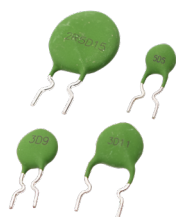


# NTC ICL

## Inrush current limiter radial lead NTC thermistor



### Product features

- Epoxy sealed radial lead NTC thermistor
- High rated power, low power consumption
- 5 to 30 millimeter disk type
- Resistance range 0.5  $\Omega$  to 120  $\Omega$
- Non-linear change in resistance vs temperature

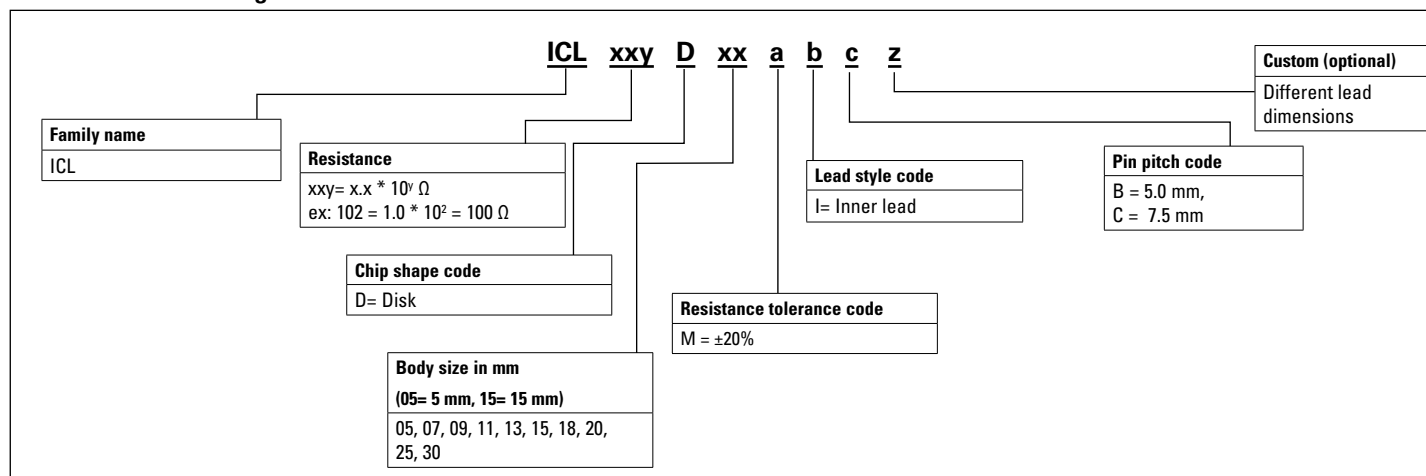
### Applications

- Switched mode power supplies
- Power conversion
- Uninterruptible power supplies
- Inverter systems
- Vac and Vdc motors
- Lighting drivers
- Toroidal transformer circuits
- Supercapacitor or other capacitor pre-charging circuits
- High power industrial equipment (welders, cutting and other robotics)

### Environmental compliance and general specifications



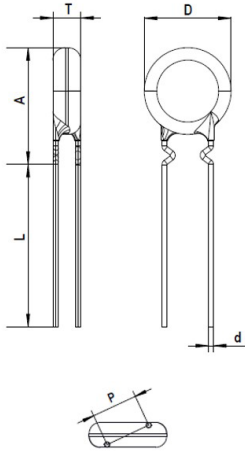
**Table 1. Part numbering**



See electrical specification table for option details

## Mechanical parameters- mm

### I (Inner lead)

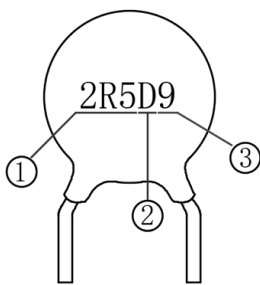


| Disk size | D maximum | T maximum | P        | d         | A maximum | L        |
|-----------|-----------|-----------|----------|-----------|-----------|----------|
| D05       | 7         | 5         | 5 ±0.5   | 0.6 ±0.02 | 12.5      | 3.5 ±0.5 |
| D07       | 8.5       | 5         | 5 ±0.5   | 0.6 ±0.02 | 14.5      | 3.5 ±0.5 |
| D09       | 9.5       | 5         | 5 ±0.5   | 0.8 ±0.02 | 15.5      | 3.5 ±0.5 |
| D11       | 12        | 6         | 5 ±0.5   | 0.8 ±0.02 | 18        | 3.5 ±0.5 |
| D13       | 13        | 6         | 7.5 ±0.8 | 0.8 ±0.02 | 19        | 3.5 ±0.5 |
| D15       | 16        | 6         | 7.5 ±0.8 | 0.8 ±0.02 | 22        | 3.5 ±0.5 |
| D18       | 19        | 7         | 7.5 ±0.8 | 1.0 ±0.02 | 25        | 3.5 ±0.5 |
| D20       | 23        | 7         | 7.5 ±0.8 | 1.0 ±0.02 | 29        | 3.5 ±0.5 |
| D25       | 28        | 8         | 7.5 ±0.8 | 1.0 ±0.02 | 34        | 3.5 ±0.5 |
| D30       | 34        | 8         | 7.5 ±0.8 | 1.0 ±0.02 | 40        | 3.5 ±0.5 |

D05 (5 mm) to D11 (11 mm) Leads: tin plated copper clad steel covered CCS leads

D13 (13 mm) to D30 (30 mm) Leads: tin plated copper

## Part marking



| Number | Item                           | Code | Specification |
|--------|--------------------------------|------|---------------|
| 1      | Zero Power Resistance at 25 °C | 2R5  | 2.5 Ω         |
|        |                                | 10   | 10 Ω          |
|        |                                | 100  | 100 Ω         |
| 2      | Chip shape                     | D    | Disk type     |
| 3      | Size                           | 9    | 9 mm          |

## Packaging information

| Part number  | BULK (pcs/bag) |
|--------------|----------------|
| ICLxxxD05xxx | 1000           |
| ICLxxxD07xxx | 1000           |
| ICLxxxD09xxx | 500            |
| ICLxxxD11xxx | 500            |
| ICLxxxD13xxx | 500            |
| ICLxxxD15xxx | 250            |
| ICLxxxD18xxx | 100            |
| ICLxxxD20xxx | 100            |
| ICLxxxD25xxx | 50             |
| ICLxxxD30xxx | 50             |

