ROYALOHM

C O N F I D E N T I A L D O C U M E N T

SPECIFICATION FOR APPROVAL

OZDISAN ELEKTRONIK A.S.

Description : Metal Strip Current Sensing Resistor

Royalohm Part no.:

LF061WF700NT5E (LF06 (1206) 1W +/-1% 7mΩ 150ppm)

Approved by

Parts corresponding to RoHS Compliant: 2005-Apr.-1

Royal Electronic Factory (Thailand) Co., Ltd.
20/1-2 Moo 2 Klong-Na, Muang
Chachoengsao 24000, Thailand
Tel: +66-38-822404-8
Fax: +66 38-981190 / 823765
E-mail Address: Export sales: Export@royalohm.com
Local sales: Local@royalohm.com
http:// www.royalohm.com
P.O. Box 251 Klongchan, Bangkok 10240, Thailand

Approved	Checked	Prepared
Mr. Jack Lin	Mr. S. Polthanasan	Ms. P. Supatta

Issued Date: 2015/10/01

CHANGE NOTIFICATION HISTORY			
Version	**Date of Version**	**History**	**Remark**
1	2015/10/01	Resistance Value : 7mΩ	

Customer: OZDISAN ELEKTRONIK A.S.	**Part No.: LF061WF700NT5E**

1. Scope:

This specification for approval relates to Metal Strip Current Sensing Resistor manufactured by ROYALOHM 's specifications.

2. Type designation:

The type designation shall be in the following form:

Ex.

Type	Power Rating	Resistance tolerance	Nominal Resistance
LF06 (1206)	1W	F	7mΩ

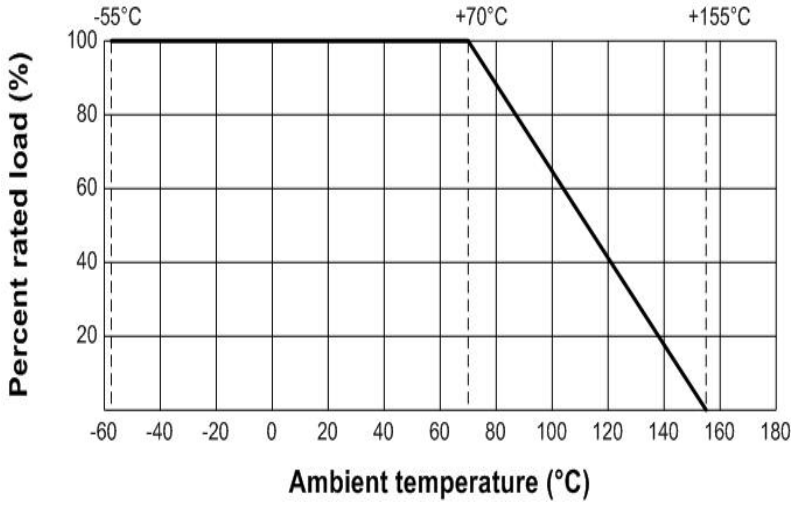
3. Ratings:

Type	LF06 (1206)
Power Rating	1W
Temperature Range	-55℃～+155℃
Ambient Temperature	70 ℃
Resistance Value	7mΩ

3.1 Power rating:

Resistors shall have a power rating based on continuous load operation at an ambient temperature of 70 ℃ . For temperature in excess of 70 ℃ , The load shall be derate as shown in figure 1.

Figure 1

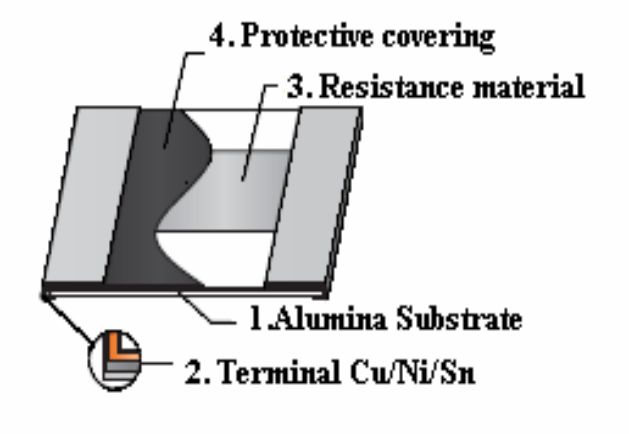


3.2 Nominal Resistance

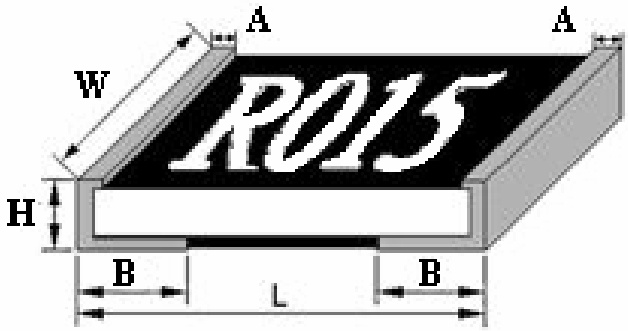
Effective figures of nominal resistance shall be in accordance with E-24 and E-96 series E-96 series for 1 % and E-24 series for 5 %

