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1.Scope

This specification applies to the HDRC2012 series of Common Mode Choke Coil.

2.Product Identification

HDRC	2012	M	900	T	-	2	-	LF
①	②	③	④	⑤		⑥		⑦

① Series name (WireWound Chip Common Mode Choke Coil)

② Dimensions L×W：（2012=2.0×1.2 mm）

③ Material code （M For Standard， L For Larger Current ）

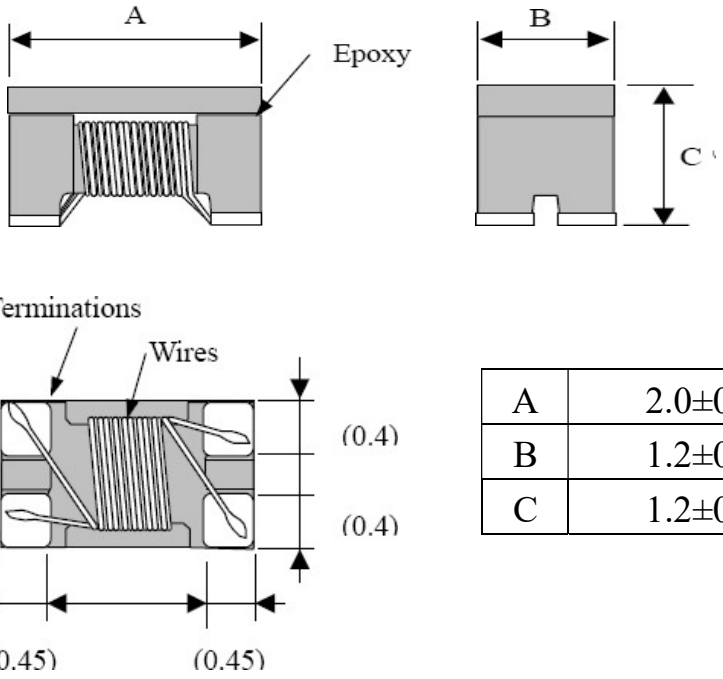
④ Impedance：（ Example 900=90Ω, 121=120Ω ）

⑤ Packing Style：（T: Taping B: Bulk）

⑥ Number of signal lines

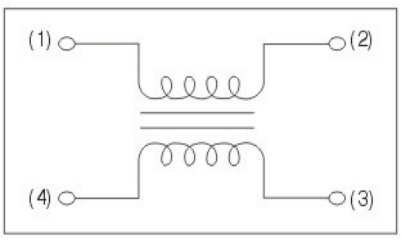
⑦ Lead Free

3.Appearance, Dimensions



A	2.0±0.2
B	1.2±0.2
C	1.2±0.2

4.Electrical Schematic



5.Testing Conditions

<Unless otherwise specified>
Temperature: Ordinary Temperature 5 to 35℃
Humidity: Ordinary Humidity 25 to 85% (RH)

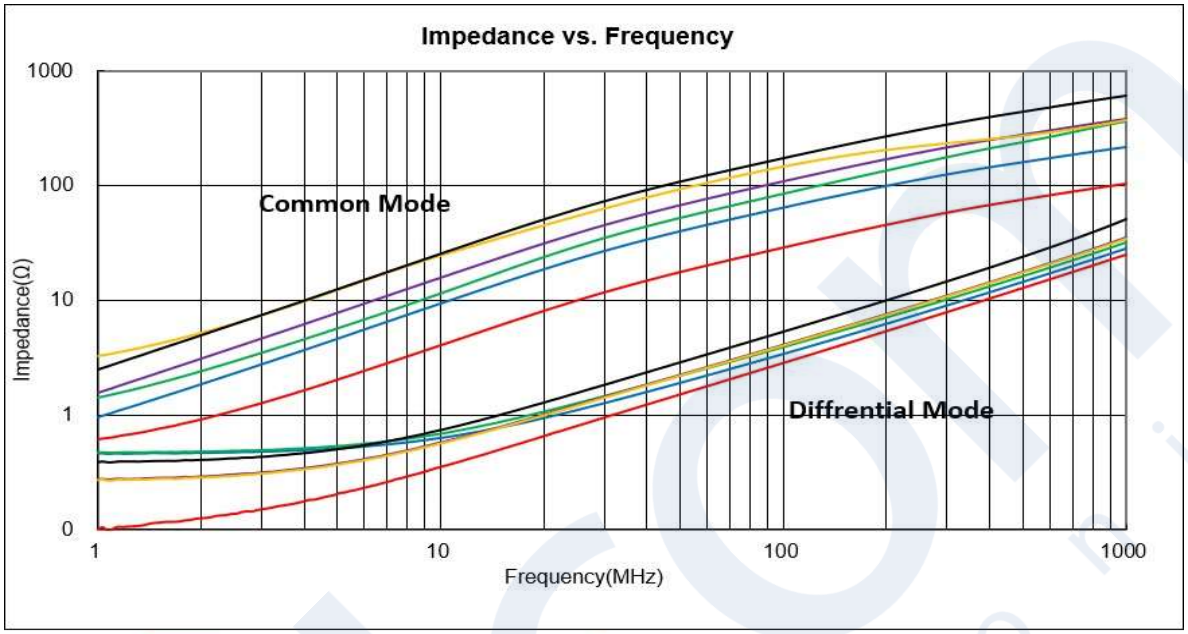
<In case of doubt>
Temperature: 20±2℃
Humidity: 60 to 75% (RH)
Atmospheric Pressure: 86 to 106 kPa