## Electrical specifications

| Part number  | Zero power resistance<br>@ +25°C<br>R <sub>25</sub> (Ω) | Resistance tolerance<br>(Part number code) | Lead style (Part number code) | Pin pitch<br>(Part number code) | I <sub>max</sub><br>(A) | Beta value<br>(25/50)<br>(K) | CT, maximum permissible capacitance<br>at 240 Vac<br>(μF) | Dissipation factor<br>(mW/°C) | Thermal time constant<br>T (second) | Operation temperature<br>TL-TU(°C) |
|--------------|---------------------------------------------------------|--------------------------------------------|-------------------------------|---------------------------------|-------------------------|------------------------------|-----------------------------------------------------------|-------------------------------|-------------------------------------|------------------------------------|
| ICL300D05abc | 3                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2                       | 2500                         | 70                                                        | 7 ±3                          | 20 ±6                               | -40 to +150                        |
| ICL400D05abc | 4                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2                       | 2500                         | 70                                                        | 7 ±3                          | 20 ±6                               | -40 to +150                        |
| ICL500D05abc | 5                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2                       | 2550                         | 70                                                        | 7 ±3                          | 20 ±6                               | -40 to +150                        |
| ICL800D05abc | 8                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1                       | 2600                         | 70                                                        | 7 ±3                          | 20 ±6                               | -40 to +150                        |
| ICL101D05abc | 10                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1                       | 2650                         | 70                                                        | 7 ±3                          | 20 ±6                               | -40 to +150                        |
| ICL121D05abc | 12                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1                       | 2650                         | 70                                                        | 7 ±3                          | 20 ±6                               | -40 to +150                        |
| ICL161D05abc | 16                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1                       | 2700                         | 70                                                        | 7 ±3                          | 20 ±6                               | -40 to +150                        |
| ICL201D05abc | 20                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1                       | 2700                         | 70                                                        | 7 ±3                          | 20 ±6                               | -40 to +150                        |
| ICL300D07abc | 3                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 2550                         | 120                                                       | 8 ±3                          | 30 ±9                               | -40 to +170                        |
| ICL400D07abc | 4                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 2600                         | 120                                                       | 8 ±3                          | 30 ±9                               | -40 to +170                        |
| ICL500D07abc | 5                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 2600                         | 120                                                       | 8 ±3                          | 30 ±9                               | -40 to +170                        |
| ICL600D07abc | 6                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 2650                         | 120                                                       | 8 ±3                          | 30 ±9                               | -40 to +170                        |
| ICL700D07abc | 7                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 2650                         | 120                                                       | 8 ±3                          | 30 ±9                               | -40 to +170                        |
| ICL800D07abc | 8                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2                       | 2700                         | 120                                                       | 8 ±3                          | 30 ±9                               | -40 to +170                        |
| ICL101D07abc | 10                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2                       | 2700                         | 120                                                       | 8 ±3                          | 30 ±9                               | -40 to +170                        |
| ICL151D07abc | 15                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2                       | 2750                         | 120                                                       | 8 ±3                          | 30 ±9                               | -40 to +170                        |
| ICL201D07abc | 20                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1.5                     | 2800                         | 120                                                       | 8 ±3                          | 30 ±9                               | -40 to +170                        |
| ICL301D07abc | 30                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1                       | 2850                         | 120                                                       | 8 ±3                          | 30 ±9                               | -40 to +170                        |

a= Enter resistance tolerance code from table above (M = ±20%)

b= Enter lead style code from table above (I= Inner lead)

c= Enter pin pitch code from table above (B = 5.0 mm, C = 7.5 mm)

Electrical specifications, cont.

| Part number  | Zero power resistance<br>@ +25°C<br>R <sub>25</sub> (Ω) | Resistance tolerance<br>(Part number code) | Lead style (Part number code) | Pin pitch<br>(Part number code) | I <sub>max</sub><br>(A) | Beta value<br>(25/50)<br>(K) | CT, maximum permissible capacitance<br>at 240 Vac<br>(μF) | Dissipation factor<br>(mW/°C) | Thermal time constant<br>T (second) | Operation temperature<br>TL~TU(°C) |
|--------------|---------------------------------------------------------|--------------------------------------------|-------------------------------|---------------------------------|-------------------------|------------------------------|-----------------------------------------------------------|-------------------------------|-------------------------------------|------------------------------------|
| ICL250D09abc | 2.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4                       | 2550                         | 180                                                       | 9 ±3                          | 40 ±12                              | -40 to +170                        |
| ICL300D09abc | 3                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4                       | 2600                         | 180                                                       | 9 ±3                          | 40 ±12                              | -40 to +170                        |
| ICL500D09abc | 5                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3.5                     | 2650                         | 180                                                       | 9 ±3                          | 40 ±12                              | -40 to +170                        |
| ICL600D09abc | 6                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3.5                     | 2700                         | 180                                                       | 9 ±3                          | 40 ±12                              | -40 to +170                        |
| ICL700D09abc | 7                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 2700                         | 180                                                       | 9 ±3                          | 40 ±12                              | -40 to +170                        |
| ICL800D09abc | 8                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2.5                     | 2700                         | 180                                                       | 9 ±3                          | 40 ±12                              | -40 to +170                        |
| ICL101D09abc | 10                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2.5                     | 2750                         | 180                                                       | 9 ±3                          | 40 ±12                              | -40 to +170                        |
| ICL151D09abc | 15                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2.5                     | 2800                         | 180                                                       | 9 ±3                          | 40 ±12                              | -40 to +170                        |
| ICL201D09abc | 20                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2                       | 2850                         | 180                                                       | 9 ±3                          | 40 ±12                              | -40 to +170                        |
| ICL301D09abc | 30                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1.5                     | 2950                         | 180                                                       | 9 ±3                          | 40 ±12                              | -40 to +170                        |
| ICL601D09abc | 60                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1                       | 3150                         | 180                                                       | 9 ±3                          | 40 ±12                              | -40 to +170                        |
| ICL070D11abc | 0.7                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6                       | 2500                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL100D11abc | 1                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6                       | 2500                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL130D11abc | 1.3                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6                       | 2550                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL150D11abc | 1.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6                       | 2550                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL250D11abc | 2.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5.5                     | 2600                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL300D11abc | 3                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5.5                     | 2650                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL400D11abc | 4                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4.5                     | 2700                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL500D11abc | 5                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4.5                     | 2700                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL680D11abc | 6.8                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3.5                     | 2750                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |

a= Enter resistance tolerance code from table above (M = ±20%)

b= Enter lead style code from table above (I= Inner lead)

c= Enter pin pitch code from table above (B = 5.0 mm, C = 7.5 mm)

Electrical specifications, cont.