Metal Strip Current Sensing Resistor

4. Construction :



5. Power rating and dimensions



Dimension :

Type	Dimension (mm)				
	L	W	H	A	B
LF06 (1206)	3.10±0.20	1.60±0.30	0.70±0.20	≤ 1.0	0.50±0.25

Power Rating :

Type	Power Rating at 70 ℃	Tolerance %	Resistance Value	TCR PPM/℃	Standard Series
LF06 (1206)	1W	± 1%	7mΩ	±150	E-96

Metal Strip Current Sensing Resistor

6. Marking :

6.1 Resistors

A. Marking for type LF06 size : 4 Digits

Ex.	R005	0.005Ω
	R010	0.01Ω
	R015	0.015Ω
	R030	0.03Ω

6.2 Labels

Label shall be marked with the following item :

A. Nominal Resistance and Resistance Tolerance
B. Power Rating and Size
C. Quantity
D. Part No.
E. P.O.No.
F. Lot No.

Ex.

ROYALOHM
CHIP RESISTORS

RESISTANCE:	0.007	Ω	± 1 %	
WATTAGE:	1W		SIZE:	LF06
QUANTITY:	5,000	PCS	150	ppm
PART NO.:			Pb-Free	
P.O.NO.:				
LOT NO. :	825723		LF061WF700NT5E	

Remark: ± 1 % : Label is 0R007, value is 7mΩ, marking is R007

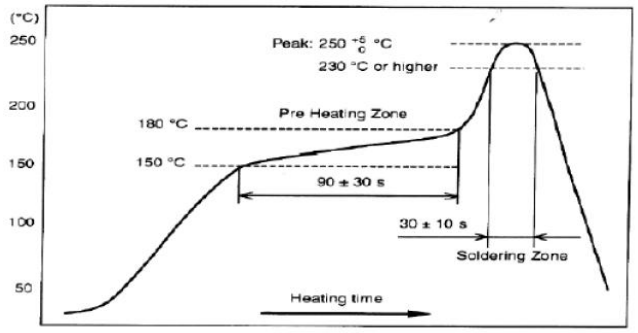
Metal Strip Current Sensing Resistor

7. Performance specification :

Characteristics	Limits	Test Methods (JIS C 5201-1)
Temperature coefficient	±150 PPM/℃	4.8 Natural resistance change per temp. degree centigrade. $\frac{R_2-R_1}{R_1(t_2-t_1)} \times 10^6$ (PPM/℃) R_1: Resistance value at room temperature (t_1) R_2: Resistance value at room temp. plus 100 ℃ (t_2) Test pattern: room temp.(t_1), room temp. +100℃(t_2)
Short time overload	Resistance change rate is ± (1.0%+0.001Ω)	4.13 Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds
Soldering Heat	Resistance change rate is ± (0.5%+0.005Ω)	4.18 Dip the resistor into a solder bath having a temperature of 260°C±5°C and hold it for 10±1 seconds.
Rapid change of Temperature	Resistance change rate is ± (1.0%+0.001Ω)	7.4 Resistance change after continuous 5 cycles for duty cycle specified below :

Step	Temperature	Time
1	-55℃ ± 3℃	30 mins
2	Room temp.	2～3 mins
3	+125℃ ± 2℃	30 mins
4	Room temp.	2～3 mins

