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 Ω to 120 Ω
- 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

Pb HALOGEN HF FREE RoHS

Table 1. Part numbering

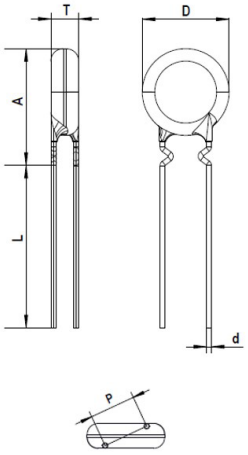
ICL xxy D xx a b c z

Family name	ICL
Resistance	xxy= x.x * 10^{y} Ω ex: 102 = 1.0 * 10^{2} = 100 Ω
Chip shape code	D= Disk
Body size in mm (05= 5 mm, 15= 15 mm)	05, 07, 09, 11, 13, 15, 18, 20, 25, 30
Resistance tolerance code	M = ±20%
Lead style code	I= Inner lead
Pin pitch code	B = 5.0 mm, C = 7.5 mm
Custom (optional)	Different lead dimensions

See electrical specification table for option details

Mechanical parameters- mm

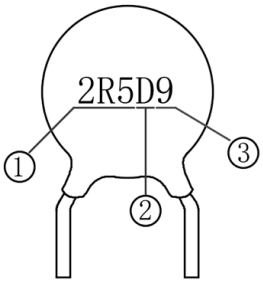
I (Inner lead)



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 @ +25°C R_{25} (Ω)	Resistance tolerance (Part number code)	Lead style (Part number code)	Pin pitch (Part number code)	Imax (A)	Beta value (25/50) (K)	CT, maximum permissible capacitance at 240 Vac (µF)	Dissipation factor (mW/°C)	Thermal time constant T (second)	Operation temperature TL~TU(°C)
ICL300D05abc	3	±20% (M)	Inner lead (I)	5.0 mm (B) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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 @ +25°C R_{25} (Ω)	Resistance tolerance (Part number code)	Lead style (Part number code)	Pin pitch (Part number code)	Imax (A)	Beta value (25/50) (K)	CT, maximum permissible capacitance at 240 Vac (µF)	Dissipation factor (mW/°C)	Thermal time constant T (second)	Operation temperature TL~TU(°C)
ICL250D09abc	2.5	±20% (M)	Inner lead (I)	5.0 mm (B) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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 @ +25°C R_{25} (Ω)	Resistance tolerance (Part number code)	Lead style (Part number code)	Pin pitch (Part number code)	Imax (A)	Beta value (25/50) (K)	CT, maximum permissible capacitance at 240 Vac (µF)	Dissipation factor (mW/°C)	Thermal time constant T (second)	Operation temperature TL~TU(°C)
ICL800D11abc	8	±20% (M)	Inner lead (I)	5.0 mm (B) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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 @ +25°C R_{25} (Ω)	Resistance tolerance (Part number code)	Lead style (Part number code)	Pin pitch (Part number code)	Imax (A)	Beta value (25/50) (K)	CT, maximum permissible capacitance at 240 Vac (µF)	Dissipation factor (mW/°C)	Thermal time constant T (second)	Operation temperature TL~TU(°C)
ICL400D13abc	4	±20% (M)	Inner lead (I)	5.0 mm (B) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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 @ +25°C R_{25} (Ω)	Resistance tolerance (Part number code)	Lead style (Part number code)	Pin pitch (Part number code)	Imax (A)	Beta value (25/50) (K)	CT, maximum permissible capacitance at 240 Vac (µF)	Dissipation factor (mW/°C)	Thermal time constant T (second)	Operation temperature TL~TU(°C)
ICL200D15abc	2	±20% (M)	Inner lead (I)	5.0 mm (B) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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 @ +25°C R_{25} (Ω)	Resistance tolerance (Part number code)	Lead style (Part number code)	Pin pitch (Part number code)	Imax (A)	Beta value (25/50) (K)	CT, maximum permissible capacitance at 240 Vac (µF)	Dissipation factor (mW/°C)	Thermal time constant T (second)	Operation temperature TL~TU(°C)
ICL102D15abc	100	±20% (M)	Inner lead (I)	5.0 mm (B) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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 @ +25°C R_{25} (Ω)	Resistance tolerance (Part number code)	Lead style (Part number code)	Pin pitch (Part number code)	Imax (A)	Beta value (25/50) (K)	CT, maximum permissible capacitance at 240 Vac (µF)	Dissipation factor (mW/°C)	Thermal time constant T (second)	Operation temperature TL~TU(°C)
ICL181D18abc	18	±20% (M)	Inner lead (I)	5.0 mm (B) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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 @ +25°C R_{25} (Ω)	Resistance tolerance (Part number code)	Lead style (Part number code)	Pin pitch (Part number code)	Imax (A)	Beta value (25/50) (K)	CT, maximum permissible capacitance at 240 Vac (µF)	Dissipation factor (mW/°C)	Thermal time constant T (second)	Operation temperature TL~TU(°C)
ICL161D20abc	16	±20% (M)	Inner lead (I)	5.0 mm (B) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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 @ +25°C R_{25} (Ω)	Resistance tolerance (Part number code)	Lead style (Part number code)	Pin pitch (Part number code)	Imax (A)	Beta value (25/50) (K)	CT, maximum permissible capacitance at 240 Vac (µF)	Dissipation factor (mW/°C)	Thermal time constant T (second)	Operation temperature TL~TU(°C)
ICL181D25abc	18	±20% (M)	Inner lead (I)	5.0 mm (B) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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) 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.

