E_{AS}$                     | 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        |      |

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



| 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  |     |      |

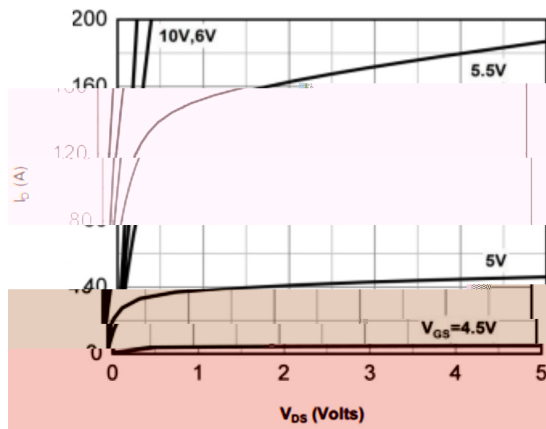


Figure 1: On-Region Characteristics

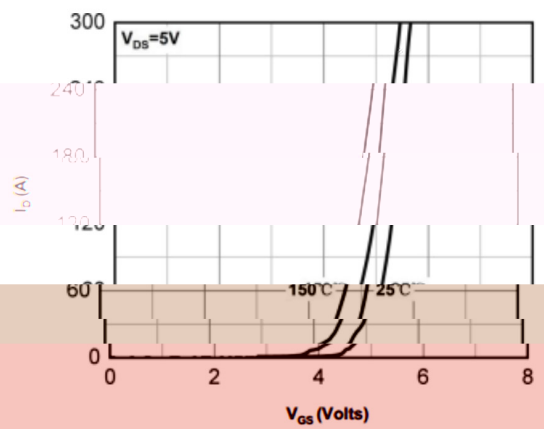


Figure 2: Transfer Characteristics

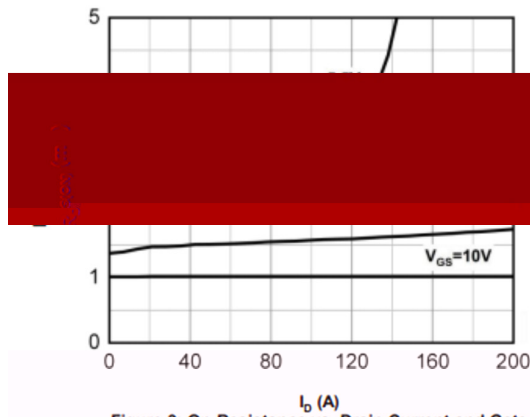


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