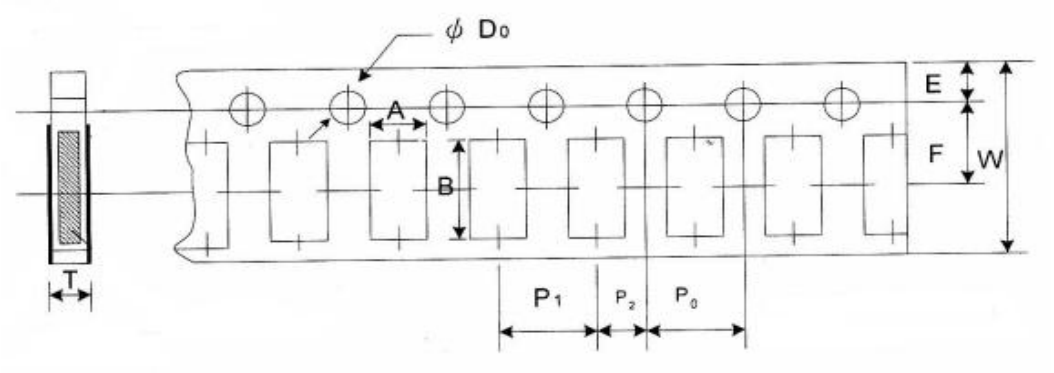
Load Life	Resistance change rate is ± (1.0%+0.001Ω)	4.25.1 Permanent resistance change after 1,000 hours operating at RCWV, with duty cycle of (1.5 hours"on", 0.5 hour"off") at 70℃ ± 2℃ ambient
Load Life in Humidity	Resistance change rate is ± (1.0%+0.001Ω)	7.9 Resistance change after 1,000 hours (1.5 hours "on", 0.5 hour "off") at RCWV in a humidity chamber controlled at 40℃ ± 2℃ and 90 to 95 % relative humidity

Metal Strip Current Sensing Resistor		
7. Performance specification :		
Characteristics	Limits	Test Methods (JIS C 5201-1)
Terminal bending	Resistance change rate is ± (1.0%+0.001Ω)	6.1 Twist of Test Board : Y/X = 2/90 mm for 10 seconds ± 1
Solderability	95 % coverage Min.	Wave solder: Test temperature of solder : 260℃ max. Dwell time in solder : 10 seconds
		Reflow : 

Metal Strip Current Sensing Resistor

8. Packing specification :

* Taping Dimension (mm)



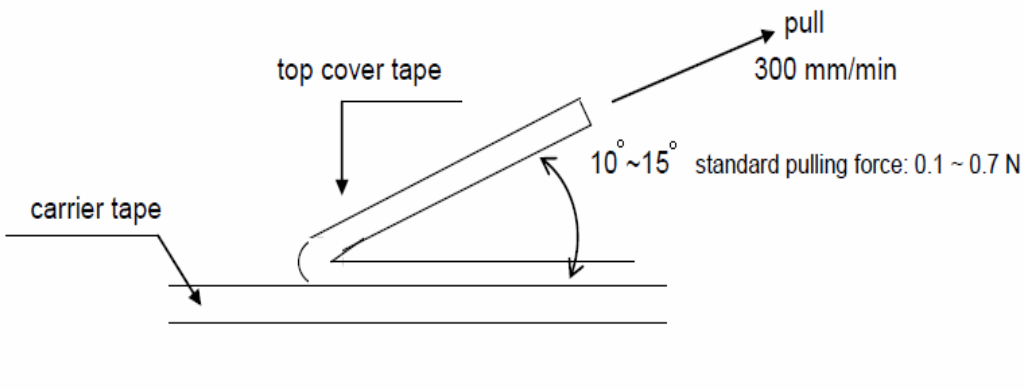
Type	A ± 0.1	B ± 0.1	W ± 0.2	ØD$_0$±0.05	E ± 0.1	F ± 0.05	P$_0$ ± 0.1	P$_1$ ± 0.1	P$_2$ ± 0.05	T ± 0.1
LF06	2.0	3.6	8.0	1.55	1.75	3.5	4.0	4.0	2.0	0.97

* Packing Quantity

Type	Packaging	Quantity Per Reel
LF06 (1206)	Paper	5,000 pcs.