| Part number  | Zero power resistance<br>@ +25°C<br>R <sub>25</sub> (Ω) | Resistance tolerance<br>(Part number code) | Lead style (Part number code) | Pin pitch<br>(Part number code) | I <sub>max</sub><br>(A) | Beta value<br>(25/50)<br>(K) | CT, maximum permissible capacitance<br>at 240 Vac<br>(μF) | Dissipation factor<br>(mW/°C) | Thermal time constant<br>T (second) | Operation temperature<br>TL-TU(°C) |
|--------------|---------------------------------------------------------|--------------------------------------------|-------------------------------|---------------------------------|-------------------------|------------------------------|-----------------------------------------------------------|-------------------------------|-------------------------------------|------------------------------------|
| ICL800D11abc | 8                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3.5                     | 2800                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL101D11abc | 10                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 2800                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL121D11abc | 12                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 2850                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL131D11abc | 13                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 2850                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL151D11abc | 15                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2.5                     | 2850                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL161D11abc | 16                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2.5                     | 2900                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL201D11abc | 20                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2.5                     | 2950                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL221D11abc | 22                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2.5                     | 2950                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL251D11abc | 25                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2                       | 3000                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL301D11abc | 30                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2                       | 3100                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL471D11abc | 47                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2                       | 3150                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL501D11abc | 50                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2                       | 3200                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL801D11abc | 80                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1.5                     | 3300                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL102D11abc | 100                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1                       | 3300                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL122D11abc | 120                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1                       | 3400                         | 300                                                       | 11 ±4                         | 60 ±18                              | -40 to +170                        |
| ICL070D13abc | 0.7                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 7                       | 2500                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL100D13abc | 1                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 7                       | 2550                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL130D13abc | 1.3                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 7                       | 2550                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL150D13abc | 1.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 7                       | 2550                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL250D13abc | 2.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6                       | 2650                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |

a= Enter resistance tolerance code from table above (M = ±20%)

b= Enter lead style code from table above (I= Inner lead)

c= Enter pin pitch code from table above (B = 5.0 mm, C = 7.5 mm)

**Electrical specifications, cont.**

| Part number  | Zero power resistance<br>@ +25°C<br>R <sub>25</sub> (Ω) | Resistance tolerance<br>(Part number code) | Lead style (Part number code) | Pin pitch<br>(Part number code) | I <sub>max</sub><br>(A) | Beta value<br>(25/50)<br>(K) | CT, maximum permissible capacitance<br>at 240 Vac<br>(μF) | Dissipation factor<br>(mW/°C) | Thermal time constant<br>T (second) | Operation temperature<br>TL-TU(°C) |
|--------------|---------------------------------------------------------|--------------------------------------------|-------------------------------|---------------------------------|-------------------------|------------------------------|-----------------------------------------------------------|-------------------------------|-------------------------------------|------------------------------------|
| ICL400D13abc | 4                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5                       | 2700                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL470D13abc | 4.7                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4.5                     | 2700                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL500D13abc | 5                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5                       | 2750                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL700D13abc | 7                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4                       | 2800                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL800D13abc | 8                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4                       | 2800                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL101D13abc | 10                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4                       | 2850                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL121D13abc | 12                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4                       | 2850                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL151D13abc | 15                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 2900                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL161D13abc | 16                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 2900                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL181D13abc | 18                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 2950                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL201D13abc | 20                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 3000                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL301D13abc | 30                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2.5                     | 3100                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL501D13abc | 50                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2                       | 3200                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL801D13abc | 80                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1.5                     | 3300                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL102D13abc | 100                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1.5                     | 3400                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL122D13abc | 120                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1.5                     | 3400                         | 350                                                       | 12 ±4                         | 70 ±21                              | -40 to +200                        |
| ICL070D15abc | 0.7                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 8                       | 2550                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL100D15abc | 1                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 9                       | 2600                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL130D15abc | 1.3                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 9                       | 2650                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL150D15abc | 1.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 9                       | 2650                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |

a= Enter resistance tolerance code from table above (M = ±20%)

b= Enter lead style code from table above (I= Inner lead)

c= Enter pin pitch code from table above (B = 5.0 mm, C = 7.5 mm)

Electrical specifications, cont.

| Part number  | Zero power resistance<br>@ +25°C<br>R <sub>25</sub> (Ω) | Resistance tolerance<br>(Part number code) | Lead style (Part number code) | Pin pitch<br>(Part number code) | I <sub>max</sub><br>(A) | Beta value<br>(25/50)<br>(K) | CT, maximum permissible capacitance<br>at 240 Vac<br>(μF) | Dissipation factor<br>(mW/°C) | Thermal time constant<br>T (second) | Operation temperature<br>TL~TU(°C) |
|--------------|---------------------------------------------------------|--------------------------------------------|-------------------------------|---------------------------------|-------------------------|------------------------------|-----------------------------------------------------------|-------------------------------|-------------------------------------|------------------------------------|
| ICL200D15abc | 2                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 8                       | 2700                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL250D15abc | 2.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 7.5                     | 2700                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL300D15abc | 3                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 7                       | 2750                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL400D15abc | 4                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6.5                     | 2800                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL500D15abc | 5                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6                       | 2800                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL600D15abc | 6                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5.5                     | 2850                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL700D15abc | 7                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5                       | 2850                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL800D15abc | 8                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5                       | 2900                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL101D15abc | 10                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5                       | 2950                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL121D15abc | 12                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5                       | 3000                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL151D15abc | 15                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4                       | 3100                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL161D15abc | 16                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4                       | 3100                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL201D15abc | 20                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4                       | 3150                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL251D15abc | 25                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3.5                     | 3200                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL301D15abc | 30                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 3200                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL331D15abc | 33                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 3200                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL471D15abc | 47                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 3                       | 3300                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL501D15abc | 50                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2.5                     | 3400                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL601D15abc | 60                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2.5                     | 3400                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL801D15abc | 80                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2.5                     | 3450                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |

a= Enter resistance tolerance code from table above (M = ±20%)

b= Enter lead style code from table above (I= Inner lead)

c= Enter pin pitch code from table above (B = 5.0 mm, C = 7.5 mm)

**Electrical specifications, cont.**

| Part number  | Zero power resistance<br>@ +25°C<br>R <sub>25</sub> (Ω) | Resistance tolerance<br>(Part number code) | Lead style (Part number code) | Pin pitch<br>(Part number code) | I <sub>max</sub><br>(A) | Beta value<br>(25/50)<br>(K) | CT, maximum permissible capacitance<br>at 240 Vac<br>(μF) | Dissipation factor<br>(mW/°C) | Thermal time constant<br>T (second) | Operation temperature<br>TL~TU(°C) |
|--------------|---------------------------------------------------------|--------------------------------------------|-------------------------------|---------------------------------|-------------------------|------------------------------|-----------------------------------------------------------|-------------------------------|-------------------------------------|------------------------------------|
| ICL102D15abc | 100                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 2                       | 3450                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL122D15abc | 120                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 1.5                     | 3500                         | 500                                                       | 17 ±5                         | 80 ±24                              | -40 to +200                        |
| ICL070D18abc | 0.7                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 15                      | 2600                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL100D18abc | 1                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 14                      | 2650                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL150D18abc | 1.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 12                      | 2700                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL200D18abc | 2                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 11                      | 2750                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL250D18abc | 2.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 10                      | 2800                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL300D18abc | 3                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 9                       | 2800                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL400D18abc | 4                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 8.5                     | 2850                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL470D18abc | 4.7                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 8                       | 2850                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL500D18abc | 5                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 7.5                     | 2850                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL600D18abc | 6                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 7                       | 2900                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL680D18abc | 7                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 7                       | 2950                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL700D18abc | 7                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6.5                     | 2950                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL800D18abc | 8                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6.5                     | 3000                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL101D18abc | 10                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6                       | 3100                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL121D18abc | 12                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5.5                     | 3100                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL131D18abc | 13                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5.5                     | 3150                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL151D18abc | 15                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5                       | 3150                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL161D18abc | 16                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5                       | 3200                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |

a= Enter resistance tolerance code from table above (M = ±20%)

b= Enter lead style code from table above (I= Inner lead)

c= Enter pin pitch code from table above (B = 5.0 mm, C = 7.5 mm)



