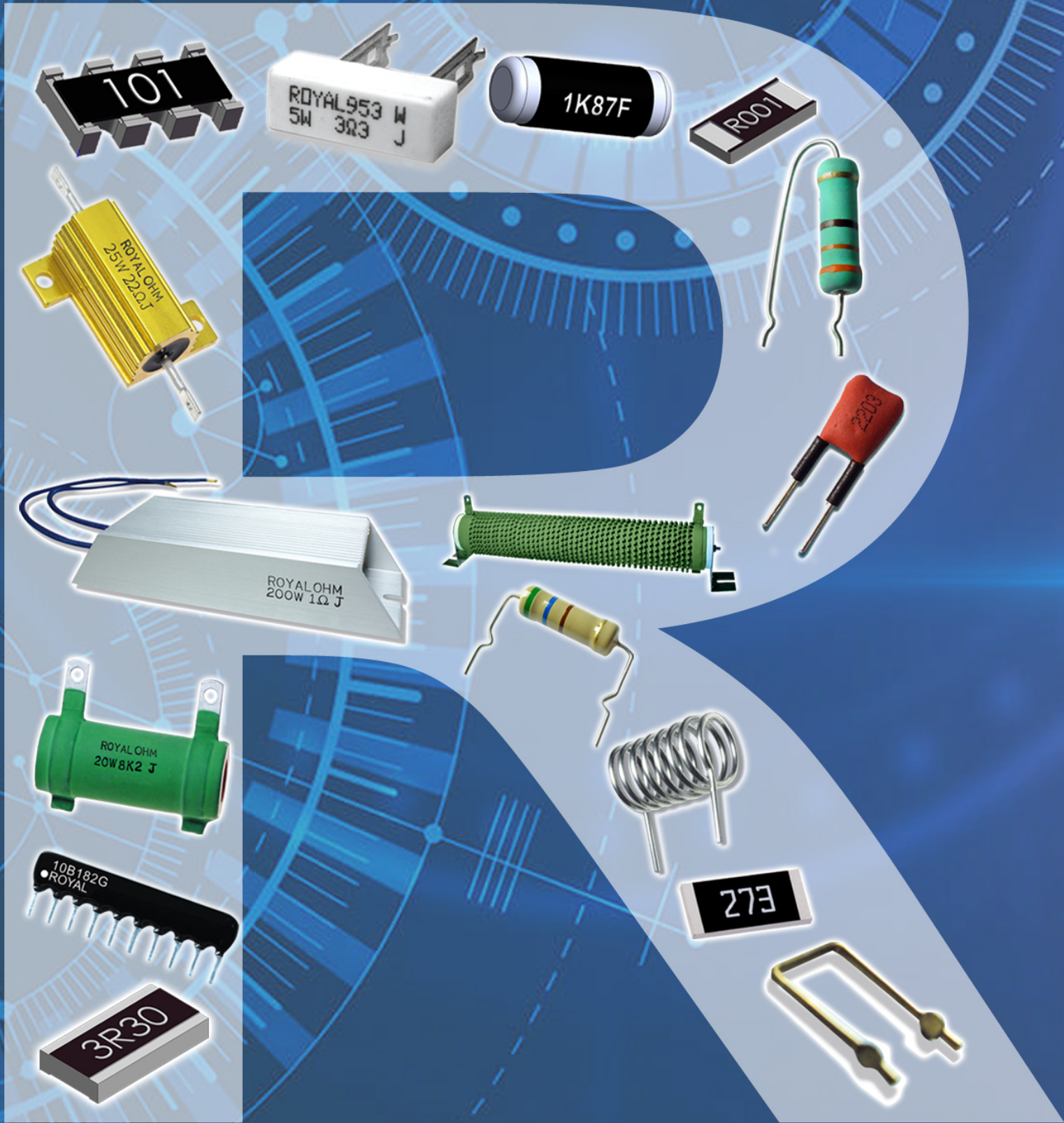




IATF 16949 : 2016



[www.uni-royal.cn](http://www.uni-royal.cn)





