

# 2W, 2512, SL Type Low Resistance Chip Resistor (Lead / Halogen Free)

## 1. Scope

This specification applies to 3.2mm x 6.4mm size 2W, fixed metal foil current sensing resistors used in electronic equipment.

## 2. Features / Applications

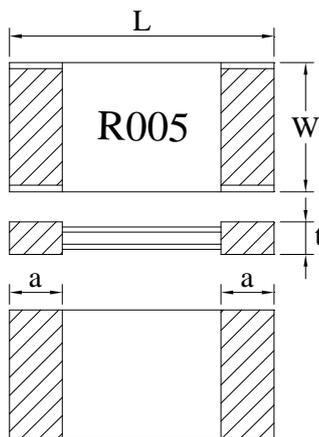
AEC-Q200 qualified / Power modules 、 Switch mode power supplies 、 Frequency converters 、 Automotive grade

## 3. Type Designation

RL-3264 - 9W -     -  - AQ - NH

- Where
- (1) Series No.
  - (2) Resistance value : Four digits of number  
For example :  
R005 = 5mΩ
  - (3) Tolerance :  
Refer to paragraph 5
  - (4) AQ = AEC-Q200 qualified
  - (5) NH = Sn plating ( Lead free / Halogen free)

## 4. Dimensions and schematic



Code Letter	Dimensions (mm)
	3264
L	6.35 ± 0.25
W	3.15 ± 0.25
a	0.95 ± 0.30
t	0.80 ± 0.20

Note: Marking (No Direction)

Figure 1. Construction and Dimensions

UNLESS OTHERWISE SPECIFIED TOLERANCES ON :

X = ±      X.X = ±      X.XX = ±

ANGLES ±      HOLE DIA. ±

SCALE :      UNIT :

台達電子工業股份有限公司  
**Delta Electronics, Inc.**

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF Delta Electronics, Inc.

AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

**TITLE** :The Engineering Spec for 2W, 2512, SL Type  
Low Resistance Chip Resistor

**DOCUMENT NO.**

SM9W0000AQN

PAGE  
REV.  
A0

## 5. Specification

Characteristics	Feature	
Power Rating*	2W	
Resistance Value	2~4 mΩ	5~50 mΩ
Temperature Coefficient of Resistance	± 200 ppm/°C	± 100 ppm/°C
Operation Temperature Range	-55°C ~ +170°C	
Resistance Tolerance	± 1%(F) , ± 2%(G) , ± 5%(J)	
Insulation Resistance	Over 100MΩ	
Maximum Working Voltage (V)	$(P \cdot R)^{1/2}$	

Note \* :

Power rating is based on continuous full load operation at rated ambient temperature of 70°C . For resistors operated at ambient temperature in excess of 70°C , the maximum load shall be derated in accordance with the following curve.

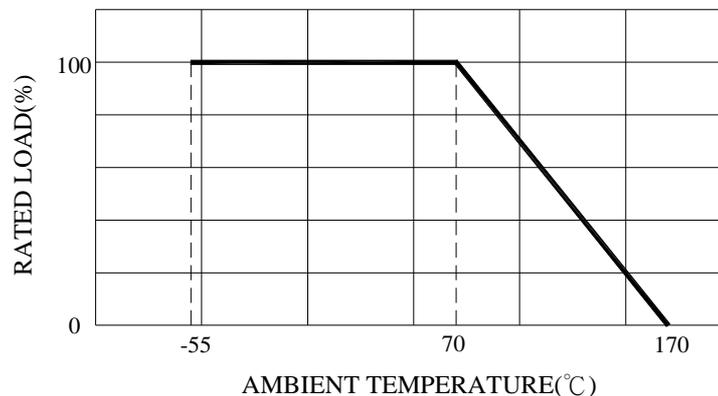


Figure 2. : Power Temperature Derating Curve

UNLESS OTHERWISE SPECIFIED TOLERANCES ON :

X = ±      X.X = ±      X.XX = ±

ANGLES ±      HOLE DIA. ±

SCALE :      UNIT :

台達電子工業股份有限公司  
**Delta Electronics, Inc.**

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF Delta Electronics, Inc.

AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE :The Engineering Spec for 2W, 2512, SL Type  
Low Resistance Chip Resistor

DOCUMENT  
NO.

