Data Sheet

- ITEM : Multilayer Chip Varistor

- CONDITION :
  1. _____
  2. _____
  3. _____
  4. _____

1. Scope

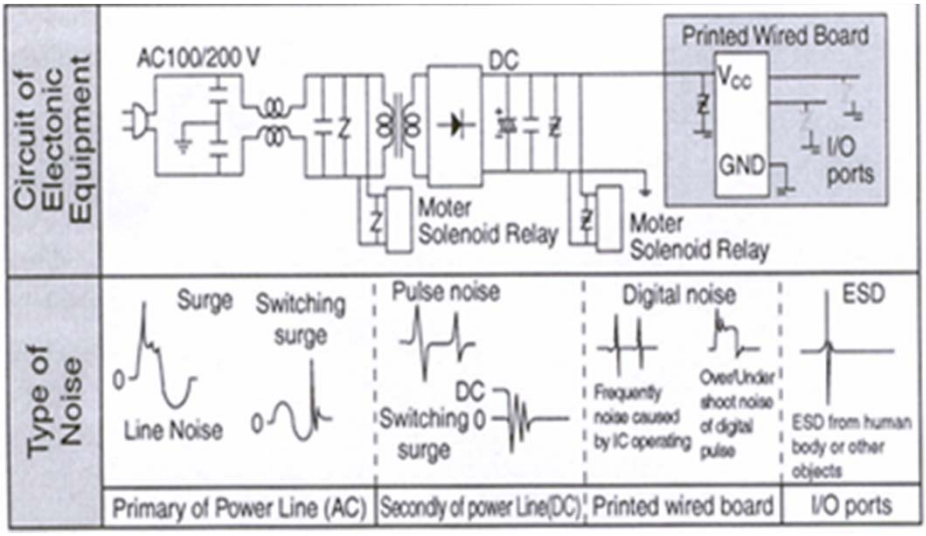
• This specification applies to chip varistors for use in electric equipment.

• It can be possible to change the specification under document agreement between design engineers of each party

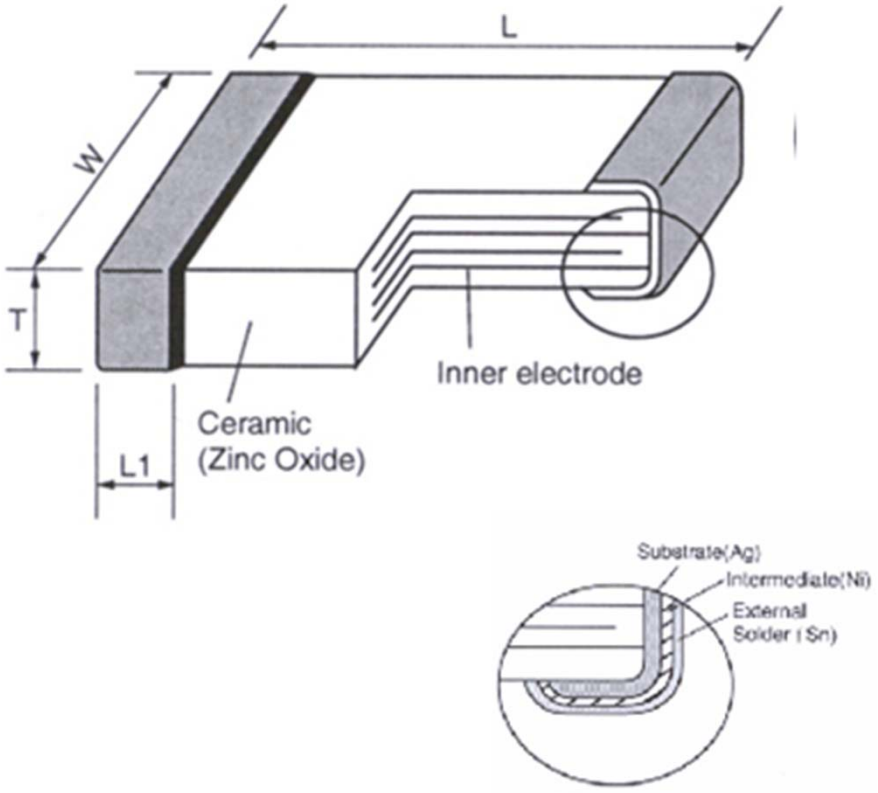
2. Features

- The ICT chip varistors provide excellent application reliability as a result of their Ag base terminal electrodes with Ni-Sn electroplating