Electrical specifications, cont.

| Part number  | Zero power resistance<br>@ +25°C<br>R <sub>25</sub> (Ω) | Resistance tolerance<br>(Part number code) | Lead style (Part number code) | Pin pitch<br>(Part number code) | I <sub>max</sub><br>(A) | Beta value<br>(25/50)<br>(K) | CT, maximum permissible capacitance<br>at 240 Vac<br>(μF) | Dissipation factor<br>(mW/°C) | Thermal time constant<br>T (second) | Operation temperature<br>TL-TU(°C) |
|--------------|---------------------------------------------------------|--------------------------------------------|-------------------------------|---------------------------------|-------------------------|------------------------------|-----------------------------------------------------------|-------------------------------|-------------------------------------|------------------------------------|
| ICL181D18abc | 18                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5                       | 3200                         | 800                                                       | 25 ±8                         | 90 ±27                              | -40 to +200                        |
| ICL201D18abc | 20                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4.5                     | 3200                         | 800                                                       | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL301D18abc | 30                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4                       | 3300                         | 800                                                       | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL070D20abc | 0.7                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 18                      | 2650                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL100D20abc | 1                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 16                      | 2700                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL150D20abc | 1.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 14                      | 2750                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL200D20abc | 2                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 12.5                    | 2800                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL250D20abc | 2.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 11.5                    | 2850                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL300D20abc | 3                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 10.5                    | 2850                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL400D20abc | 4                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 9.5                     | 2900                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL470D20abc | 4.7                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 9                       | 2950                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL500D20abc | 5                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 9                       | 3000                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL600D20abc | 6                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 8.5                     | 3050                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL680D20abc | 7                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 8                       | 3100                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL700D20abc | 7                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 8                       | 3100                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL800D20abc | 8                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 7.5                     | 3100                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL101D20abc | 10                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 7                       | 3150                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL121D20abc | 12                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6.5                     | 3200                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL131D20abc | 13                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6.5                     | 3200                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL151D20abc | 15                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6                       | 3200                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |

a= Enter resistance tolerance code from table above (M = ±20%)

b= Enter lead style code from table above (I= Inner lead)

c= Enter pin pitch code from table above (B = 5.0 mm, C = 7.5 mm)

**Electrical specifications, cont.**

| Part number  | Zero power resistance<br>@ +25°C<br>R <sub>25</sub> (Ω) | Resistance tolerance<br>(Part number code) | Lead style (Part number code) | Pin pitch<br>(Part number code) | I <sub>max</sub><br>(A) | Beta value<br>(25/50)<br>(K) | CT, maximum permissible capacitance<br>at 240 Vac<br>(μF) | Dissipation factor<br>(mW/°C) | Thermal time constant<br>T (second) | Operation temperature<br>TL~TU(°C) |
|--------------|---------------------------------------------------------|--------------------------------------------|-------------------------------|---------------------------------|-------------------------|------------------------------|-----------------------------------------------------------|-------------------------------|-------------------------------------|------------------------------------|
| ICL161D20abc | 16                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5.5                     | 3200                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL181D20abc | 18                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5.5                     | 3300                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL201D20abc | 20                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5.5                     | 3300                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL301D20abc | 30                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4                       | 3400                         | 1200                                                      | 30 ±9                         | 100 ±30                             | -40 to +200                        |
| ICL050D25abc | 0.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 20                      | 2650                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL070D25abc | 0.7                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 20                      | 2700                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL100D25abc | 1                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 20                      | 2750                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL150D25abc | 1.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 17                      | 2800                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL200D25abc | 2                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 15                      | 2850                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL250D25abc | 2.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 14                      | 2900                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL300D25abc | 3                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 13                      | 2950                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL400D25abc | 4                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 12                      | 3050                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL470D25abc | 4.7                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 11.5                    | 3100                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL500D25abc | 5                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 11                      | 3100                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL680D25abc | 6.8                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 10                      | 3150                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL700D25abc | 7                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 10                      | 3150                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL800D25abc | 8                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 9.5                     | 3200                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL101D25abc | 10                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 8.5                     | 3200                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL121D25abc | 12                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 8                       | 3300                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL151D25abc | 15                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 7.5                     | 3300                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |

a= Enter resistance tolerance code from table above (M = ±20%)

b= Enter lead style code from table above (I= Inner lead)

c= Enter pin pitch code from table above (B = 5.0 mm, C = 7.5 mm)

Electrical specifications, cont.

| Part number  | Zero power resistance<br>@ +25°C<br>R <sub>25</sub> (Ω) | Resistance tolerance<br>(Part number code) | Lead style (Part number code) | Pin pitch<br>(Part number code) | I <sub>max</sub><br>(A) | Beta value<br>(25/50)<br>(K) | CT, maximum permissible capacitance<br>at 240 Vac<br>(μF) | Dissipation factor<br>(mW/°C) | Thermal time constant<br>T (second) | Operation temperature<br>TL~TU(°C) |
|--------------|---------------------------------------------------------|--------------------------------------------|-------------------------------|---------------------------------|-------------------------|------------------------------|-----------------------------------------------------------|-------------------------------|-------------------------------------|------------------------------------|
| ICL181D25abc | 18                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6.5                     | 3400                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL201D25abc | 20                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 6                       | 3400                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL301D25abc | 30                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 4.5                     | 3450                         | 2500                                                      | 40 ±12                        | 125 ±38                             | -40 to +200                        |
| ICL050D30abc | 0.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 30                      | 2700                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |
| ICL070D30abc | 0.7                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 30                      | 2750                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |
| ICL100D30abc | 1                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 30                      | 2800                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |
| ICL150D30abc | 1.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 25                      | 2850                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |
| ICL200D30abc | 2                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 23                      | 2950                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |
| ICL250D30abc | 2.5                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 18                      | 3000                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |
| ICL300D30abc | 3                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 17                      | 3100                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |
| ICL400D30abc | 4                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 16                      | 3150                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |
| ICL470D30abc | 4.7                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 15                      | 3150                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |
| ICL500D30abc | 5                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 14                      | 3200                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |
| ICL680D30abc | 6.8                                                     | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 12                      | 3200                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |
| ICL700D30abc | 7                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 12                      | 3200                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |
| ICL800D30abc | 8                                                       | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 11                      | 3300                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |
| ICL101D30abc | 10                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 10                      | 3300                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |
| ICL121D30abc | 12                                                      | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 9                       | 3400                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                        |

a= Enter resistance tolerance code from table above (M = ±20%)

b= Enter lead style code from table above (I= Inner lead)

c= Enter pin pitch code from table above (B = 5.0 mm, C = 7.5 mm)