# Product List

Series	Power Rating	Value Range	Tol	T.C.R. PPM/°C & REMARKS
--------	--------------	-------------	-----	----------------------------

## CHIP RESISTORS

### General Purpose

01005, 0201, 0402, 0603,  
0805, 1206, 1210, 1812,  
2010, 2512  
High ohmic value available in sizes  
0603,0805,1206,1210



RMC

1/32W	0Ω/0.01Ω	±1%
~	~	±2%
1W	100MΩ	±5%

0.01Ω~0.015Ω:±1500PPM/°C  
0.0154Ω~0.03Ω: ±1000PPM/°C  
0.033Ω~0.976Ω: ±800PPM/°C  
1Ω~10Ω: ±200PPM/°C  
>10Ω~10M: ±100PPM/°C  
>10M~100M: ±200PPM/°C  
(01005, 0201, 0402 & 0603 refer to  
catalog)

### Wide Terminal

(AEC-Q200 Compliant)  
WR08, WR12, WR20, WR18, WR25



WR

1/3W	0Ω/10mΩ	±1%
~	~	±5%
3W	1MΩ	

Depends on size and value range

### Anti-Surge (AEC-Q200 Compliant)

AS02, AS03, AS05, AS06, AS07,  
AS10, AS12



AS

1/8W	1Ω	±5%
~	~	±10%
2W	10MΩ	±20%

1Ω~10Ω: ±400PPM/°C  
>10Ω~10MΩ: ±100PPM/°C

### High Precision Anti-Surge

(AEC-Q200 Compliant)  
PS02, PS03, PS05, PS06, PS07,  
PS10, PS12



PS

1/8W	0.1Ω	±1%
~	~	±5%
2W	10MΩ	

PS02: 1Ω~10Ω: ±400PPM/°C  
>11Ω~100Ω: ±200PPM/°C  
>100Ω: ±100PPM/°C  
Other sizes: ±100PPM/°C

### Anti-Electrostatic Discharge

(AEC-Q200 Compliant)  
ES01, ES02, ES03, ES05,  
ES06, ES07



ES

1/20W	1Ω	±1%
~	~	±5%
1/2W	10MΩ	

1Ω~10Ω: ±200PPM/°C  
>10Ω~10MΩ: ±100PPM/°C  
(ES01 refer catalog)

### High Power (AEC-Q200 Compliant)

HP02, HP03, HP05, HP06, HP07, HP10,  
HP11, HP12



HP

1/10W	0Ω/0.01Ω	±1%
~	~	±5%
2W	10MΩ	

Depends on size and value range

### Ultra High Power

(AEC-Q200 Compliant)  
SP10, SP12, SP17, SP20, SP27  
(Product design Patent no.: I566261)



SP

1W	1Ω	±1%
~	~	±5%
6W	10MΩ	

1Ω~10Ω: ±200PPM/°C  
>10Ω~10MΩ: ±100PPM/°C

### High Voltage (AEC-Q200 Compliant)

HV03, HV05, HV06, HV07, HV10, HV12  
Anti sulfurized available - VS12



HV

1/10W	36KΩ	±1%
~	~	±5%
1W	10MΩ	

±100PPM/°C

### High Quality Anti-Sulfurized (NS) / Anti-Sulfurized Automotive (NQ)

(AEC-Q200 Compliant)  
0201, 0402, 0603, 0805, 1206,  
1210, 2010, 2512



NQ  
NS

1/20W	0Ω/1Ω	±1%
~	~	±5%
1W	10MΩ	

1Ω~10Ω: ±200PPM/°C  
>10Ω: ±100PPM/°C  
(NQ01, NS01 refer to catalog)

### Chip Array (Convex)

2D02, 2D03, 4D02, 4D03, 4DP3, 16P8



Array

1/16W	0Ω/1Ω	±1%
~	~	±5%
1/10W	1MΩ	

±200PPM/°C  
(4D03, 4DP3, 16P8 refer to  
catalog)