6.Rating

HONGDA Part NO.	Common mode impedance@100MHz	Max. DC Resistance	Max. Rate Current	Rate Voltage	Min. Insulation Resistance
Units	Ω	Ω	mA	V	MΩ
HDRC2012M300T-2-LF	30±25%	0.20	450	50	10
HDRC2012M670T-2-LF	67±25%	0.25	400	50	10
HDRC2012M900T-2-LF	90±25%	0.30	370	50	10
HDRC2012M121T-2-LF	120±25%	0.30	370	50	10
HDRC2012M151T-2-LF	150±25%	0.30	370	50	10
HDRC2012M181T-2-LF	180±25%	0.35	330	50	10
HDRC2012M201T-2-LF	200±25%	0.35	330	50	10
HDRC2012M261T-2-LF	260±25%	0.40	300	50	10
HDRC2012M371T-2-LF	370±25%	0.45	280	50	10
HDRC2012M501T-2-LF	500±25%	0.55	200	50	10
HDRC2012M801T-2-LF	801±25%	0.70	180	50	10
HDRC2012M102T-2-LF	102±25%	0.80	150	50	10
HDRC2012L900T-2-LF	90±25%	0.19	400	50	10
HDRC2012L121T-2-LF	120±25%	0.22	370	50	10

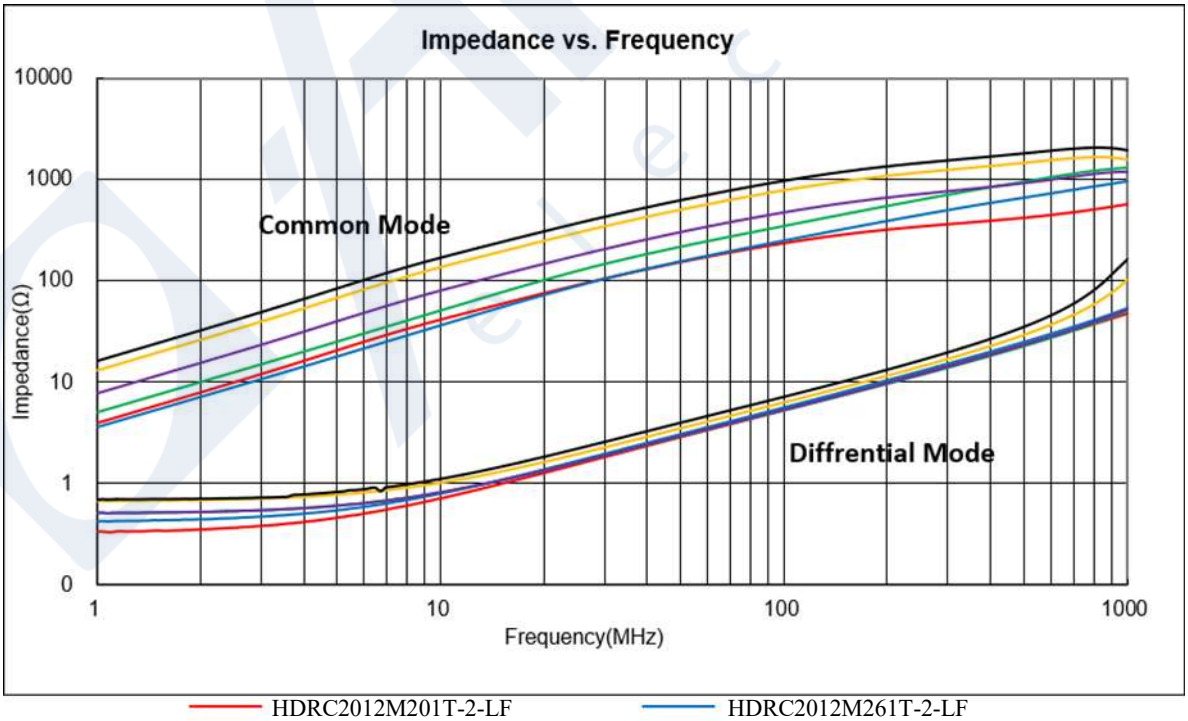
7. Impedance Frequency Characteristics (Typical)