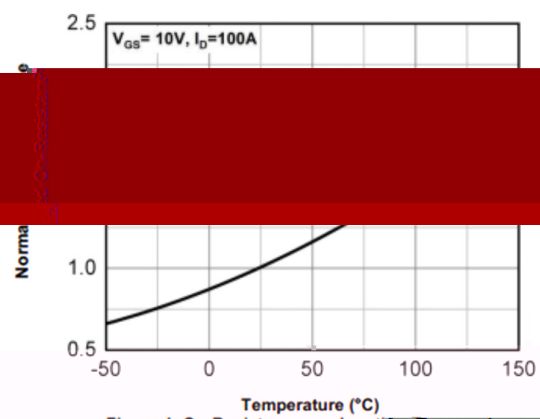


Figure 4: On-Resistance vs. Junction Temperature

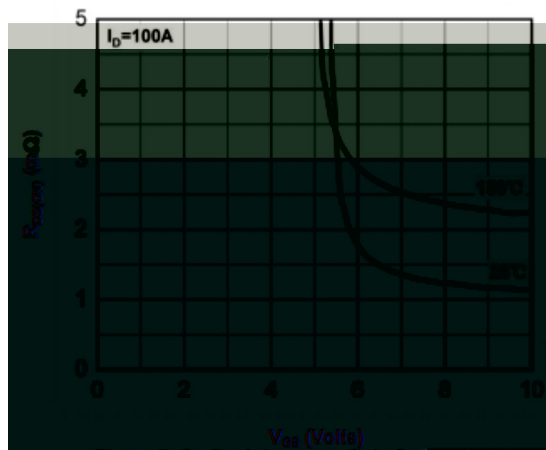


Figure 5: On-Resistance vs. Gate-Source Voltage

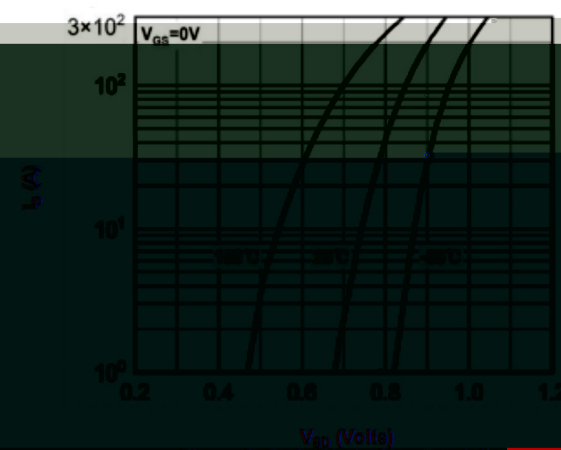
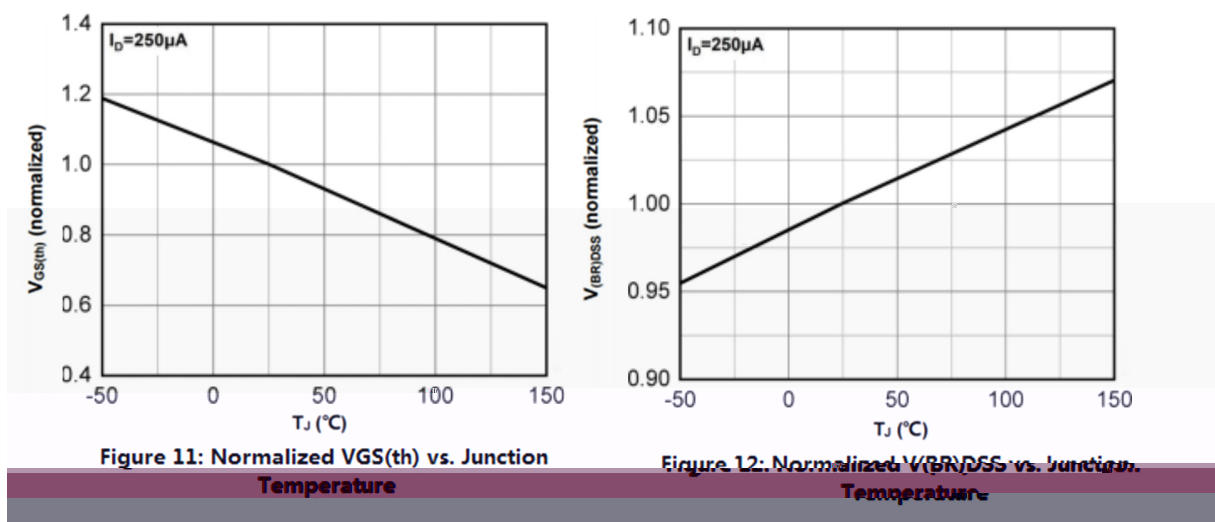