### Chip Array Anti-Sulfurized

(AEC-Q200 Compliant)  
2S02, 4S02, 4S03



Array

1/16W	0Ω/10Ω	±1%
~	~	±5%
	1MΩ	

±200PPM/°C  
(4S03 refer to catalog)

### Chip Array (Concave)

2C02, 4C02, 4C03, 2F01, 4F01



Array

1/20W	0Ω/1Ω	±1%
~	~	±5%
1/16W	1MΩ	

±200PPM/°C  
(4C03 refer to catalog)

### Automotive (CQ) / Automotive High Power (HQ) (AEC-Q200 Compliant)

0201, 0402, 0603, 0805, 1206, 1210,  
2010, 2512



HQ  
CQ

1/20W	0Ω/1Ω	±1%
~	~	±5%
1W	10MΩ	

0201: 1Ω ~ 10Ω ±400PPM/°C  
0402 ~ 2512:  
1Ω~10Ω ±200PPM/°C  
>10Ω ±100PPM/°C

### Automotive Low Resistance

(AEC-Q200 Compliant)  
CS02, CS03, CS05, CS06, CS07,  
CS10, CS11, CS12



CS

1/8W	10mΩ	±1%
~	~	±5%
1W	1Ω	

Depends on size and value range





# Product List

		Series	Power Rating	Value Range	Tol	T.C.R. PPM/°C & REMARKS
<b>Metal Foil</b> MS01, MS02, MS03, MS05, MS06, MS17		MS	1/4W ~ 1W	2.5mΩ ~ 50mΩ	±1%	Depends on size and value range
<b>Metal Foil Wide Terminal</b> MW08, MW12, MW15, MW25		MW	1/4W ~ 1W	2.5mΩ ~ 50mΩ	±1%	Depends on size and value range
<b>Metal Film Low Resistance</b> TL01, TL02, TL03, TL05, TL06, TL07, TL10, TL12		TL	1/10W ~ 3W	10mΩ ~ 10Ω	±0.5% ±1% ±2% ±5%	±50PPM/°C ±100PPM/°C ±150PPM/°C ±200PPM/°C
<b>Low T.C.R</b> LT02, LT03, LT05, LT06		LT	1/16W ~ 1/4W	1Ω ~ 1MΩ	±0.25% ±0.5% ±1%	±50PPM/°C ±100PPM/°C
<b>Metal Strip LR12</b> (AEC-Q200 Compliant)		LR	1W ~ 3W	1mΩ ~ 350mΩ	±1% ±5%	±50PPM/°C
<b>Metal Alloy Low Resistance</b> ML05, ML06, ML12, ML25, ML28, ML27		ML	1W ~ 5W	0.2mΩ ~ 500mΩ	±0.5% ±1% ±2% ±5%	±50PPM/°C ±75PPM/°C ±100PPM/°C
<b>Complete Pb-Free</b> PF0A, PF01, PF02, PF03, PF05, PF06, PF07, PF11, PF10, PF12		PF	1/32W ~ 1W	1Ω ~ 10MΩ	±1% ±5%	1Ω~10Ω: ±400PPM/°C >10Ω~100Ω: ±200PPM/°C >100Ω: ±100PPM/°C (PF0A, PF01 refer to catalog)
<b>High Precision Thin Film</b> TC02, TC03, TC05, TC06, TC07, TC10, TC12		TC	1/16W ~ 3/4W	2.49Ω ~ 1.5MΩ	±0.1% ±0.25% ±0.5% ±1%	±10PPM/°C ±15PPM/°C ±25PPM/°C ±50PPM/°C
<b>High Precision Thin Film</b> <b>New</b> (AEC-Q200 Compliant) TN02, TN03, TN05, TN06		TN	1/16W ~ 1/4W	4.7Ω ~ 1.5MΩ	±0.1% ±0.25% ±0.5% ±1%	±10PPM/°C ±15PPM/°C ±25PPM/°C ±50PPM/°C