3. Applications



4. Configuration and Dimensions



Unit : mm

CODE	DIMENSION			
	L	W	T	L1
03	0.6±0.05	0.3±0.03	0.3±0.03	0.15+0.05
05	1.0 ±0.05	0.5 ±0.05	0.5 ±0.05	0.2 +0.15/-0.1
10	1.6 ±0.1	0.8 ±0.1	0.8 ±0.1	0.3 ± 0.2

5. Part Number Code

ICVL 05 05 101 V 150 F R

① ② ③ * ④ ⑤ ⑥ ⑦

***Capacitance**: 101→10 ×10^1 pF →100pF
600→60 ×10^0 pF→ 60pF

① SERIES NAME

CODE	PRODUCT NAME
ICVN	Normal type chip varistor
ICVS	Special type chip varistor
ICVL	High speed type chip varistor

② SIZE DESIGNATOR

CODE	SIZE(mm)
03	0.6 × 0.3
05	1.0 × 0.5
10	1.6 × 0.8
21	2.0 × 1.25

③ WORKING VOLTAGE

CODE	VOLTAGE (VDC)	CODE	VOLTAGE (VDC)
03	3.3	18	18.0
05	5.6	26	26.0
09	9.0	30	30.0
12	12.0	48	48.0
14	14.0	60	60.0

④ ENERGY

CODE	ENERGY (J)	CODE	ENERGY (J)
A	0.1	H	1.2
C	0.3	J	1.5
D	0.4	V	0.02
F	0.7	X	0.05
G	0.9	Y	0.005

⑤ CLAMPING VOLTAGE

CODE	VOLTAGE (V)	CODE	VOLTAGE (V)
100	10.0	500	50.0
150	15.5	560	56.0
200	20.0	580	58.0
250	25.0	620	62.0
300	30.0	650	65.0
350	35.0	101	100.0
400	40.0	121	120.0

⑥ TERMINATION

CODE	TYPE
F	Electroplate (Pb-free)