## Electrical specifications, cont.

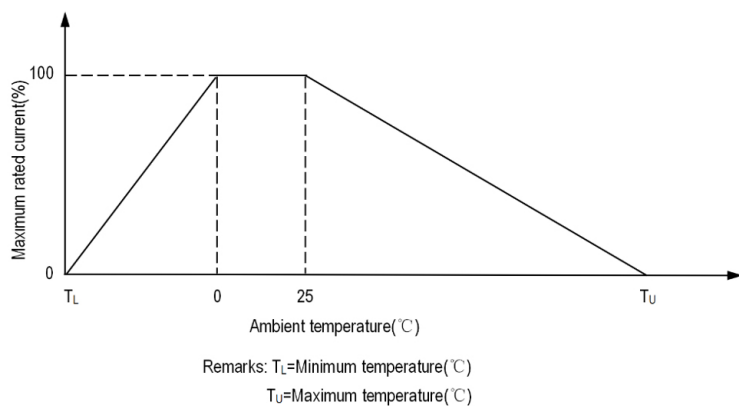
| Part number  | Zero power resistance<br>@ +25°C<br>$R_{25}$ (Ω) | Resistance tolerance<br>(Part number code) | Lead style (Part number code) | Pin pitch<br>(Part number code) | $I_{max}$<br>(A) | Beta value<br>(25/50)<br>(K) | CT, maximum permissible capacitance<br>at 240 Vac<br>(μF) | Dissipation factor<br>(mW/°C) | Thermal time constant<br>T (second) | Operation temperature<br>$T_L \sim T_U$ (°C) |
|--------------|--------------------------------------------------|--------------------------------------------|-------------------------------|---------------------------------|------------------|------------------------------|-----------------------------------------------------------|-------------------------------|-------------------------------------|----------------------------------------------|
| ICL151D30abc | 15                                               | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 8                | 3450                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                                  |
| ICL181D30abc | 18                                               | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 8                | 3450                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                                  |
| ICL201D30abc | 20                                               | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 7                | 3450                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                                  |
| ICL301D30abc | 30                                               | ±20% (M)                                   | Inner lead (I)                | 5.0 mm (B)<br>7.5 mm (C)        | 5.5              | 3600                         | 3500                                                      | 50 ±12                        | 170 ±51                             | -40 to +200                                  |

a= Enter resistance tolerance code from table above (M = ±20%)

b= Enter lead style code from table above (I= Inner lead)

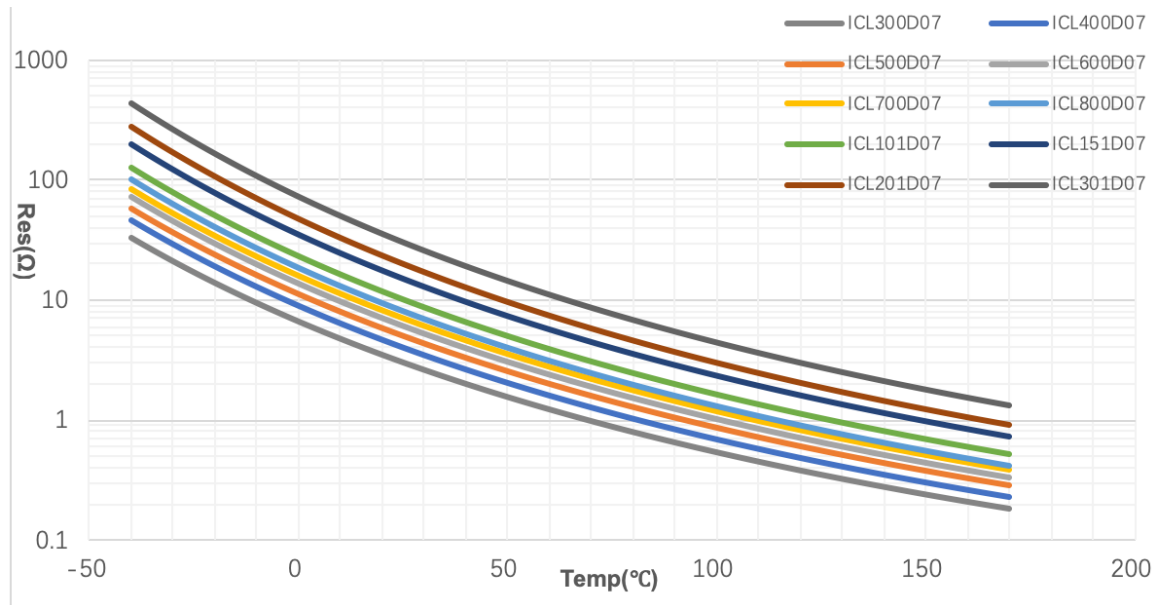
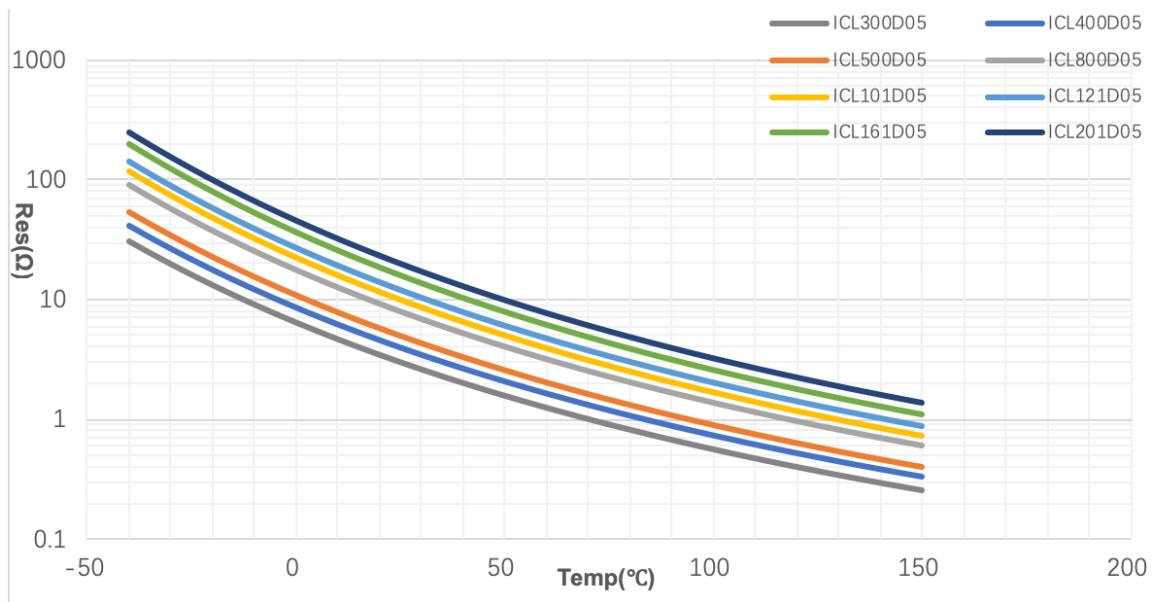
c= Enter pin pitch code from table above (B = 5.0 mm, C = 7.5 mm)