## CHIP / THROUGH HOLE RESISTORS KIT

<b>Album Type</b> *Std SMD *CQ, HP, SP12 *CFR, MFR, MOR		Album	1/16W ~ 3W	E-6 E-12 E-24 E-96	±1% ±2% ±5%	E Series and value range will depend on the resistor type
<b>Plastic Bag Type</b> CFR, MFR, MOR		Plastic Bag	1/16W ~ 1W	E-6 E-12 E-24	±1% ±2% ±5%	Customize KIT is available upon request

## NETWORK RESISTORS - SIL

<b>Resistor Network</b> 4-14 PINS		RNL RPL	1/8W ~ 1/3W	10Ω ~ 1MΩ	±2% ±5%	<50Ω: ±250PPM/°C 50Ω~1MΩ: ±200PPM/°C >1MΩ: ±250PPM/°C (RPL refer to catalog)
--------------------------------------	--	------------	-------------------	-----------------	------------	--

## MELF RESISTORS & JUMPER

<b>Carbon Film - MELF</b> 0204, 0207, 0309		MCxx	1/4W ~ 2W	1Ω ~ 5.1MΩ	±2% ±5%	1Ω~100KΩ: ±350PPM/°C 101KΩ~500KΩ: ±700PPM/°C 501KΩ~1MΩ: ±1000PPM/°C 1MΩ~5.1MΩ: ±1500PPM/°C
---	--	------	-----------------	------------------	------------	---



# Product List

		Series	Power Rating	Value Range	Tol	T.C.R. PPM/°C & REMARKS
<b>Metal Film - MELF</b> 0102, 0204, 0207, 0309		Mxx	1/8W ~ 2W	0.1Ω ~ 10MΩ	±0.10% ±0.25% ±0.5% ±1% ±2% ±5%	±15PPM/°C ±25PPM/°C ±50PPM/°C ±100PPM/°C
<b>Moulded MELF (Metal Film)</b> 0207		D27	1/2W	10Ω ~ 1MΩ	±0.10% ±0.25% ±0.5% ±1% ±2% ±5%	±15PPM/°C ±25PPM/°C ±50PPM/°C ±100PPM/°C ±200PPM/°C
<b>Fusible Wire Wound MELF (0309)</b> <span style="color: red;">New</span>		FA39	1W	0.47Ω ~ 820Ω	±2% ±5%	≤1Ω: ±400PPM/°C >1Ω: ±200PPM/°C
<b>Jumper Wire</b>		ZW	∅0.45mm ~ ∅1.20mm	0Ω	N/A	N/A
<b>Zero Ohm</b>		ZOC ZOT	1/8W ~ 1/4W	0Ω	N/A	ZOC (Ceramic Rod) ZOT (Steel Rod) <b>ZOC 1/4W is EOL</b>

## THROUGH HOLE RESISTORS







<b>Carbon Film</b>		CFR	1/8W ~ 3W	1Ω ~ 10MΩ	±2% ±5% ±10%	≤10Ω: ±300PPM/°C 11Ω~99KΩ: ±450PPM/°C 100KΩ~1MΩ: 0~-700PPM/°C 1.1MΩ~10MΩ: 0~-1500PPM/°C
<b>Precision Metal Film</b>		MFR	1/8W ~ 3W	1Ω ~ 10MΩ	±0.1% ±0.25% ±0.5% ±1% ±2% ±5%	±15PPM/°C ±25PPM/°C ±50PPM/°C ±100PPM/°C ±200PPM/°C
<b>Metal Oxide</b>		MOR	1/4W ~ 9W	0.1Ω ~ 680KΩ	±2% ±5% ±10%	±350PPM/°C
<b>Fusible</b> (UL Approved - No. E306074)		FRN	1/4W ~ 3W	0.22Ω ~ 10KΩ	±2% ±5% ±10%	±350PPM/°C
<b>Metal Glaze Film</b> (UL Approved - No. E364163) 		MGR	1/4W ~ 3W	1KΩ ~ 100MΩ	±1% ±5%	±200PPM/°C
<b>Power Metal</b>		PMR	1W ~ 3W	0.56Ω ~ 10MΩ	±1% ±2% ±5%	±200PPM/°C ±350PPM/°C ±400PPM/°C
<b>Wire-Wound</b>		KNP	1/2W ~ 10W	0.01Ω ~ 60KΩ	±1% ±2% ±5%	<20Ω: ±400PPM/°C ≥20Ω: ±300PPM/°C
<b>Fusible Wire-Wound</b> (UL Approved - No. E306074)		KNPU	1W ~ 7W	0.47Ω ~ 240Ω	±5%	<20Ω: ±400PPM/°C ≥20Ω: ±300PPM/°C
<b>Anti-Surge Wire-Wound</b> High Power-small body size Available!		KNPA	1/2W ~ 10W	10Ω ~ 15KΩ	±1% ±2% ±5%	<20Ω: ±400PPM/°C ≥20Ω: ±300PPM/°C