* Peeling Strength of Top Cover Tape

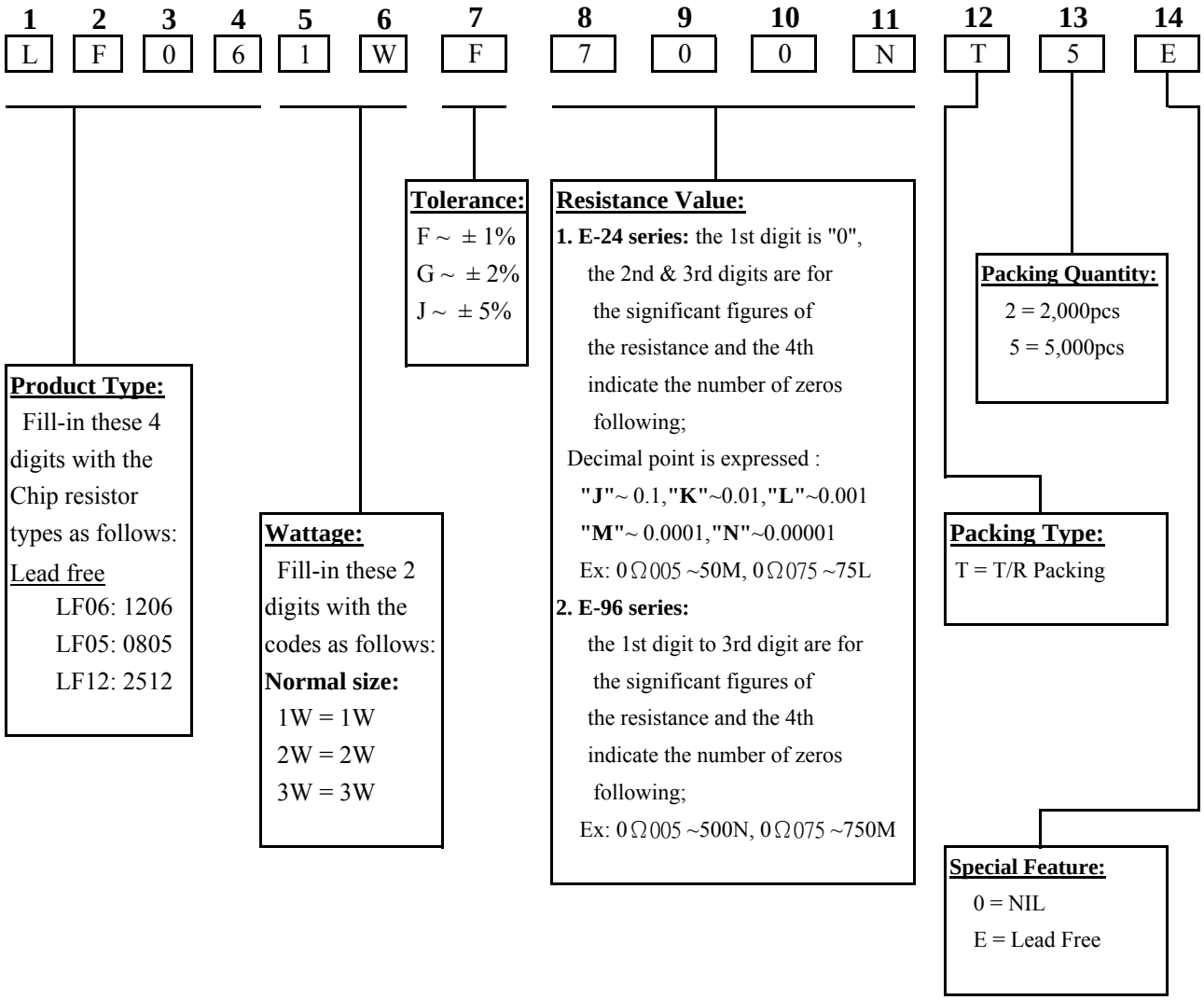
Test Condition: 0.1 to 0.7 N at a peel-off speed of 300 mm / min.



Part Number System

Explanation of Part Number System

Metal Strip Current Sensing Resistor



Sample : LF06 (1206) 1W +/-1% 7mΩ 150ppm T/R-5,000 → LF061WF700NT5E

Metal Strip Current Sensing Resistor

Environment Related Substance

This product complies to EU RoHS directive, EU PAHs directive, EU PFOS directive and Halogen free.

Ozone layer depleting substances.

Ozone depleting substances are not used in our manufacturing process of this product.
This product is not manufactured using Chloro fluorocarbons (CFCs), Hydrochlorofluorocarbons (HCFCs), Hydrobromofluorocarbons (HBFCs) or other ozone depleting substances in any phase of the manufacturing process.

Storage Condition

The performance of these products, including the solderability, is guaranteed for a year from the date of arrival at your company, provided that they remain packed as they were when delivered and stored at a temperature of 25°C ± 5°C and a relative humidity of 60%RH ± 10%RH

Even within the above guarantee periods, do not store these products in the following conditions. Otherwise, their electrical performance and/or solderability may be deteriorated, and the packaging materials (e.g. taping materials) may be deformed or deteriorated, resulting in mounting failures.

1. In salty air or in air with a high concentration of corrosive gas, such as Cl_2, H_2S, NH_3, SO_2, or NO_2
2. In direct sunlight