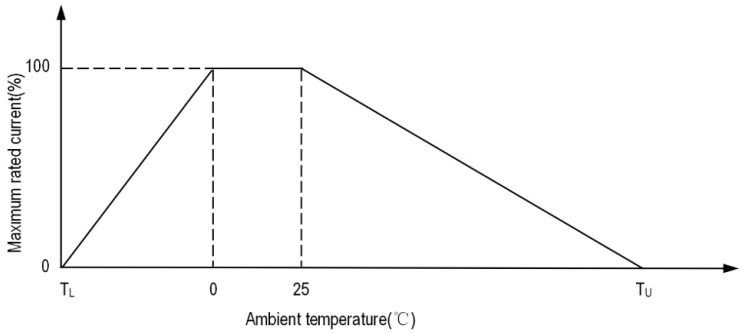
Part number	Zero power resistance @ +25°C R_{25} (Ω)	Resistance tolerance (Part number code)	Lead style (Part number code)	Pin pitch (Part number code)	Imax (A)	Beta value (25/50) (K)	CT, maximum permissible capacitance at 240 Vac (µF)	Dissipation factor (mW/°C)	Thermal time constant T (second)	Operation temperature TL~TU(°C)
ICL151D30abc	15	±20% (M)	Inner lead (I)	5.0 mm (B) 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) 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) 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) 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)