HDRC2012M TYPE (30~180Ω)



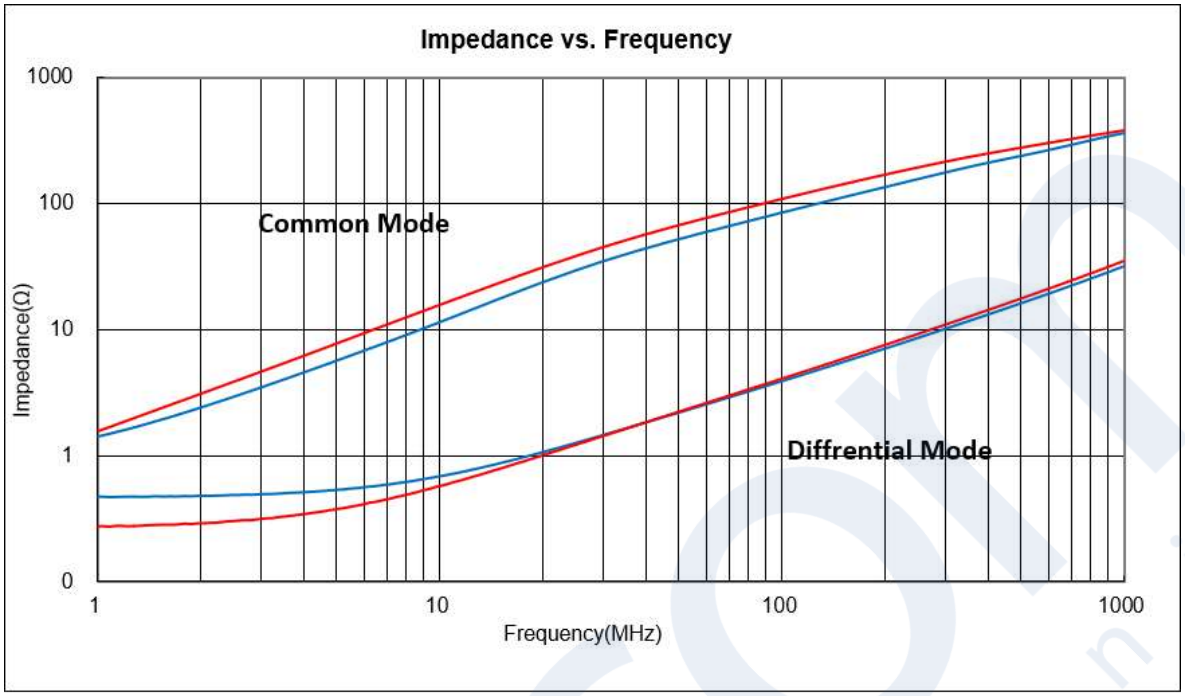
HDRC2012M300T-2-LF
HDRC2012M670T-2-LF
HDRC2012M900T-2-LF
HDRC2012M121T-2-LF
HDRC2012M151T-2-LF
HDRC2012M181T-2-LF

HDRC2012 TYPE (200~1000Ω)



HDRC2012M201T-2-LF
HDRC2012M261T-2-LF
HDRC2012M371T-2-LF
HDRC2012M501T-2-LF
HDRC2012M801T-2-LF
HDRC2012M102T-2-LF

HDRC2012(L) TYPE (90~120Ω)