## Derating curve



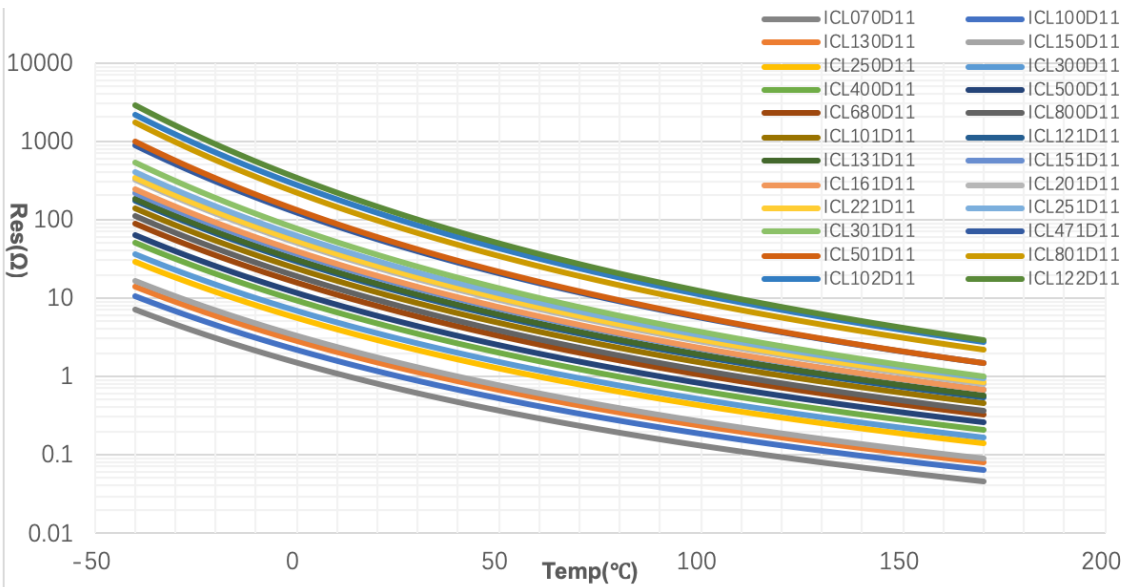
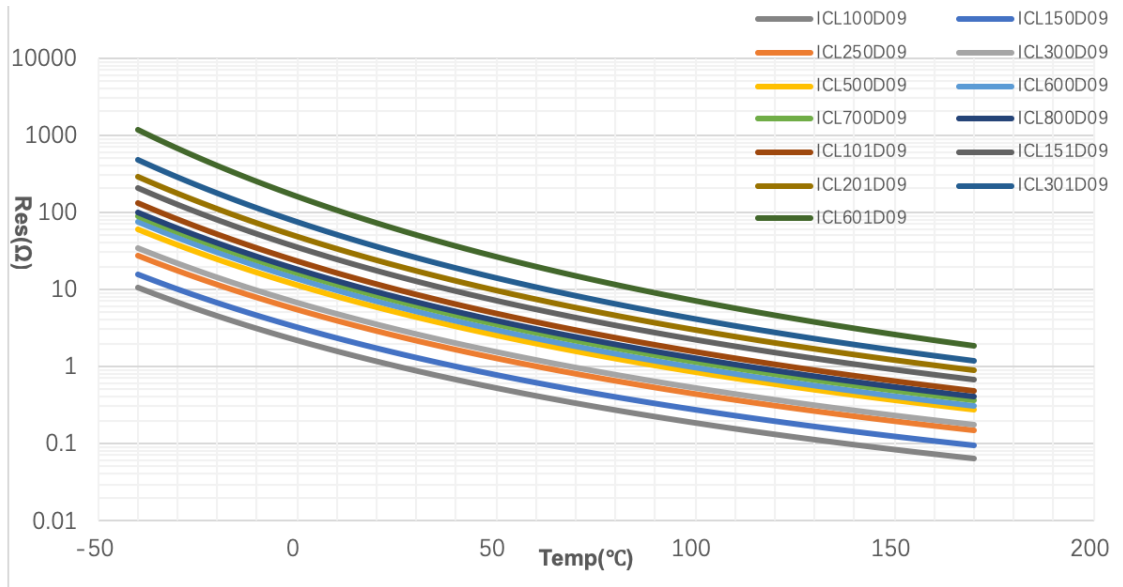
## Temperature characteristics

### R-T curve



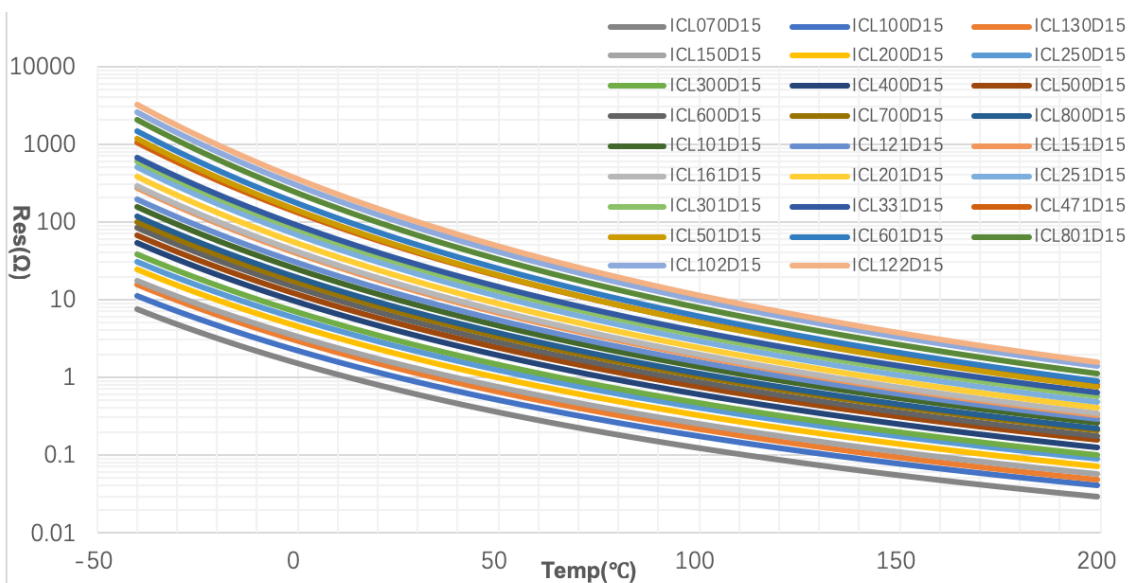
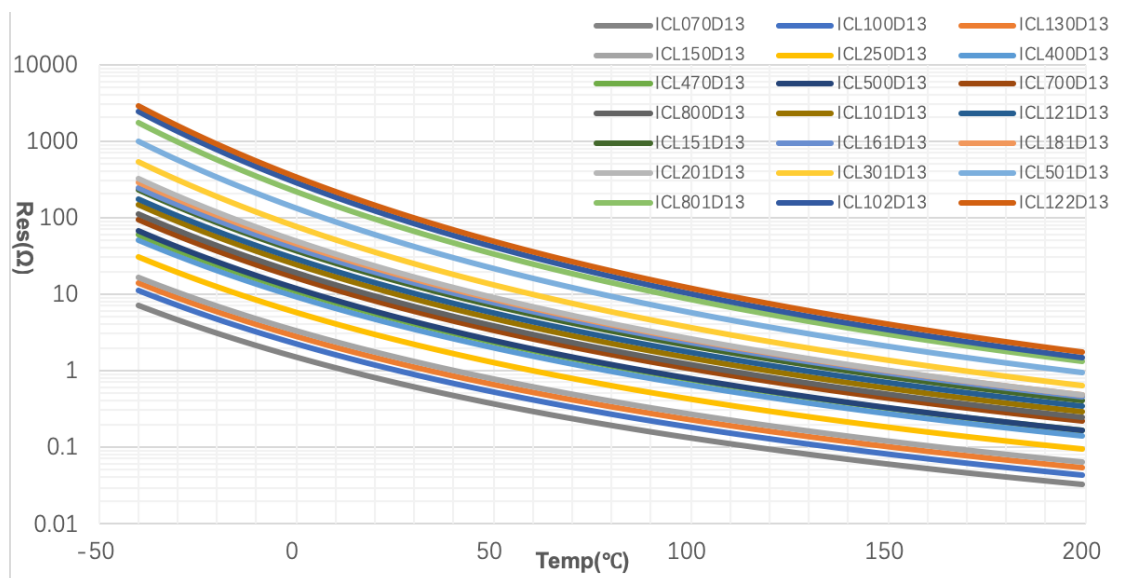
## Temperature characteristics

