4- terminal high precision current sensor specification

1.Scope

This specification applies to the following 4-terminals high precision current sensor for use in electronic equipments.

2.Part number

RL3264SW4 － ＊＊＊M － F － T＊

① ② ③ ④

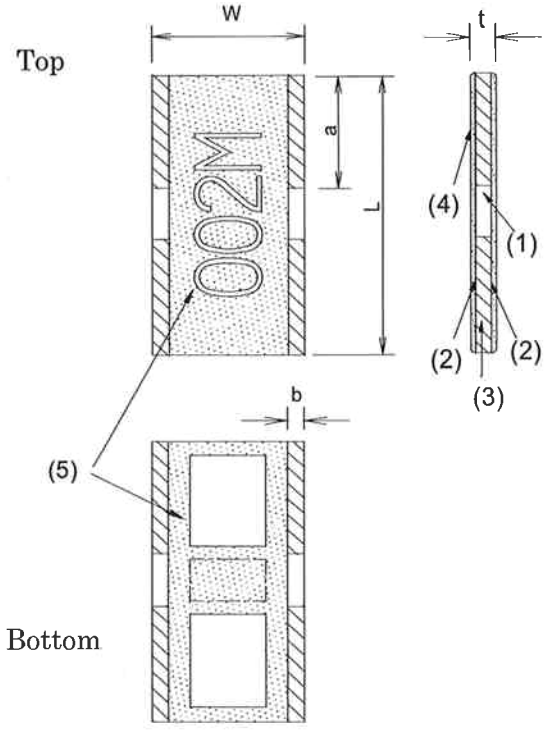
Explanation of Resistance Value
Eg.) 2 mΩ→002M

① Type
② Nominal resistance
③ Resistance tolerance
④ Packaging form （T1 = 1,000pcs/reel ,T5 = 5,000pcs/reel）

3.Structure

Metallized Ni-alloy resistor and electrode on ceramic substrate, covered with heat resistive epoxy resin.

4.Dimensions



(1)	Substrate	Alumina 96%
(2)	Resistor	Ni-alloy
(3)	Terminals	Sn-Pb or Sn(on Cu) Sn is free from lead.
(4)	Protection film	Heat resistive epoxy resin
(5)	Marking	Epoxy resin

Symbol	Dimensions(mm)
L	6.4±0.2
W	3.2±0.2
t	0.5±0.2
a	2.7±0.2
b	0.4±0.2

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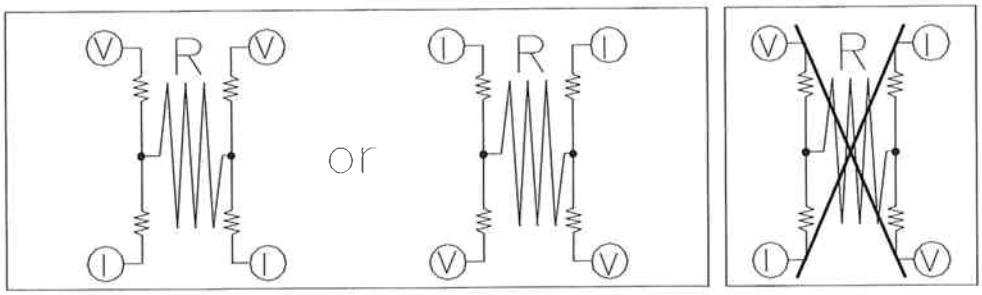
Marking

Top: Resistance value Eg.) 2 mΩ → 002M

Bottom: An alphabet that indicates manufacturing month, and quadrilaterals beside its both sides shall be marked.
Manufacturing month code reference is the annexed document 1 table 5 of JIS C 5201 - 1:1998

Autho	Check	Approval	Title	Description
K. Inomata Apr.07.2006	K. Nagano Apr.07.2006	A. Nakajima Apr.07.2006	RL3264SW4 4-terminals high precision current sensing	Specification Document # RL00-1126 Rev. 0 Yokohama Densi Seiko Co.,Ltd. Page 1/6

6.Schematic diagram



Ⓥ voltage−terminal　　Ⓘ current−terminal

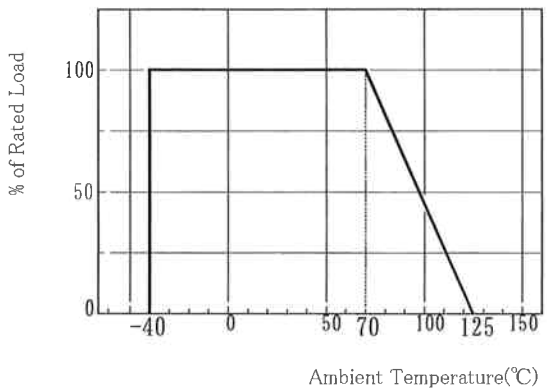
There is no difference between voltage-terminal and current terminal. But it is possibly causing to deteriorate its characteristics when you connect line across. You can't connect lines across each other

Resistance value of this product is called resistance value for current sensing and shows resistance value of sign R in the upper diagram. Resistance value between terminals shows resistance value added at terminal resistance.