⑦ PACKING TYPE

CODE	TYPE
R	Tape & Reel pack

6. Nominal Specifications

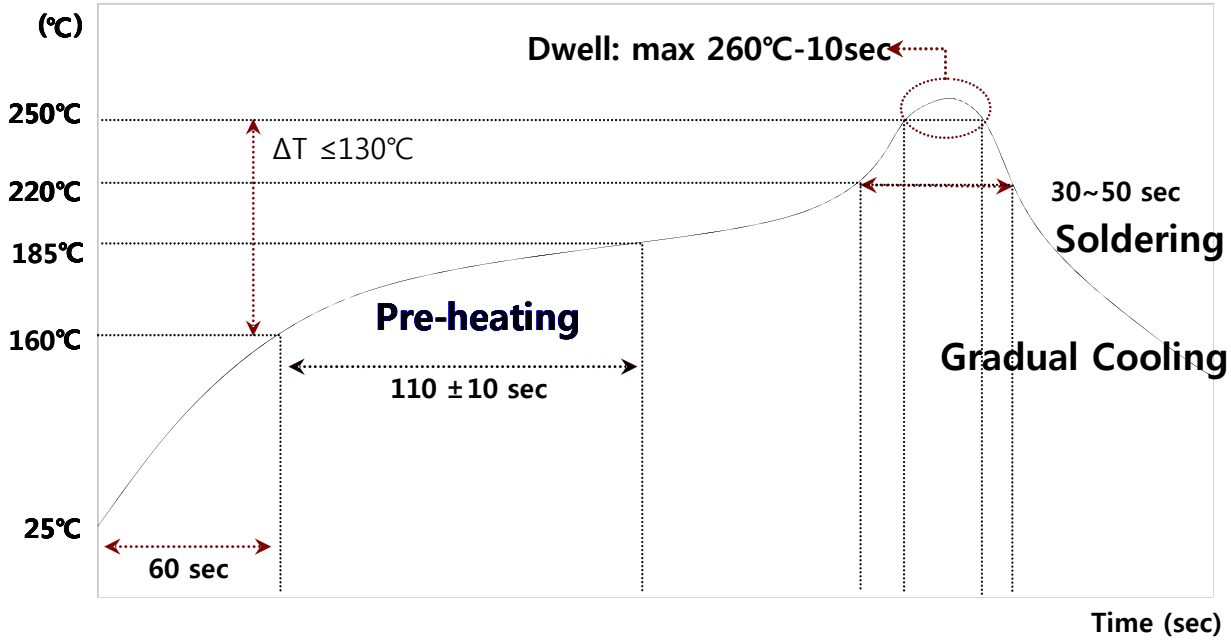
Chip Size	ICT Part Number	Working Voltage	Leakage Current	Varistor Voltage	Clamping Voltage	Peak Current	Capacitance
	symbol	-	I_L	V_B	V_C	I_{peak}	C
	Units	Volts	μA	Volts	volts (typ.)	Amp (max.)	pF (typ.)
	Test Condition	-	Working Voltage	1mA DC	8/20μs	8/20μs	0.5Vrms
0603	ICVS0318100	18	<20	24~36	45	10	10 @1kHz
	ICVS0318150	18		24~36	45	10	15 @1kHz
	ICVS0305330	5.6		9~16	15	10	33 @1kHz
	ICVS0305500	5.6		9~16	50	10	50 @1kHz
1005	ICVL0518030	18	<20	100~160	50	3	3@1MHz
	ICVL0518050	18		100~160	50	3	5@1MHz
	ICVL0518100Y500	18		24~36	50	3	10@1MHz
	ICVS0518150	18		24~36	50	3	15@1kHz
	ICVS0518270	18		24~36	50	15	27@1MHz
	ICVL0518400V500	18		24~36	50	15	40@1MHz
	ICVS0530450	30		36~48	50	30	45@1kHz
	ICVS0505500	5.6		9~16	20	10	50@1kHz
	ICVL0505600V150	5.6		9~16	20	15	60@1MHz
	ICVL0505101V150	5.6		7.2~10.8	15.5	15	100@1MHz
	ICVS0514X350	14		18~24	35	20	120@1MHz
	ICVS0505201	5.6		9~16	20	20	200@1kHz
	ICVN0505X150	5.6		7.2~10.8	15.5	20	360@1MHz
	ICVS0505481	5.6		6.8~10.2	15.5	20	480@1kHz
	ICVS0505531	5.6		7.2~10.8	30	20	530@1kHz
1608	ICVL1018011	18	<20	46~65	50	3	1.1@1MHz
	ICVL1018100Y500	18		24~36	50	3	10@1MHz
	ICVS1030100	30		40~60	65	3	10@1MHz
	ICVL1018101A400	18		24~36	45	30	100@1MHz
	ICVN1026A580	26		31~41	45	30	160@1MHz
	ICVS1005201	5.6		9~16	64	25	200@1MHz
	ICVN1014A300	14		16.8~25.2	30	30	424@1MHz
	ICVN1009A200	9		9~16	20	30	550@1MHz
	ICVN1005A150	5.6		7.2~10.8	15.5	30	825@1MHz

TERMINOLOGY

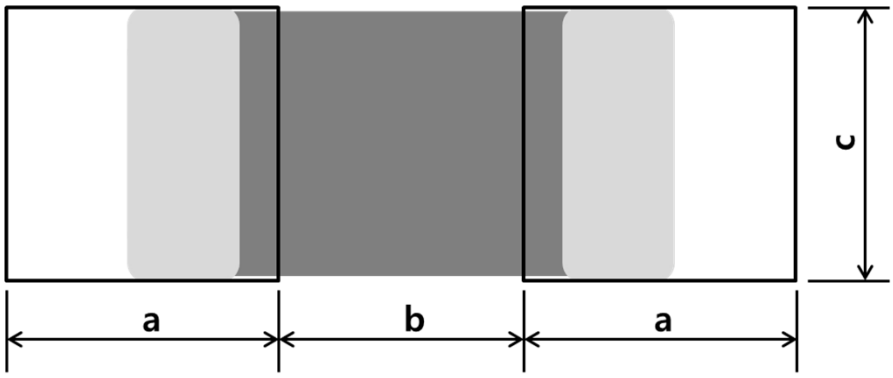
- I_L : Maximum steady state DC operating voltage the varistor can maintain and not exceed 20μA leakage current.
- V_B : Voltage across the device measured at 1mA DC current
- V_C : Maximum peak voltage across the varistor measured at a specified pulse and waveform
  Pulse Current : 1A , Waveform : 8/20μs
- Ipeak : Maximum peak current which may be applied with the specified waveform without device failure
- C : Device capacitance measured with zero volt bias 0.5Vrms and 1MHz or 1kHz