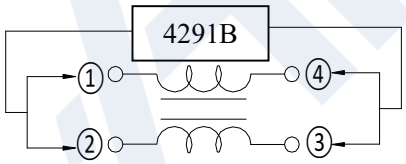


HDRC2012M900T-2-LF HDRC2012M121T-2-LF

8.Test Equipment

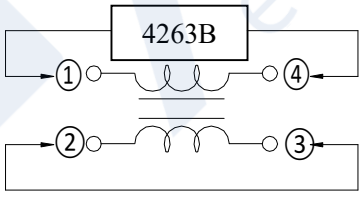
(1) Common mode impedance

Measured by using 4291B RF impedance/material analyzer



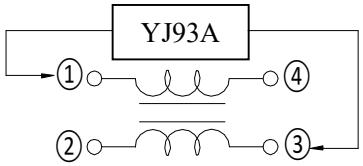
(2) DC resistance

Measured by using 4263B LCR meter

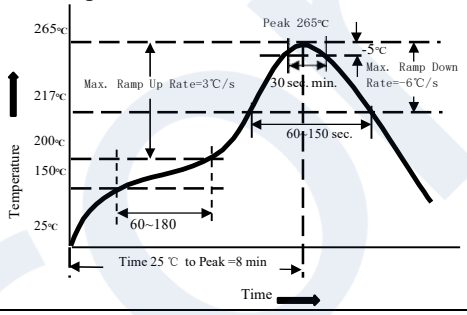
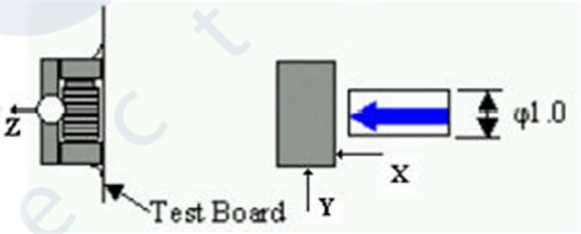
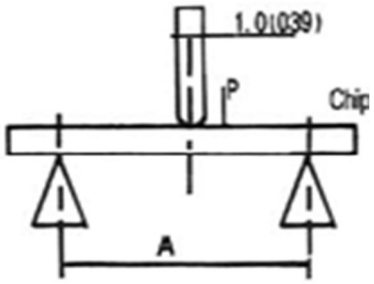


(3) Insulation resistance

Measured by using YJ93A Standard DC voltage source.



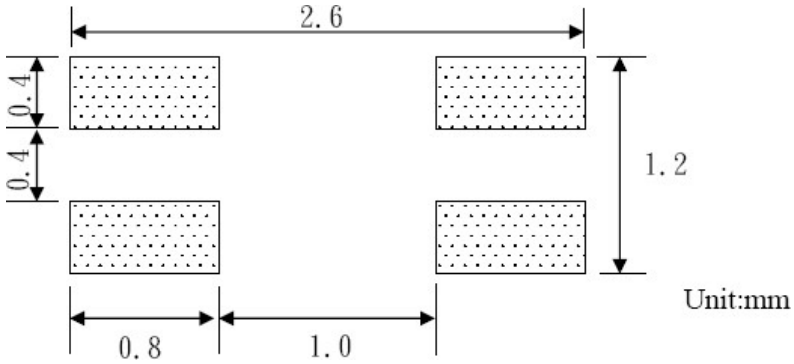
9.Reliable Performance

NO.	Item	Specifications	Test Methods
1	Solder-Ability	Terminal area shall be at least 95% covered.	Solder: 96.5% Sn +3.0%Ag+0.5%Cu Temperature: 245℃±5℃ Flux: rosin Duration: 3.5±0.5s
2	Leaching Resistance	1）No case deformation or change in appearance. 2）｜ΔZ/Z0｜≤20%	①The peak temperature: 260+5/-0℃. ②Reflow:2 times. ③Temperature curve is as below: 
3	Terminal Strength	The terminal and body should be no damage	Solder a chip to test substrate, and then laterally apply a load 5N in the X, Y and Z directions 
4	Bending Strength	No mechanical damage should be noticed	Soldering a chip to a test subatrate, bend the substrate by 2mm and then return 