7.Specification

Parameter	Specification
Resistance value for current sensing	1 mΩ～10 mΩ　1mΩstep
Resistance tolerance	±0.5%　(D) ±1.0%　(F)
Terminal resistance	500μΩunder
Temperature coefficient of resistance	1 mΩ　±300ppm/℃ 2～4 mΩ　±200ppm/℃ 5～10 mΩ　±100ppm/℃
Rated load	2　W (Derating curve･･･Figure-1)
Maximum over current	$I=\sqrt{(150/R)}$ [A] (10m sec. max.) Resistance value (Ω) Maximum current 200A Interval 60 sec min.
Operating temperature range	-40～+125℃
Rated ambient temperature	+70℃

Figure -1　Derating curve



8.Reliability testing

Parameter	Conditions	Specification
Short time over load	Voltage of 1.5 times the rated voltage shall be applied for 5sec.	±(0.5% +0.0005Ω)
Load life	Rated voltage for 90min. followed by a pause of 30min. at a temperature of 70±3℃. Cycles shall be repeated for 1000hrs.	±(0.5% +0.0005Ω)
Moisture load life	Rated voltage for 90min. followed by a pause of 30min. at a temperature of 60±2℃ with relative humidity of 90%. Cycles shall be repeated for 1000h	±(0.5% +0.0005Ω)
Temperature cycle	[-40℃ 30min → R.T. 3min → +125℃30min → R.T. 3min.] 5continuous cycles.	±(0.5% +0.0005Ω)
Soldering heating	Dipped into solder for 10±1sec. at 260±5℃	±(0.5% +0.0005Ω)
Substrate bending	Between fulcrums :90mm Bend width : 2mm Glass-epoxy board t=1.6mm	±(0.5% +0.0005Ω)
Solderability	Dipped into solder for 3±0.5sec. at 235±5℃ or 245 ±5℃(lead free)	A new solder shall cover min of 90 %

9.Packaging

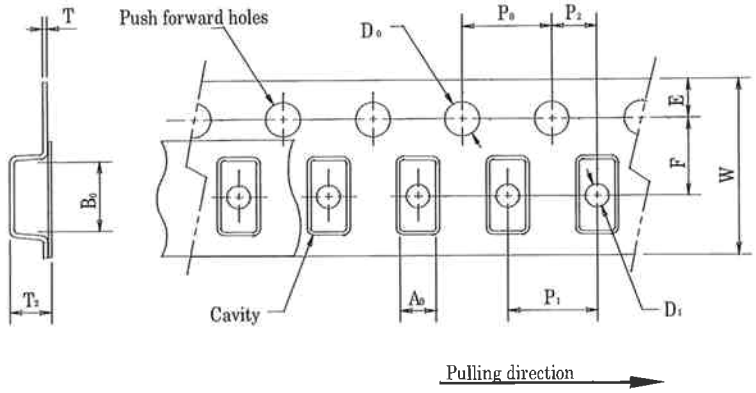
Packing quantity , 1,000 or 5,000pieces/reel

Taping form	Figure-2
Peeling strength of seal tape	Figure-3
Reel form	Figure-4
Taping direction	Figure-5

Marking The following items shall be printed on the reel label.(Figure-6)

Part number
Quantity for each reel
Manufacturing month code
Manufacturer
Inspection number (Lot number)
The country of origin
Double dashed line. No mark when finish of terminals is solder.

Figure-2 Plastic tape・Taping form



Symbol	Dimensions
A 0	3.43 ±0.2
B 0	6.63 ±0.2
W	12.0 ±0.3
F	5.5 ±0.05
E	1.75 ±0.1
P 0	4.0 ±0.1
P 1	4.0 ±0.1
P 2	2.0 ±0.05
D 0	1.5 +0.1/-0
D 1	1.5 +0.2/-0
T	0.3 max
T 2	1.5max

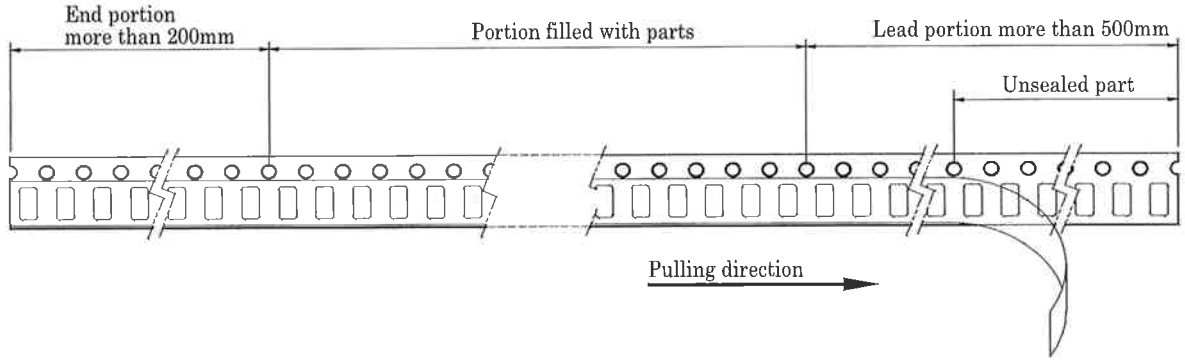


Figure-3 Peeling strength of seal tape

F= Peeling strength: 0.1 – 0.7N (10 - 71gf)