### R-T curve



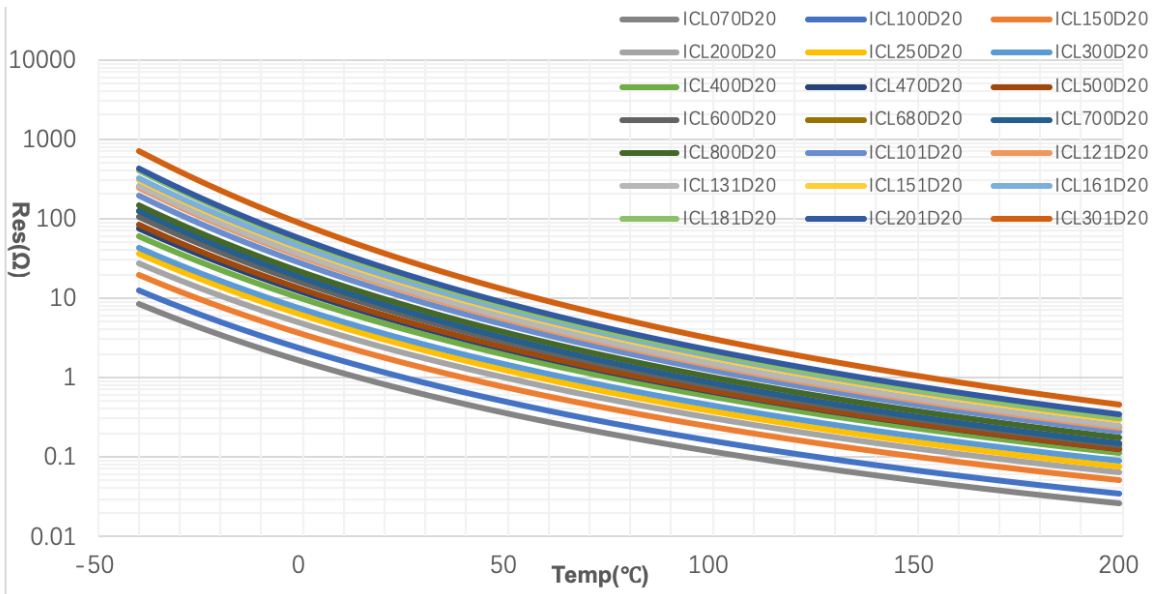
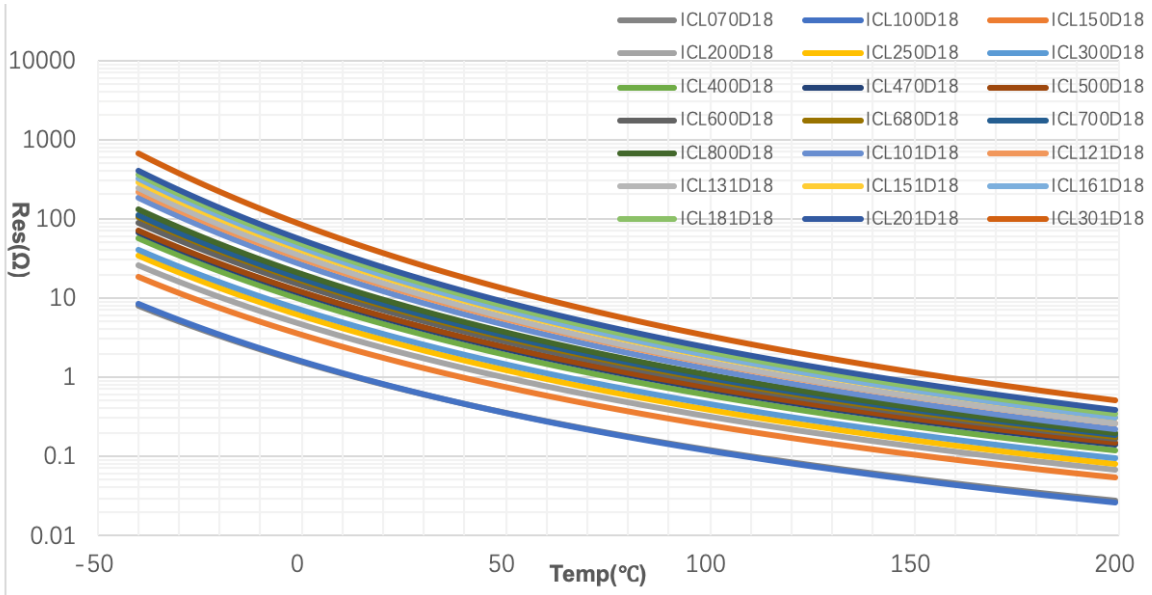
Temperature characteristics, cont.