This document is a general reference only, please refer to datasheet for details.






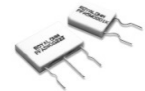
Any resistor items not listed in this document, please send inquiry to your Contact Sales.



# Product List

		Series	Power Rating	Value Range	Tol	T.C.R. PPM/°C & REMARKS
<b>Fusible Wire-Wound Fixed</b> Anti surge available - FWRA (UL Approved - No. E306074)		FWR	1W	0.47Ω		<20Ω: ±400PPM/°C ≥20Ω: ±300PPM/°C
		FWRA	~ 3W	~ 470Ω	±5%	
<b>Terminal Wire-Wound</b>		KNH	2W	0.4Ω	±5%	<20Ω: ±400PPM/°C ≥20Ω: ±300PPM/°C
		KNHA KNS	~ 100W	~ 50KΩ	±10%	
<b>Thermal Fusing Wire-Wound</b>		TFR	1W	2.2Ω ~ 4.7Ω	±5% ±10%	±400PPM/°C
<b>Metal Glazed Film Fixed Resistors</b> Patent No.: 1581275		RC06 RC06-1	0.25W	1Ω ~ 10MΩ	±1% ±5%	1Ω ~ 10Ω: ±400PPM/°C 11Ω ~ 100Ω: ±200PPM/°C >100Ω: ±100PPM/°C
<b>Terminal Type Metal Oxide</b>		TMOR	3W	10Ω	±5%	<20Ω: ±400PPM/°C ≥20Ω: ±350PPM/°C
		TMOV	~ 7W	~ 43KΩ		
<b>Forming Type</b> Panasert, Avisert, Formed		CFR MFR MOR FRN KNP	1/8W ~ 5W	10Ω ~ 1MΩ	±5% ±10%	Depends on resistor type, size and value. <a href="#">Refer to catalog</a>

## CEMENT TYPE RESISTORS

<b>Axial Leaded</b>		PRW	1W	0.1Ω	±5% ±10%	<20Ω: ±400PPM/°C ≥20Ω: ±300PPM/°C
		PRWA PRWC PRWC-1	~ 25W	~ 200KΩ		
<b>Radial Leaded</b>		PRM	2W	0.1Ω	±5% ±10%	<20Ω: ±400PPM/°C ≥20Ω: ±300PPM/°C
		PRMA PRMB PRS	~ 25W	~ 200KΩ		
<b>Radial Terminal</b>		PRZ	5W	0.1Ω	±5% ±10%	<20Ω: ±400PPM/°C ≥20Ω: ±300PPM/°C
		PRV PRT PRU	~ 50W	~ 200KΩ		
<b>Vertical or Axial</b>		PRWI	4W	0.1Ω	±5% ±10%	<20Ω: ±400PPM/°C ≥20Ω: ±350PPM/°C
			~ 17W	~ 39KΩ		
<b>Thermal Fusible</b>		FTR	1.4W	0.22Ω	±5% ±10%	<20Ω: ±400PPM/°C ≥20Ω: ±350PPM/°C
			~ 5.2W	~ 1.8KΩ		
<b>Power Flat Alloy</b>		PFA	2W ~ 10W	0.01Ω ~ 3.3Ω	±5% ±10%	≥0.1Ω: ±350PPM/°C (<0.1Ω pls contact us)

## SHUNT & COIL RESISTORS

<b>Shunt</b>		CSR	4.5A	3mΩ	±2%	±400PPM/°C
			~	~	±5%	
			50A	50mΩ	±10%	

This document is a general reference only, please refer to datasheet for details.