SM9W0000AQN

PAGE  
REV.  
A0

6. Reliability Performance - AEC Q-200

Test Item	Condition of Test	Requirements
Short Time Over Load	2.5 x Rated power for 5 seconds Refer to JIS C 5201-1 4.13	$\Delta R : \pm 1\%$ Without significant damage by flashover(Spark, arching), burning or breakdown, etc.
High temperature Storage	Kept at 170°C, 1000hrs. Measurement at 24±4 hours after test conclusion. Refer to: MIL-STD-202 Method 108	$\Delta R : \pm 1\%$ Without distinct damage in appearance.
Temperature Cycling	1000 cycles, (-55°C~125°C) 30min maximum dwell time at each temperature Measurement at 24±4 hours after test conclusion. Refer to: JESD22 Method JA-104	$\Delta R : \pm 1\%$ Without distinct damage in appearance.
Biased Humidity	1000 hours, 85°C/85%R.H, applied for 10% rated power Measurement at 24±4 hours after test conclusion. Refer to: MIL-STD-202 Method 103	$\Delta R : \pm 1\%$ Without distinct damage in appearance.
Operational Life	1000 hours, 70°C, applied for 100% rated power Measurement at 24±4 hours after test conclusion. Refer to: MIL-STD-202 Method 108	$\Delta R : \pm 1\%$ Without distinct damage in appearance.

UNLESS OTHERWISE SPECIFIED TOLERANCES ON :

X = ±      X.X = ±      X.XX = ±

ANGLES ±      HOLE DIA. ±

SCALE :      UNIT :

台達電子工業股份有限公司  
*Delta Electronics, Inc.*

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF Delta Electronics, Inc.

AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE :The Engineering Spec for 2W, 2512, SL Type  
Low Resistance Chip Resistor

DOCUMENT  
NO.

SM9W0000AQN

PAGE  
REV.  
A0

Test Item	Condition of Test	Requirements
Mechanical Shock	100g's peak value, 6ms, Half-sine waveform, 12.3ft/sec  Refer to: MIL-STD-202 Method 213, (SMD type: Condition F)	$\Delta R : \pm 1\%$ Without mechanical damage such as break.
Vibration	5g's for 20 minutes, 12 cycles each of 3 orientations. Test from 10-2000Hz  Refer to: MIL-STD-202 Method 204	$\Delta R : \pm 1\%$ Without mechanical damage such as break.
Resistance to Soldering Heat	Dipped into solder at 260°C, 10 seconds  Refer to: MIL-STD-202 Method 210	$\Delta R : \pm 1\%$ Without distinct deformation in appearance.
Solderability	Method D category 3 @ 260°C  Refer to: J-STD-002	Uniform coating of solder cover minimum of 95% surface being immersed
Board Flex	2mm for 60 seconds  Refer to: AEC-Q200-005	$\Delta R : \pm 1\%$ Without mechanical damage such as break.

UNLESS OTHERWISE SPECIFIED TOLERANCES ON :

X = ±      X.X = ±      X.XX = ±

ANGLES ±      HOLE DIA. ±

SCALE :      UNIT :

台達電子工業股份有限公司  
*Delta Electronics, Inc.*

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF Delta Electronics, Inc.

AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : The Engineering Spec for 2W, 2512, SL Type  
Low Resistance Chip Resistor

DOCUMENT  
NO.

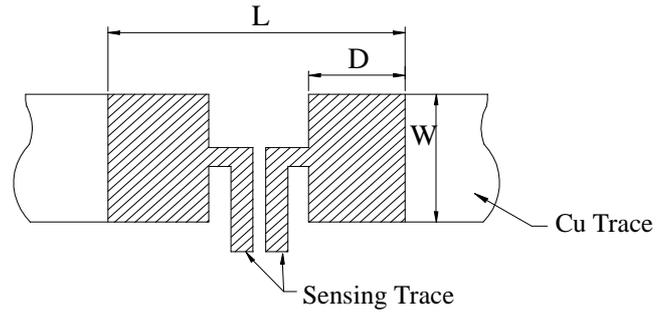
SM9W0000AQN

PAGE REV.
A0

## 7. Recommended Solder Pad Dimensions

	W (mm)	L (mm)	D (mm)	t ( $\mu$ m)
3264	4.00	8.00	3.35	105

t: Copper foil minimum thickness of PCB



Note: We recommend there is no circuit design between pads to avoid circuit short.