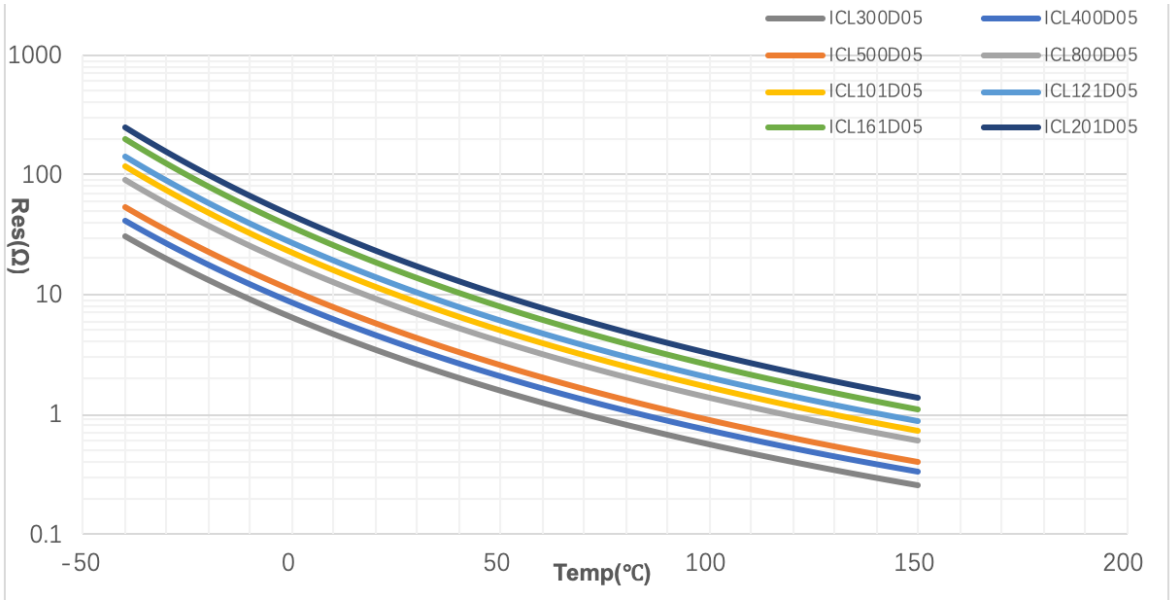
Derating curve

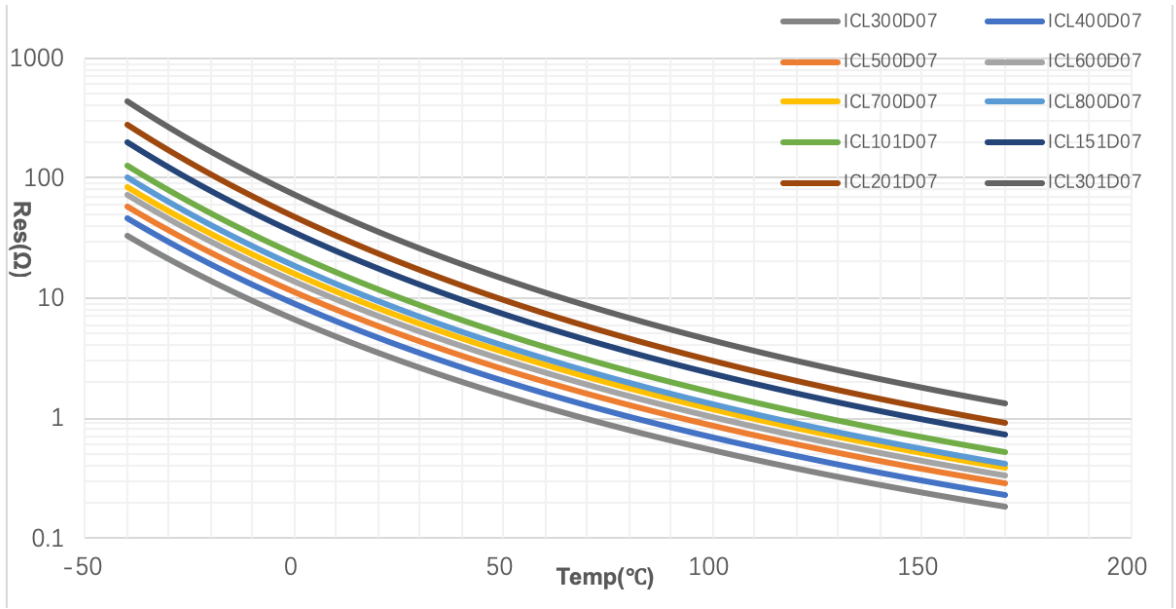


Remarks: T_L=Minimum temperature(℃)
T_U=Maximum temperature(℃)