NO.	Item	Specifications	Test Methods
5	Vibration	1）No mechanical damage shall be noticed 2）｜ΔZ/Z0｜≤20%	Frequency: 10 to 55Hz Amplitude: 1.5mm Direction and time :X, Y and Z directions for 2 hours each.
6	Humidity resistance		a. Test condition Temp.:85±2℃ Humidity: 90%~95% Test time: 1000±24 h b. Measurement method: The component should be stabilized at normal condition for (24±2) hours before test.
7	High temperature resistance		a. Test condition Applied rated current. Temp.: 85±2℃ Test time: 1000±24 h b. Measurement method: The component should be stabilized at normal condition for (24±2) hours before test.
8	Low temperature resistance		a. Test condition Temp.: -40±2℃ Test time: 1000±24 h b. Measurement method: The component should be stabilized at normal condition for (24±2) hours before test.
9	Thermal shock (Temperature cycle)		a. Test condition 1) Temp.: -40℃, time: 30±3min 2) Temp.: +85℃, time: 30±3min 5 cycles b. Measurement method: The component should be stabilized at normal condition for (24±2) hours before test.

10. Recommended Soldering Conditions

(1) Recommended Footprint

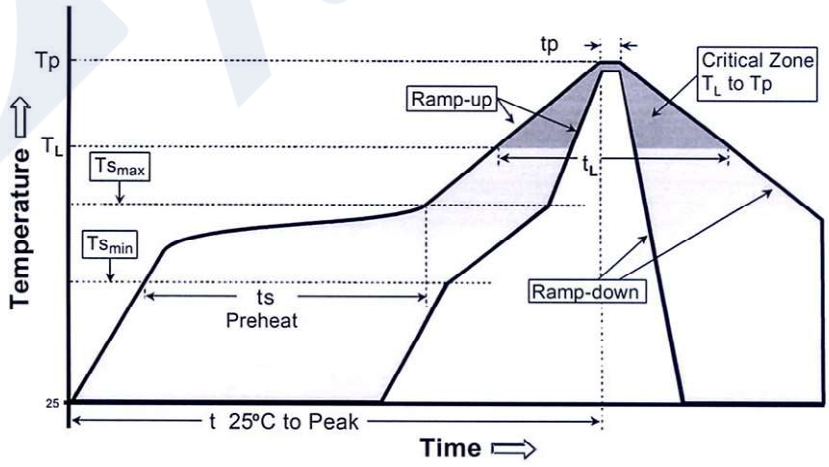


(2) Recommended Reflow soldering conditions

Profile Feature	Lead-Free Assembly
Average Ramp-Up Rate (Tsmax to Tp)	3℃ /second max.
Preheat – Temperature Min (Tsmin) – Temperature Max (Tsmax) – Time (tsmin to tsmax) min to tsmax)	150 ℃ 200 ℃ 60-180 seconds
Time maintained above: – Temperature (TL) – Time (tL)	217 ℃ 60-150 seconds
Peak/Classification Temperature (Tp) Peak/Classification Time (Tp)	255 ℃ 30 seconds max.
Time within 5 °C of actual Peak Temperature (tp)	20-40 seconds
Ramp-Down Rate	6 ℃/second max.
Time 25 °C to Peak Temperature	8 minutes max.

Note 1: All temperatures refer to topside of the package, measured on the package body surface.

Standard soldering profile



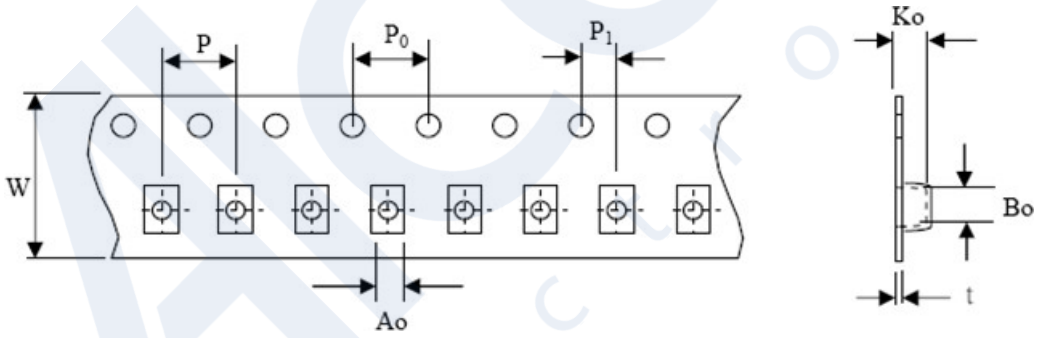
(3) Reworking with soldering iron

The following conditions must be strictly followed when using a soldering iron.