UNLESS OTHERWISE SPECIFIED TOLERANCES ON :

X =  $\pm$       X.X =  $\pm$       X.XX =  $\pm$

ANGLES  $\pm$       HOLE DIA.  $\pm$

SCALE :      UNIT :

台達電子工業股份有限公司  
*Delta Electronics, Inc.*

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF Delta Electronics, Inc.

AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE :The Engineering Spec for 2W, 2512, SL Type  
Low Resistance Chip Resistor

DOCUMENT  
NO.

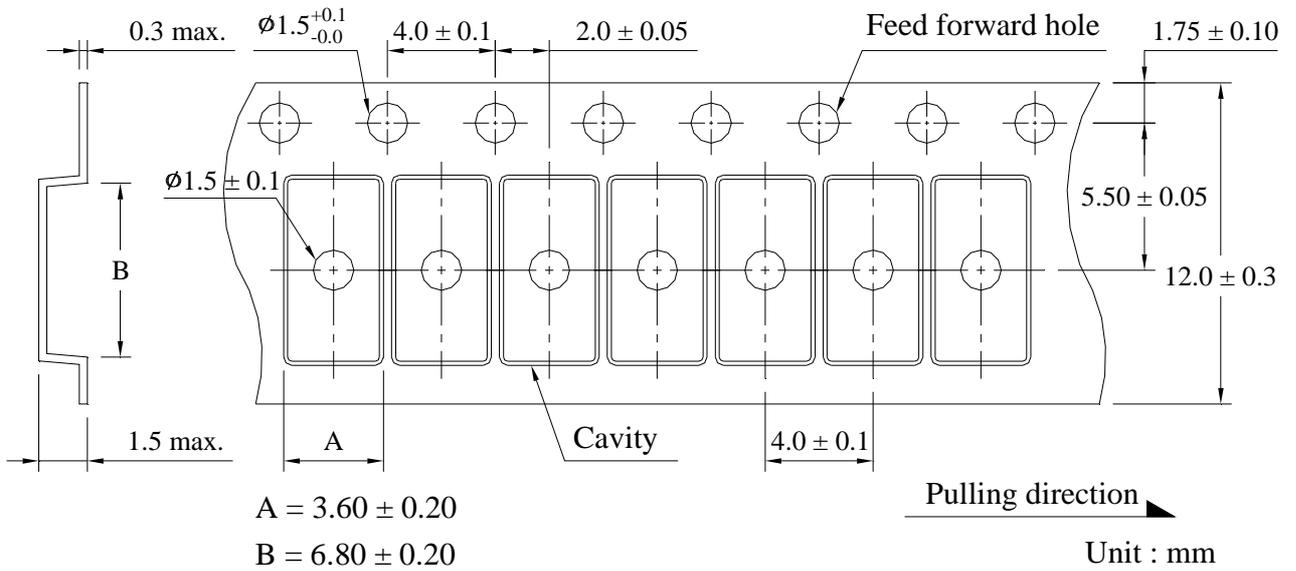
SM9W0000AQN

PAGE  
REV.  
A0

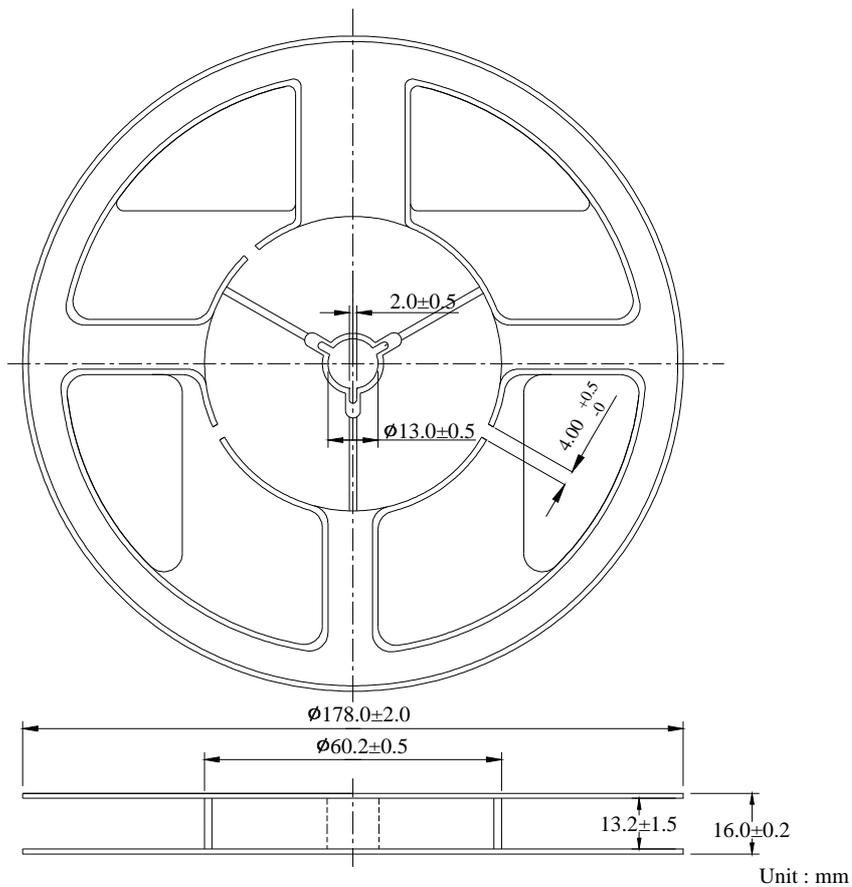
8. Packaging

8-1 Dimensions

8-1-1 Tape packaging dimensions



8-1-2 Reel dimensions



UNLESS OTHERWISE SPECIFIED TOLERANCES ON :

X = ±      X.X = ±      X.XX = ±

ANGLES ±      HOLE DIA. ±

SCALE :      UNIT :

台達電子工業股份有限公司  
**Delta Electronics, Inc.**

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF Delta Electronics, Inc.

AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE :The Engineering Spec for 2W, 2512, SL Type  