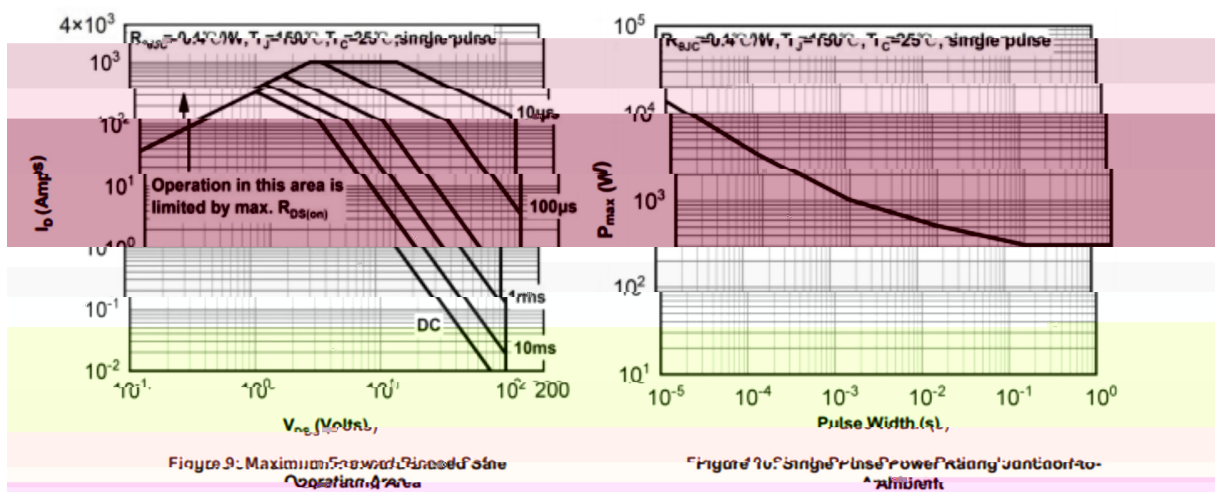
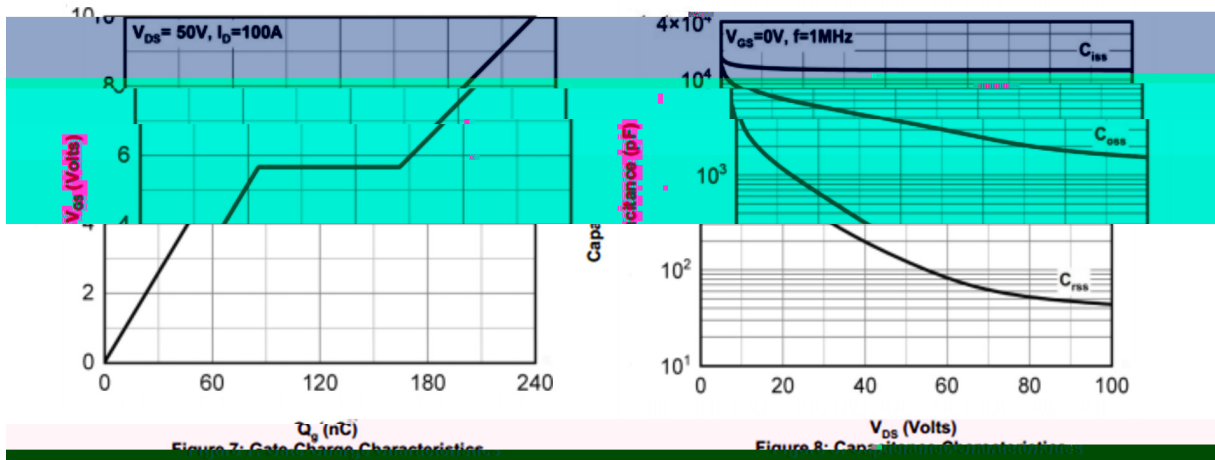
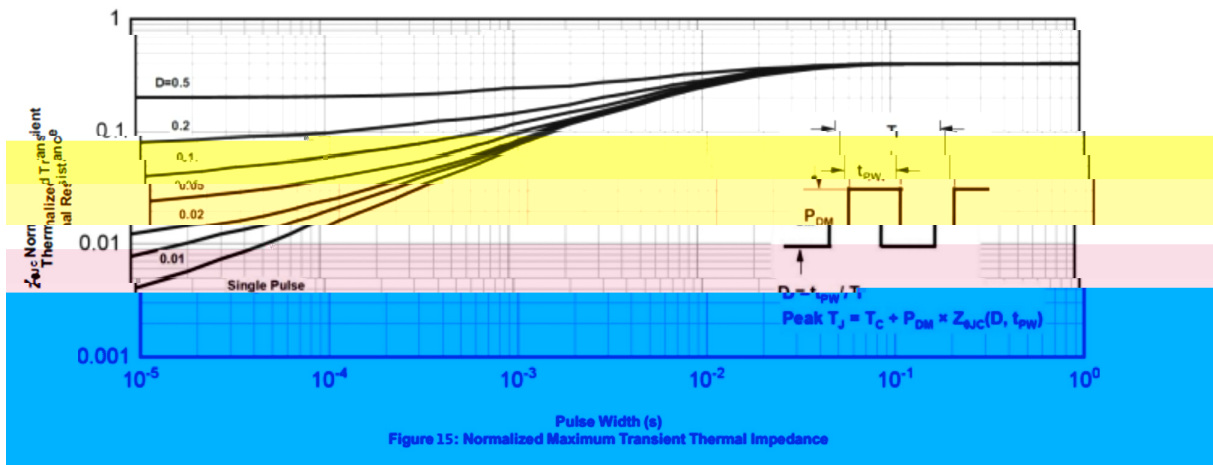
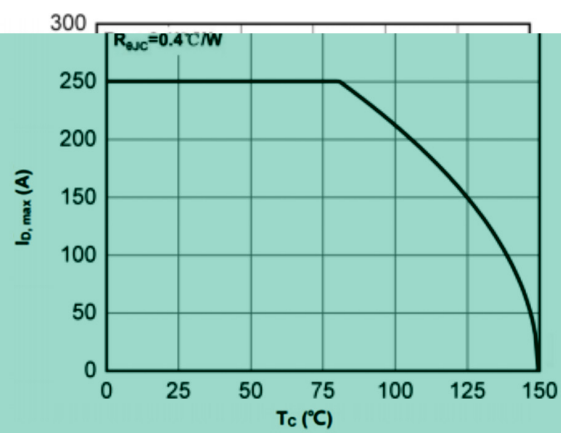
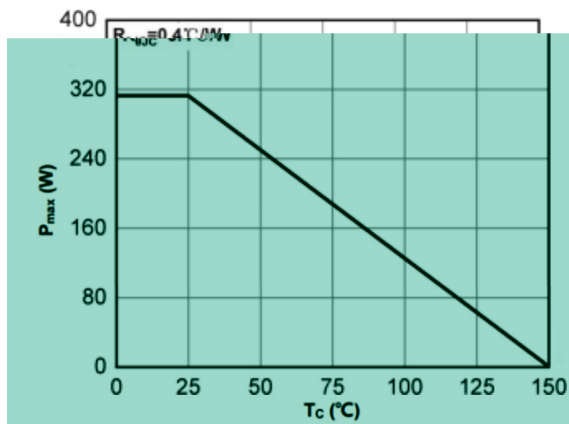
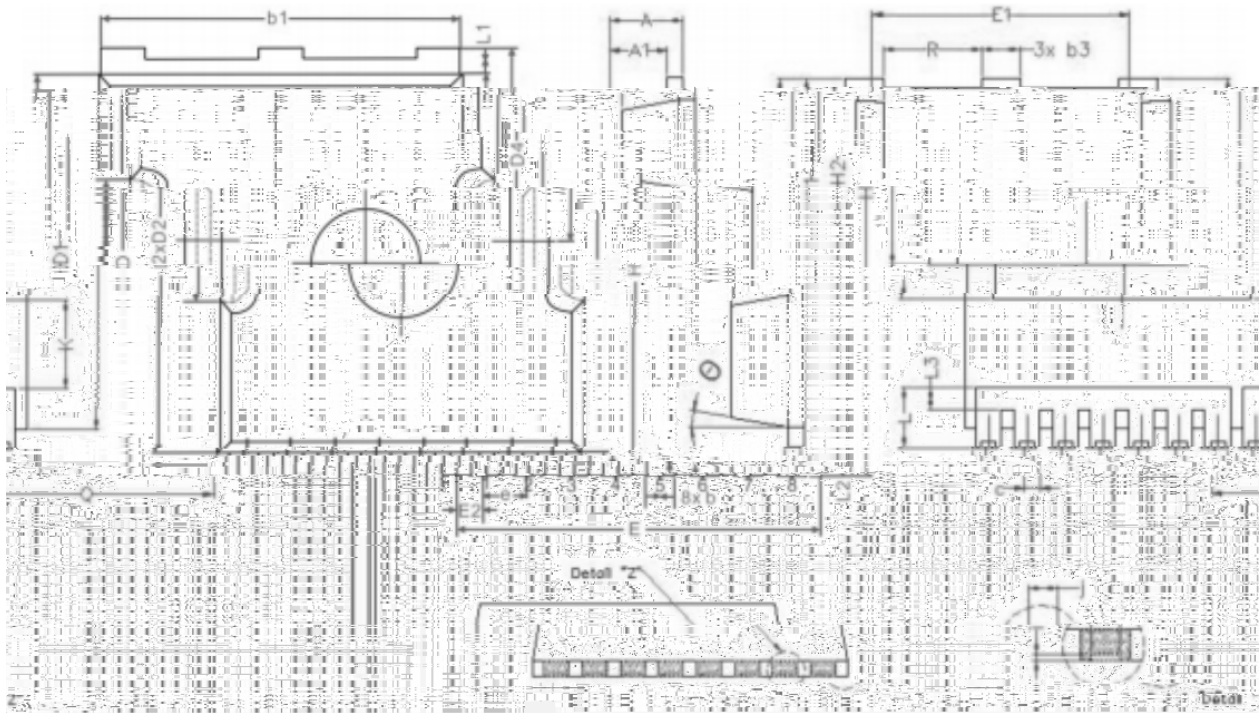