Temperature characteristics

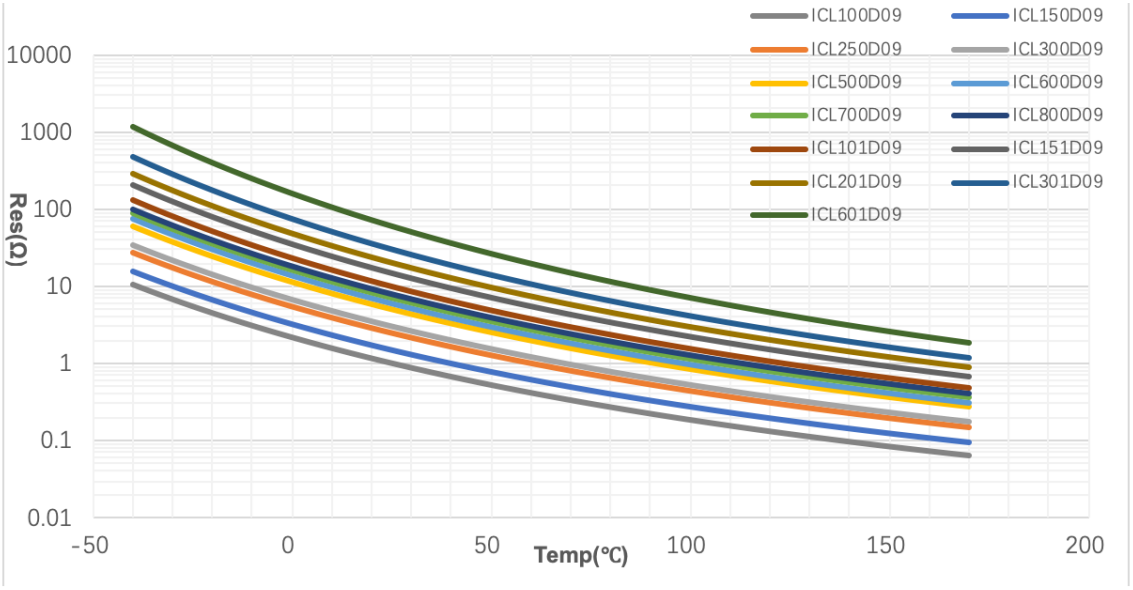
R-T curve

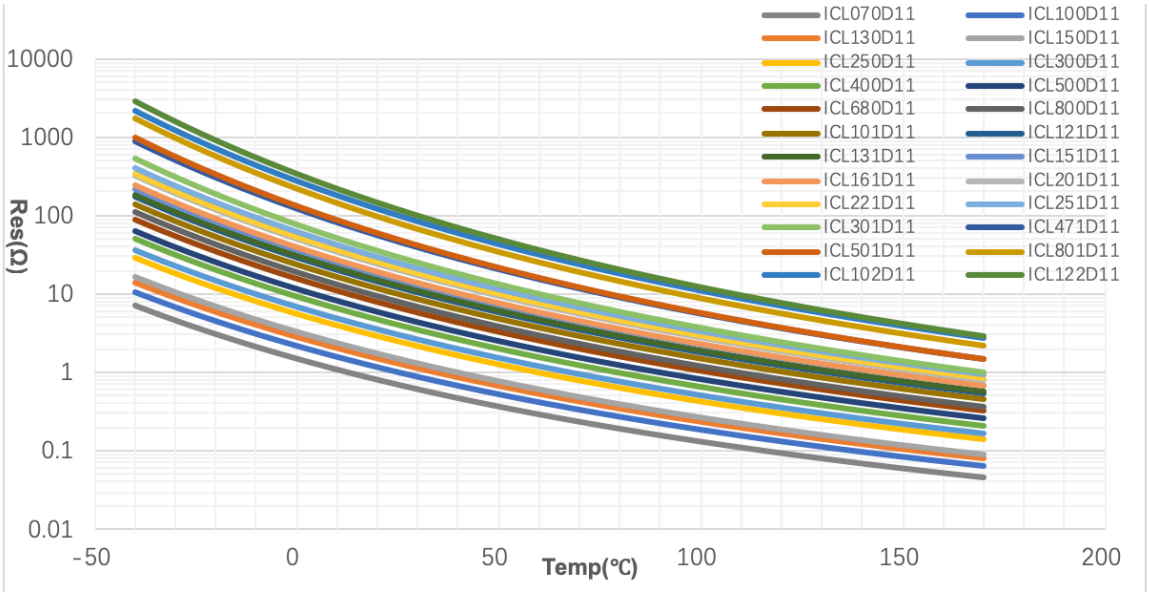




Temperature characteristics