7. Reflow condition

7. 1 Recommended soldering profile (Lead-free condition)



7. 2 Recommended foot print

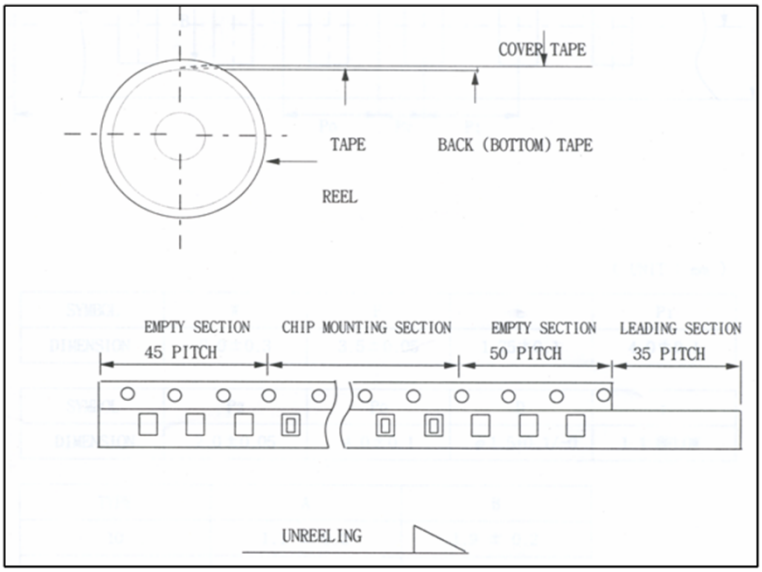


Unit : mm

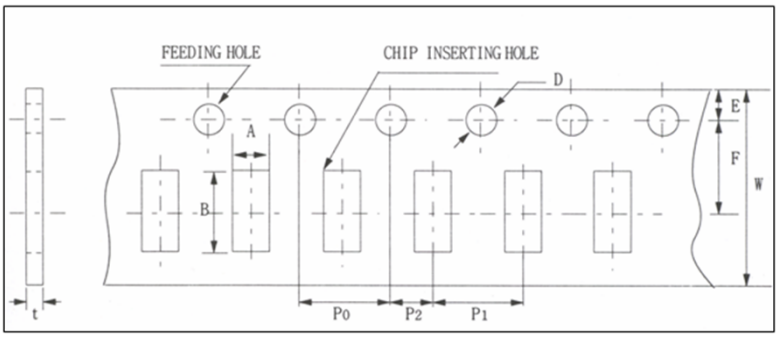
Size	a	b	c
0603	0.28~0.32	0.28~0.32	0.38~0.42
1005	0.4~0.6	0.4~0.5	0.4~0.6
1608	0.7~0.9	0.7~0.8	0.6~0.8

8. Packing Specification

8. 1 Taping figure



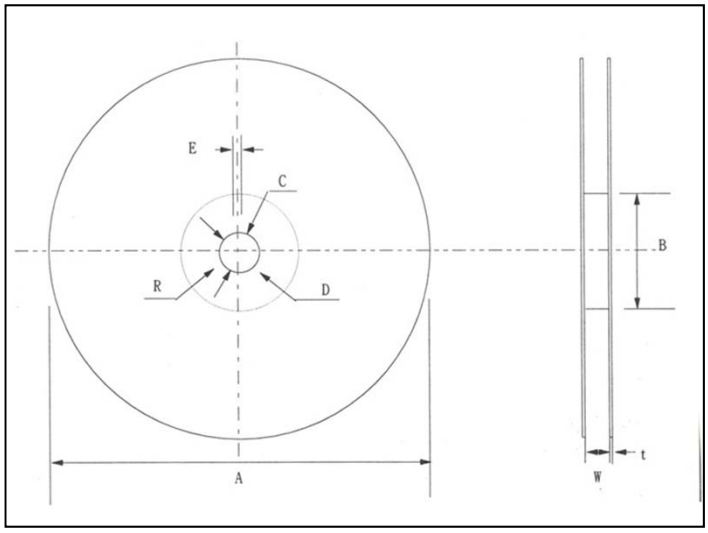
8. 2 Carrier tape and Dimensions



Unit : mm

SYMBOL		A	B	W	F	E	P_1	P_2	P_0	D	t
Dimension	0603	0.38 ±0.03	0.68 ±0.03	8.0 ±0.30	3.5 ±0.05	1.75 ±0.10	2.0 ±0.05	2.0 ±0.05	4.0 ±0.10	1.5 ±0.10	0.37 ±0.03
	1005	0.65 +0.05 -0.10	1.15 +0.05 -0.10				2.0 ±0.05				0.60 ±0.05
	1608	1.10 ±0.20	1.90 ±0.20				4.00 ±0.10				1.10 below