 Low Resistance Chip Resistor

DOCUMENT  
 NO.

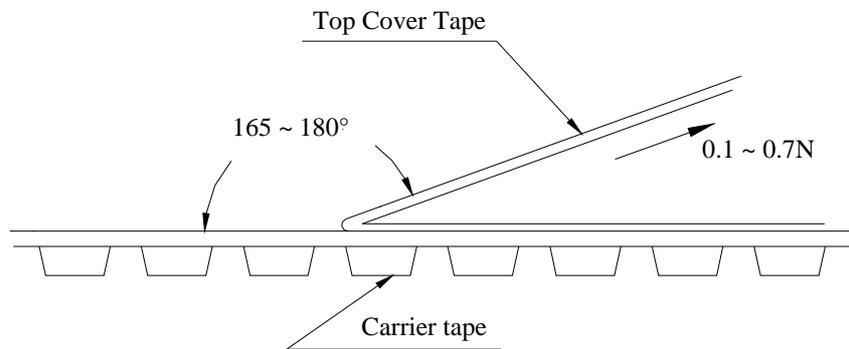
SM9W0000AQN

PAGE  
 REV.  
 A0

### 8-2 Peel Strength of Top Cover Tape

The peel speed shall be about 300mm/min.

The peel force of top cover tape shall between 0.1 to 0.7N



### 8-3 Number of Taping

2,000 pieces / reel

### 8-4 Label marking

The following items shall be marked on the reel.

- (1) Type designation
- (2) Quantity
- (3) Manufacturing date code
- (4) Manufacturer's name
- (5) The country of origin

UNLESS OTHERWISE SPECIFIED TOLERANCES ON :

X = ±      X.X = ±      X.XX = ±

ANGLES ±      HOLE DIA. ±

SCALE :      UNIT :

台達電子工業股份有限公司  
*Delta Electronics, Inc.*

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF Delta Electronics, Inc.

AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

**TITLE** :The Engineering Spec for 2W, 2512, SL Type  
Low Resistance Chip Resistor

**DOCUMENT  
NO.**

SM9W0000AQN

PAGE  
REV.  
A0