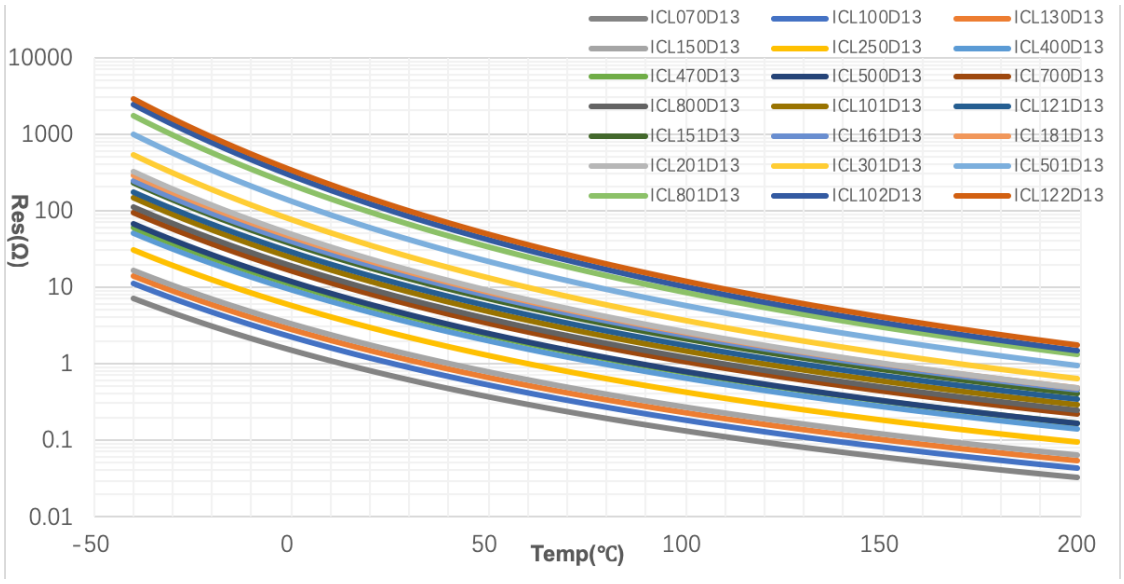
R-T curve

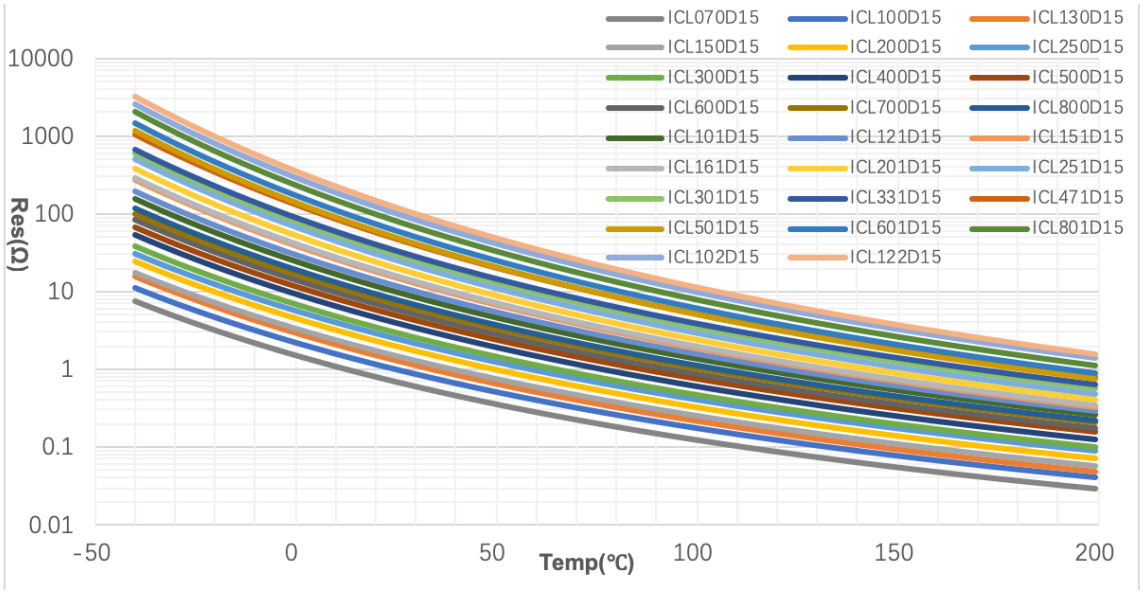




Temperature characteristics, cont.