Figure 6: On-Resistance vs. Drain-Source Voltage







| 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 |
| 41     | 0.000 BSC                 |       |       |
| 42     | 0.000 BSC                 |       |       |
| 43     | 0.000 BSC                 |       |       |
| 44     | 0.000 BSC                 |       |       |
| 45     | 0.000 BSC                 |       |       |
| 46     | 0.000 BSC                 |       |       |
| 47     | 0.000 BSC                 |       |       |
| 48     | 0.000 BSC                 |       |       |
| 49     | 0.000 BSC                 |       |       |
| 50     | 0.000 BSC                 |       |       |
| 51     | 0.000 BSC                 |       |       |
| 52     | 0.000 BSC                 |       |       |
| 53     | 0.000 BSC                 |       |       |
| 54     | 0.000 BSC                 |       |       |
| 55     | 0.000 BSC                 |       |       |
| 56     | 0.000 BSC                 |       |       |
| 57     | 0.000 BSC                 |       |       |
| 58     | 0.000 BSC                 |       |       |
| 59     | 0.000 BSC                 |       |       |
| 60     | 0.000 BSC                 |       |       |
| 61     | 0.000 BSC                 |       |       |
| 62     | 0.000 BSC                 |       |       |
| 63     | 0.000 BSC                 |       |       |
| 64     | 0.000 BSC                 |       |       |
| 65     | 0.000 BSC                 |       |       |
| 66     | 0.000 BSC                 |       |       |
| 67     | 0.000 BSC                 |       |       |
| 68     | 0.000 BSC                 |       |       |
| 69     | 0.000 BSC                 |       |       |
| 70     | 0.000 BSC                 |       |       |
| 71     | 0.000 BSC                 |       |       |
| 72     | 0.000 BSC                 |       |       |
| 73     | 0.000 BSC                 |       |       |
| 74     | 0.000 BSC                 |       |       |
| 75     | 0.000 BSC                 |       |       |
| 76     | 0.000 BSC                 |       |       |
| 77     | 0.000 BSC                 |       |       |
| 78     | 0.000 BSC                 |       |       |
| 79     | 0.000 BSC                 |       |       |
| 80     | 0.000 BSC                 |       |       |
| 81     | 0.000 BSC                 |       |       |
| 82     | 0.000 BSC                 |       |       |
| 83     | 0.000 BSC                 |       |       |
| 84     | 0.000 BSC                 |       |       |
| 85     | 0.000 BSC                 |       |       |
| 86     | 0.000 BSC                 |       |       |
| 87     | 0.000 BSC                 |       |       |
| 88     | 0.000 BSC                 |       |       |
| 89     | 0.000 BSC                 |       |       |
| 90     | 0.000 BSC                 |       |       |
| 91     | 0.000 BSC                 |       |       |
| 92     | 0.000 BSC                 |       |       |
| 93     | 0.000 BSC                 |       |       |
| 94     | 0.000 BSC                 |       |       |
| 95     | 0.000 BSC                 |       |       |
| 96     | 0.000 BSC                 |       |       |
| 97     | 0.000 BSC                 |       |       |
| 98     | 0.000 BSC                 |       |       |
| 99     | 0.000 BSC                 |       |       |
| 100    | 0.000 BSC                 |       |       |



Temperature Profile for IR Reflow Soldering(Pb-Free)

|  |
|--|
|  |
|  |
|  |
|  |
|  |
|  |
|  |

- 1

150 180

60 90sec;
- 2

245±5

5±0.5sec;
- 3

2 10 /sec.
- Note:

1.Preheating:150~180 , Time:60~90sec.

2.Peak Temp.:245±5 , Duration:5±0.5sec.

3. Cooling Speed: 2~10 /sec.

260±5

10±1 sec.

Temp.:260±5

Time:10±1 sec

/ REEL