Any resistor items not listed in this document, please send inquiry to your Contact Sales.






# Product List

		Series	Power Rating	Value Range	Tol	T.C.R. PPM/°C & REMARKS
Coil		CSC	4A ~ 12A	3mΩ ~ 50mΩ	±5% ~ ±10%	Depends on value range

## INDUSTRIAL POWER RESISTORS

Power Dissipation Mount		PDMS PDM	5W ~ 100W	0.01Ω ~ 35KΩ	±5% ~ ±10%	<20Ω: ±400PPM/°C ≥20Ω: ±350PPM/°C
Power (Ribbon) Wire-Wound		QH QL QR QRZG	20W ~ 2500W	0.2Ω ~ 200KΩ	±5% ~ ±10%	<20Ω: ±400PPM/°C ≥20Ω: ±350PPM/°C
Aluminum Case High Power Wire-Wound		HEWR HBWR	60W ~ 2000W	0.5Ω ~ 15KΩ	±5% ~ ±10%	±350PPM/°C
Thermal Fuse Wire-Wound (Blower Fan Resistor)		ASSY	12V	0.1Ω ~ 10Ω	±10%	±350PPM/°C

## SURFACE MOUNT RESISTORS

Surface Mount <b>New</b> Wirewound Power Resistors		PWR	1W	1Ω ~ 200Ω	±5%	1Ω≤R≤10Ω: ≤±50PPM/°C 10Ω<R≤200Ω: ≤±20PPM/°C
Metal Strip <b>New</b> Plastic Surface Mount Resistors		MP19	7W	3mΩ ~ 60mΩ	±1% ~ ±5%	±50PPM/°C
Chip Resistors Shunt <b>New</b> RS06, RS12, RS20, RS26, RS30		RS	2W ~ 15W	0.25mΩ ~ 5mΩ	±1% ~ ±5%	Depends on size, power & value. <a href="#">Refer to catalog</a>

\*\*Customized design capability



# Product List

Series	Power Rating	Value Range	Tol	T.C.R. PPM/°C & REMARKS
--------	--------------	-------------	-----	----------------------------

## Royal Electronic Factory (Thailand) Co., Ltd.

MANUFACTURER & EXPORTER

Office & Factory: 20/1-2 Moo-2 Klong-Na Muang Chachoengsao 24000 Thailand

Telephone: +66 38 82 24 04 to 08

email: export@royalohm.com

# *Your Partner to Success!*

## Legal Disclaimer

The information provided in the catalog/data sheet /single pages/short form is for the purpose of describing product specifications only, and UNIOHM and its affiliates (hereinafter collectively referred to as " UNIOHM ") hereby disclaim any liability for any errors, inaccuracies or incompleteness contained in any product-related information (including but not limited to product specifications, datasheets, pictures, graphics). UNIOHM reserves the right to modify this content without prior notice. Thank you for your understanding.

UNIOHM makes no representation, warranty, and guarantee as to the fitness of its products for any particular purpose or the continuing production of any UNIOHM products.

To the maximum extent permitted by law, UNIOHM disclaims

- I. any and all liability arising out of the application or use of any UNIOHM product,
- II. any and all liability, including without limitation special, consequential or incidental damages, and
- III. any and all implied warranties, including warranties of fitness for a particular purpose, non-infringement and merchantability.

UNIOHM products are not intended for use in medical, life-saving, or life-sustaining equipment, nor are they intended for any other purpose where product failure or mismanagement could endanger life or cause harm to or death to the human body. Customers use or sell UNIOHM products for the above purposes at their own risk. If need products for such purposes, please be sure to consult with our company to obtain relevant information about the applicable products.

Regardless of the application of UNIOHM products, it is recommended to carry out safety tests while using measures such as protective circuits and redundant circuits to protect the safety of equipment.