8. 3 Reel Dimensions



- Taping
  - · Standard Packing Quantity per Reel(ϕ178)
  - · Paper Tape :
    1. 0603, 1005 : 10,000 pcs /reel
    2. 1608 : 4,000 pcs /reel

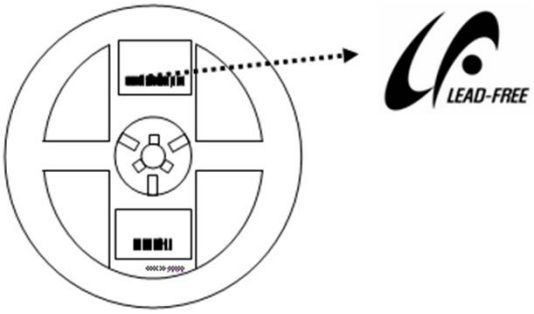
- Reel Dimensions

Unit : mm

CODE	A	B	C	D
DIMENSION	ϕ178±2	Min. ϕ50	ϕ13±0.5	ϕ21±0.8

CODE	E	W	t	R
DIMENSION	2.0±0.5	10±1.5	0.8±0.2	1.0

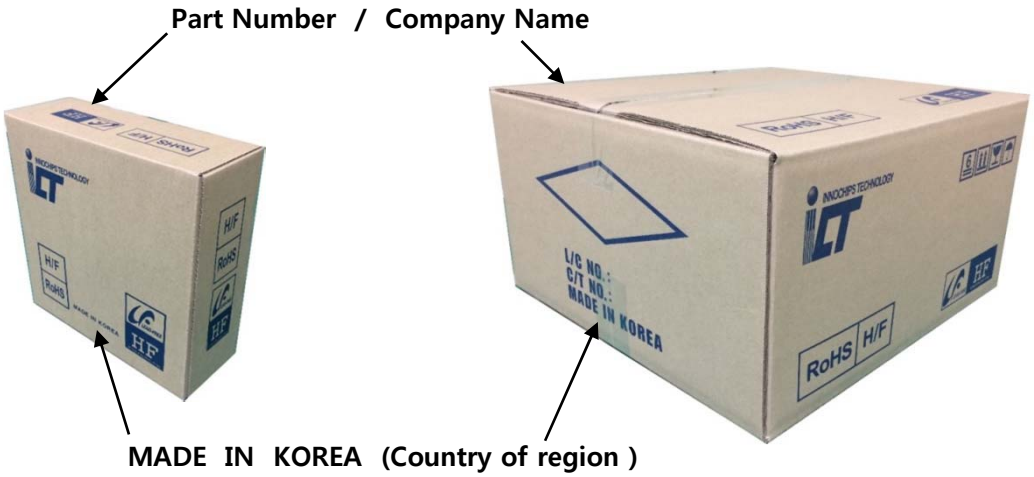
- · Reel material : Polystyrene
- · Label



INNOCHIPS TECHNOLOGY
P/N : ICVL0505101V150FR
L/N : D01084PA DATE : 150401
C/N : Q'TY : 10,000
SPEC : 1005, 5.6[Vdc], 100pF
MADE IN KOREA

P/N : Part Number
L/N : Lot Number
C/N : Company Number
SPEC : Size & Working Voltage & Capacitance
DATE : Date code
Q'TY : Quantity

9.4 Reel Packing



<SPQ Box> <PQ Box>

(1) Product box material : Card board
(2) 5 Reels in each SPQ Box
(3) PQ Box contains 10 SPQ Boxes (50 Reels)

Packaging box + Product weight

Size			S-box + 5reel		M-box + 5S-box		L-box + 10S-box	
Product	L x W x H(mm)		185 x 70 x 185		370 x 190 x 200		380 x 370 x 200	
	Size	weight(g) /1 unit	Total(g)	Chip(g)	Total(g)	Chip(g)	Total(g)	Chip(g)
Varistor	0603	0.00032	597	16	2984	79	5683	156
	1005	0.00140	651	70	3255	350	6227	700
	1608	0.00490	884	98	4420	490	8714	980