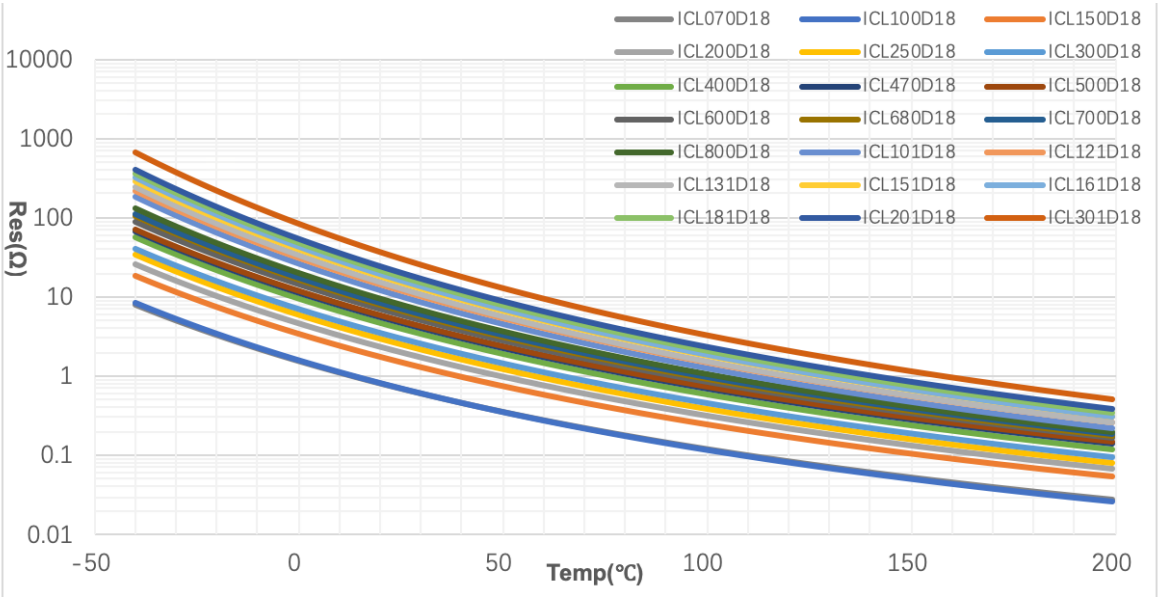
R-T curve

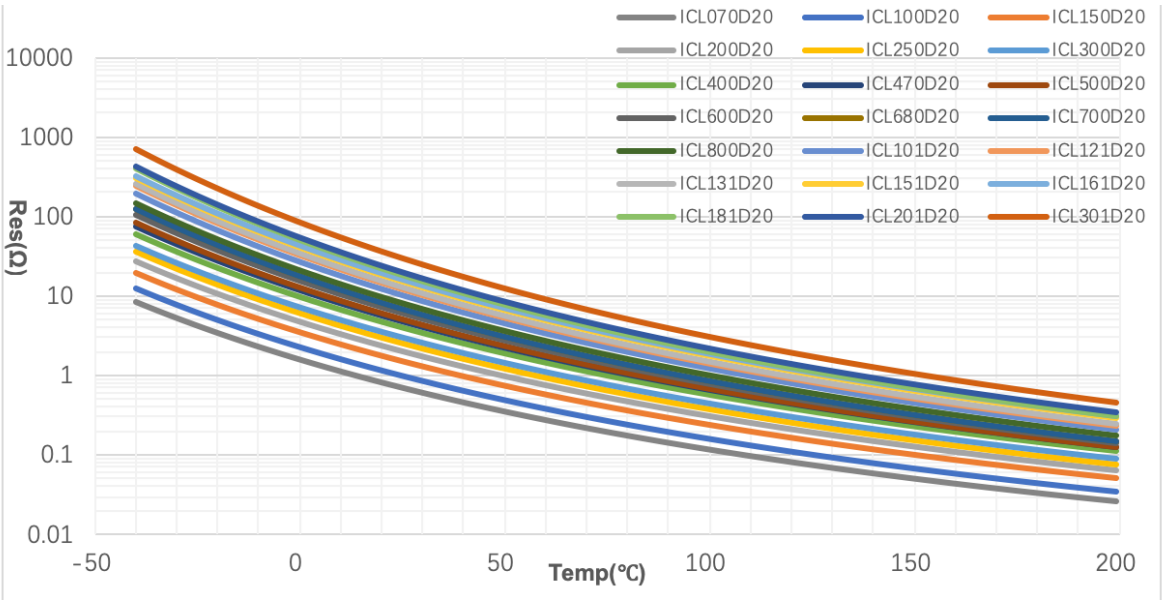




Temperature characteristics

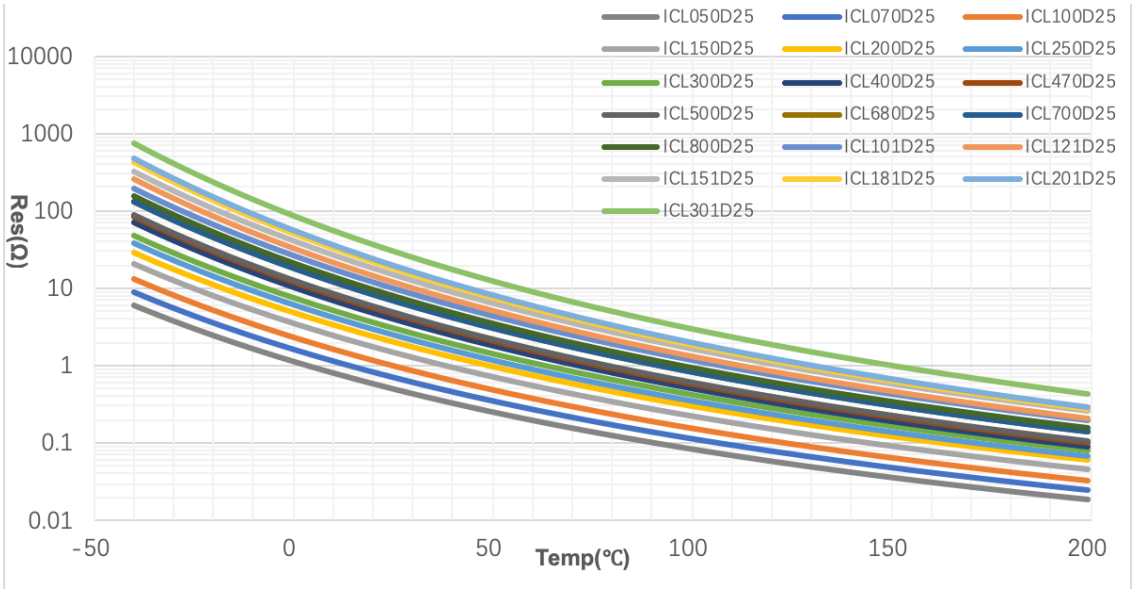
R-T curve

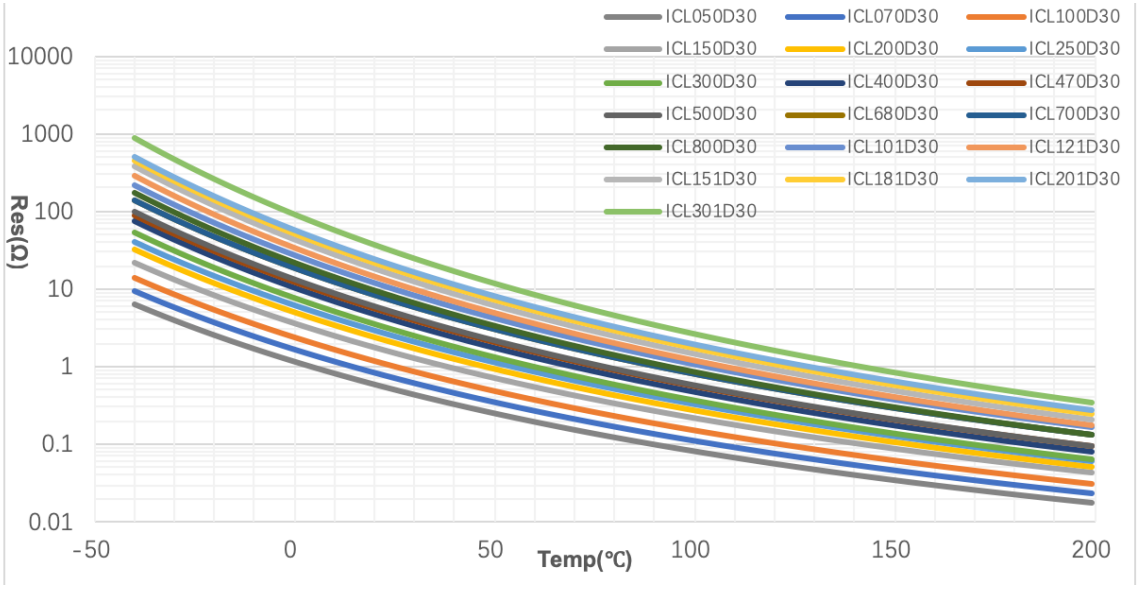