Pre-heating	150℃, 1 minute
Tip temperature	350℃ max
Soldering iron output	30w max
End of soldering iron	Φ 1mm max
Soldering time	5 seconds max

11.Packaging

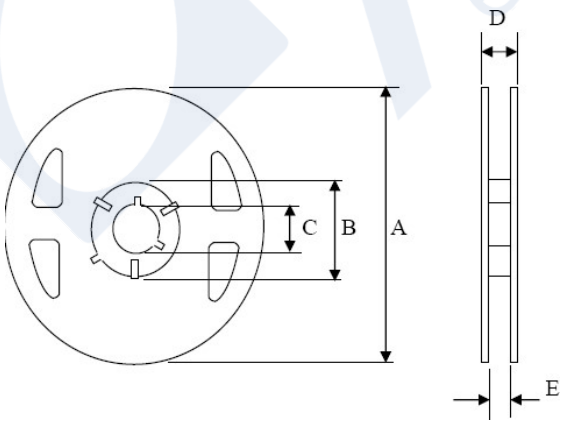
(1) Dimensions of Tape:



(Dimensions in mm; Tolerance : ±0.1)

Symbol	W	P	P_0	P_1	A_0	B_0	K_0	t
Dimension	8.0	4.0	4.0	2.0	1.5	2.25	1.35	0.24

(2) Dimensions of Reel



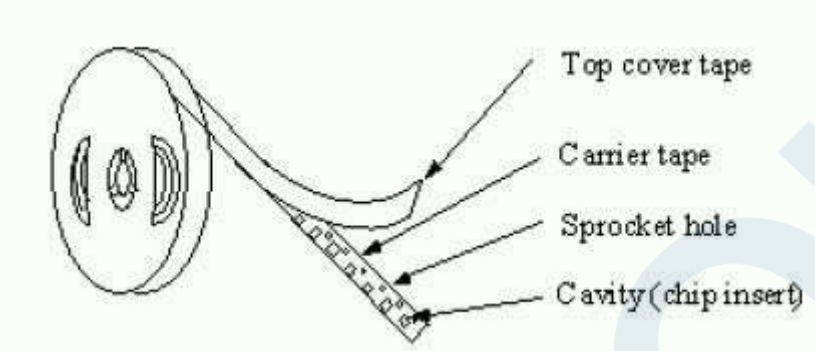
Unit: mm

A	180
B	60
C	13
D	14.4
E	8.4

(3) Pulling strength of tapes:

Carrier tape	10N or more (1kgf or more)
Cover tape	5N or more (1kgf or more)

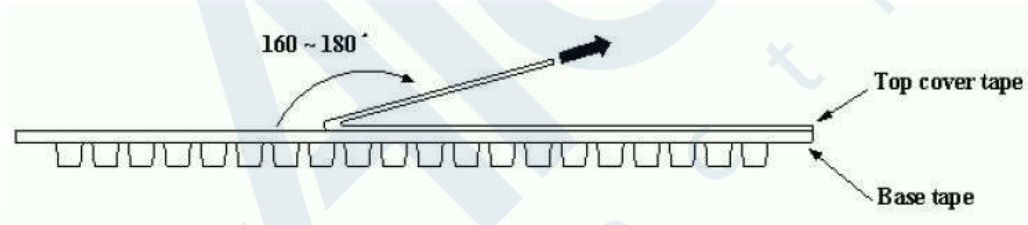
(4) Taping figure and drawing direction:



Tape material: Base tape: Polystyrene Cover tape: polyester

(5) Peeling strength of cover tape:

Cover tape	0.10~1.0N



Test condition:

Temperature: 5~35℃ Humidity: 45~85%

(6) Packing quantity

Φ180 mm reel T type: 2000pcs/reel

12. Products Storage

a. The solder ability of the external electrode may be deteriorated if packages are stored where they are exposed to high temperature or high humidity. Besides, to ensure packing material's good state, packages must be stored at -10℃ to 40℃ and 70% RH.
b. The solder ability of the external electrode may be deteriorated if packages are stored where they are exposed to dust of harmful gas (e.g. HCl, sulfurous gas of H_2S).
c. Packaging materials may deform if packages are exposed directly to sunlight.
d. Minimum packages, such as polyvinyl heat-seal packages shall not be opened until they are used. If opened, use the reels as soon as possible.
e. Solderability shall be guaranteed for 12 months from the date of delivery on condition that they are stored at the environment specified in specification. For those parts, which passed more than the time shall be checked solder-ability before use.