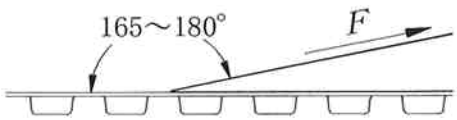
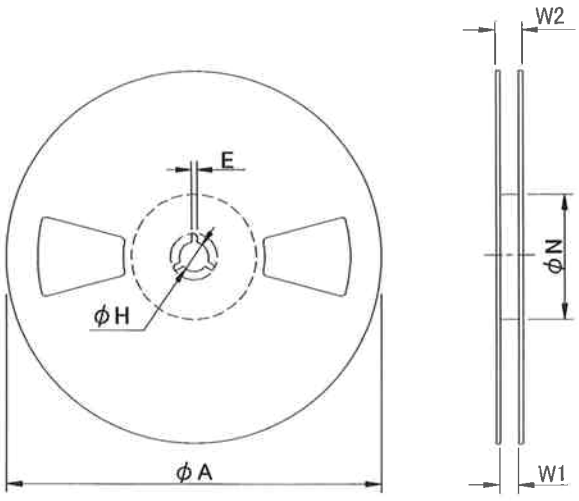


Figure-4 Reel form



Symbol	Dimensions(mm)	
	1000pcs/reel	5000pcs/reel
ϕA	180+0/-3	255±1.0
ϕH	13.0±0.2	13.0±0.3
E	2.0±0.5	2.0±0.2
ϕN	60+1/-0	80±0.5
W1	13.0±0.3	13.5±1.0
W2	17.0±1.4	18.4 or less

(unit: mm)

Material: Plastic

Figure-5 Taping direction

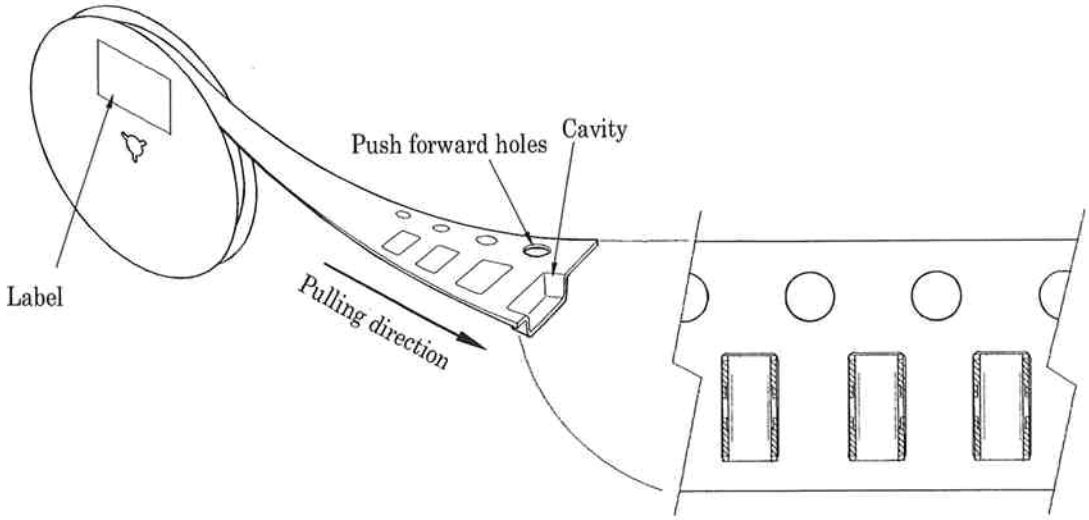
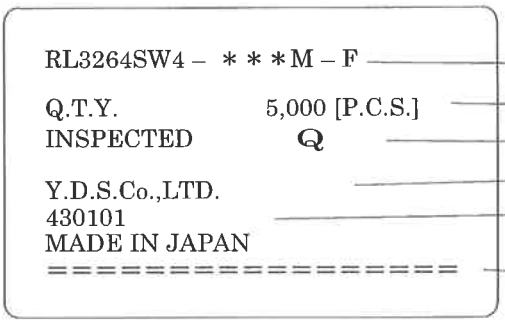


Figure-6 Reel label



Part number
Quantity for each reel
Manufacturing month code
Manufacturer
Inspection number (Lot number)
The country of origin
Double dashed line shows lead free
No mark when finish of terminals is solder

〔Revision history〕

Rev.	Date of enactment	Author	Check	Approval	Revision content
0	Apr.7.2006	K.Inomata	K.Nagano	A.Nakajima	First edition

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