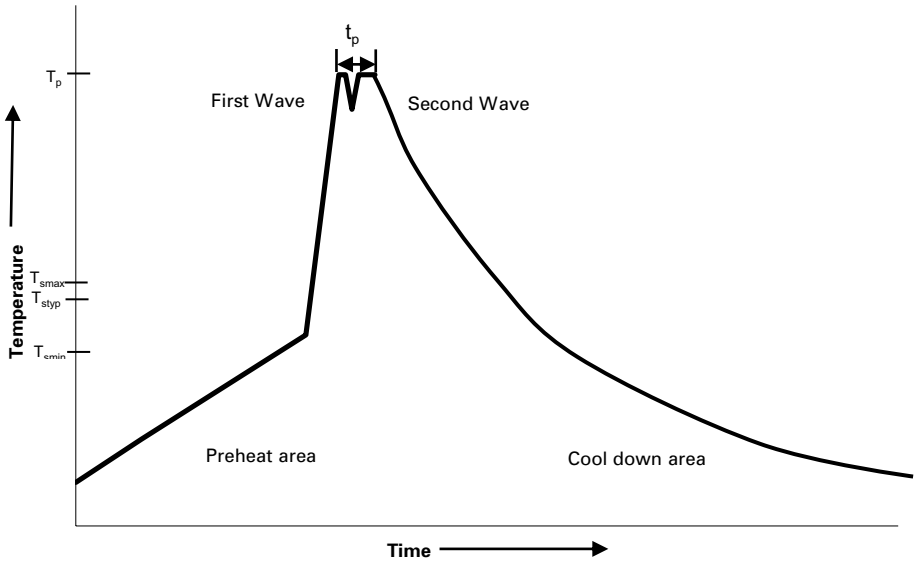
Temperature characteristics

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
Δ 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 5 seconds max each wave	10 seconds max 5 seconds max each wave
Ramp-down rate		~ 2 K/s min ~3.5 K/s typ ~5 K/s max	~ 2 K/s min ~3.5 K/s typ ~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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