R-T curve



## Temperature characteristics

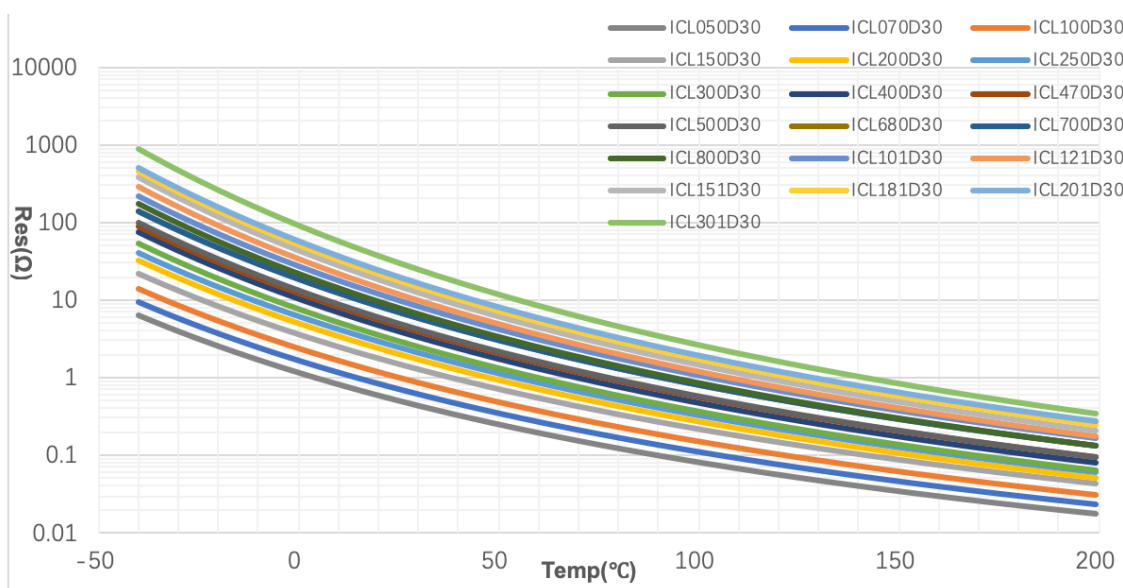
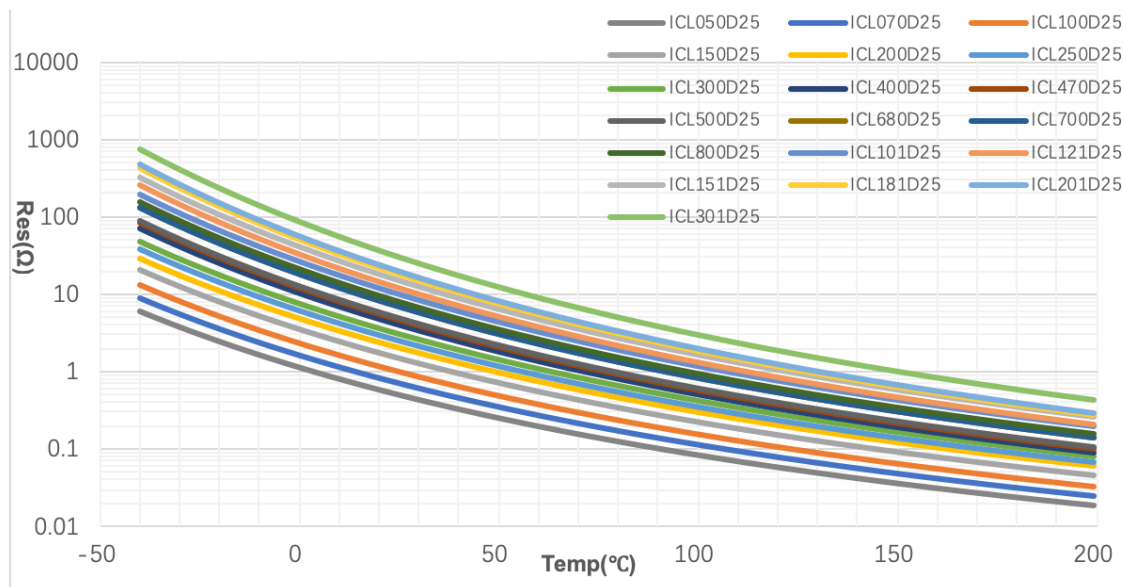
### R-T curve



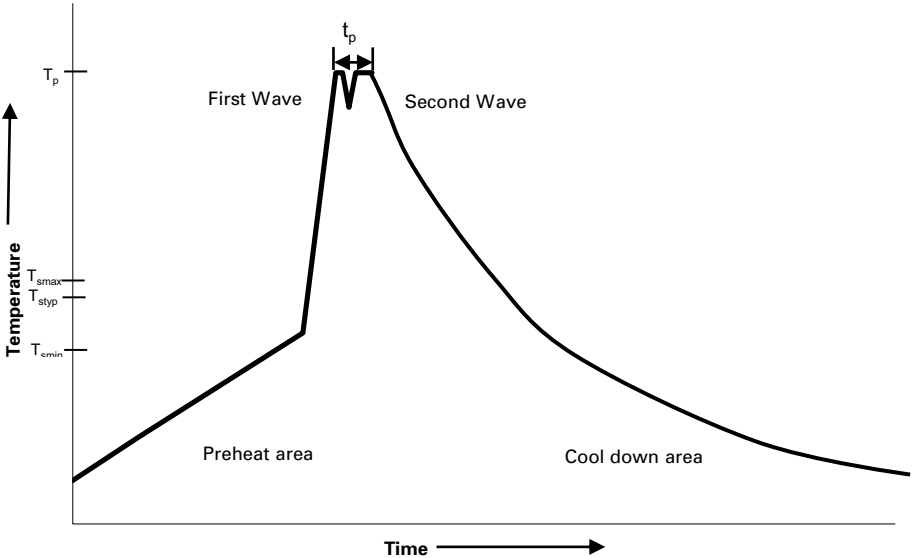


## Temperature characteristics

### R-T curve



Wave solder profile



Reference EN 61760-1:2006

| Profile feature                               | Standard SnPb solder                      | Lead (Pb) free solder                     |
|-----------------------------------------------|-------------------------------------------|-------------------------------------------|
| Preheat                                       |                                           |                                           |
| • Temperature min. ( $T_{smin}$ )             | 100 °C                                    | 100 °C                                    |
| • Temperature typ. ( $T_{styp}$ )             | 120 °C                                    | 120 °C                                    |
| • Temperature max. ( $T_{smax}$ )             | 130 °C                                    | 130 °C                                    |
| • Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ ) | 70 seconds                                | 70 seconds                                |
| $\Delta$ preheat to max Temperature           | 150 °C max.                               | 150 °C max.                               |
| Peak temperature ( $T_p$ )*                   | 235 °C – 260 °C                           | 250 °C – 260 °C                           |
| Time at peak temperature ( $t_p$ )            | 10 seconds max<br>5 seconds max each wave | 10 seconds max<br>5 seconds max each wave |
| Ramp-down rate                                | ~ 2 K/s min<br>~3.5 K/s typ<br>~5 K/s max | ~ 2 K/s min<br>~3.5 K/s typ<br>~5 K/s max |
| Time 25 °C to 25 °C                           | 4 minutes                                 | 4 minutes                                 |

Manual solder

+360 °C (3 seconds maximum by soldering iron distance between soldering position and coating 2 mm minimum), generally manual/hand soldering is not recommended.

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