

ROYALOHM Catalogue - Aldinet

1. Index.....	1
2. Short Form Product list 2022.....	2
3. Anti Surge & High Precision Anti Surge (AS-PS Series)_RO-4.....	9
4. Anti Surge WW (KNPA Series)_RO-3.....	13
5. Automotive Thick Film (CQ Series)_RO-3.....	16
6. Chip Album Kit_RO-0.....	19
7. Fusible Wire Wound_FWR-FWRA-2.....	20
8. High Power Thick Film (HP Series)_RO-3.....	23
9. High Precision Thin Film (TC Series)_RO-2.....	26
10. Metal Strip LR12 (2512) Thick Film_RO-4.....	29
11. Power (Ribbon) WW (QL-QRZG Series)_RO-3.....	32
12. Shunt Resistors_RO-2.....	35
13. Ultra High Power (SP Series)_RO-4.....	42
14. Wide Terminal (WR Series)_RO-2.....	45

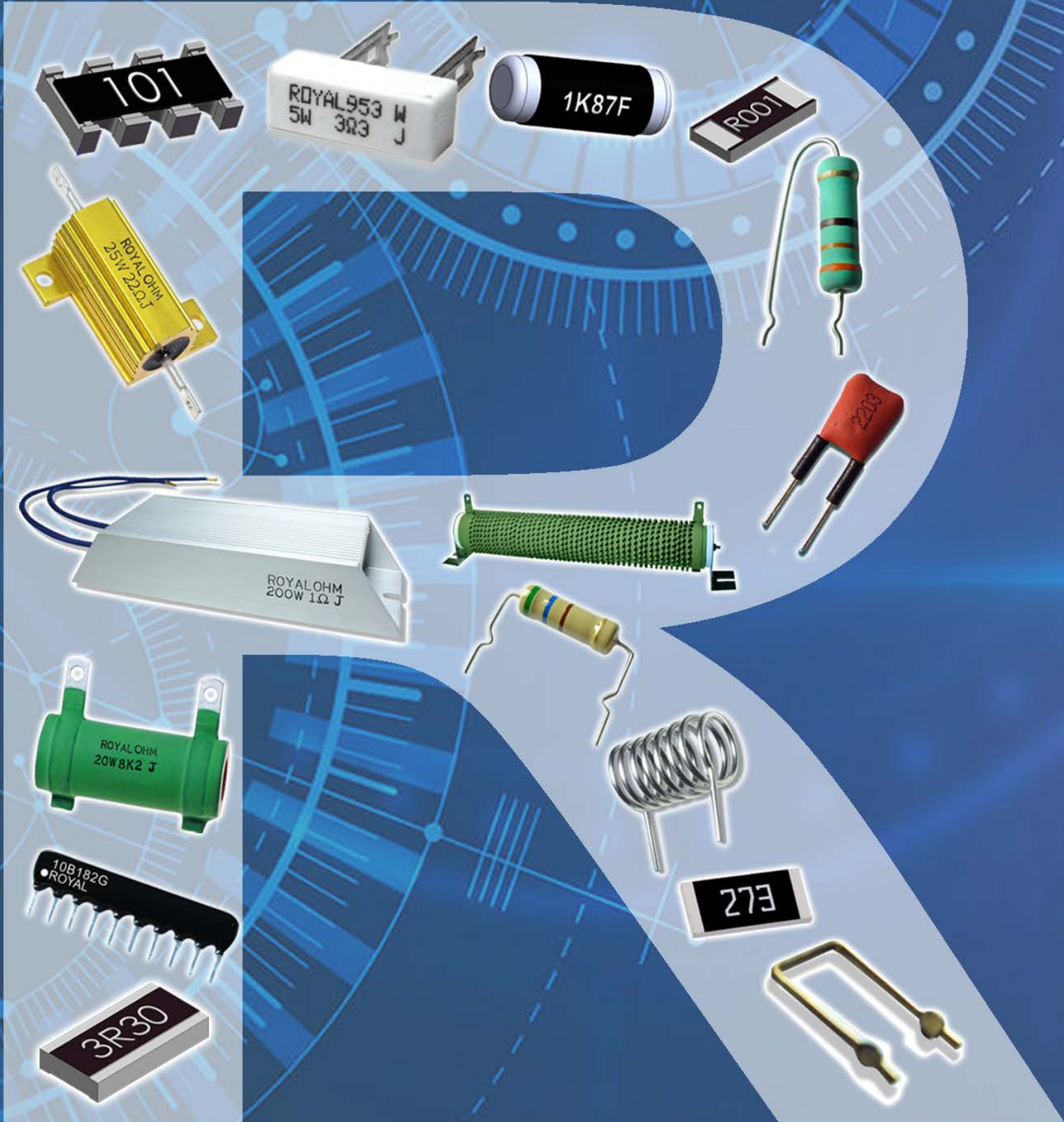


IATF 16949 : 2016

Aldinet



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www.royalohm.com

since 1978
Resistors Specialist



Product List

Aldinet

Series	Power Rating	Value Range	Tol	T.C.R. PPM/°C & REMARKS
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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
Metal Foil MS01, MS02, MS03, MS05, MS06, MS17		MS	1/4W ~ 1W	2.5mΩ ~ 50mΩ	±1%	Depends on size and value range
Metal Foil Wide Terminal MW08, MW12, MW15, MW25		MW	1/4W ~ 1W	2.5mΩ ~ 50mΩ	±1%	Depends on size and value range
Metal Film Low Resistance 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
Low T.C.R LT02, LT03, LT05, LT06		LT	1/16W ~ 1/4W	1Ω ~ 1MΩ	±0.25% ±0.5% ±1%	±50PPM/°C ±100PPM/°C
Metal Strip LR12 (AEC-Q200 Compliant)		LR	1W ~ 3W	1mΩ ~ 350mΩ	±1% ±5%	±50PPM/°C
Metal Alloy Low Resistance ML05, ML06, ML12, ML25, ML28, ML27		ML	1W ~ 5W	0.2mΩ ~ 500mΩ	±0.5% ±1% ±2% ±5%	±50PPM/°C ±75PPM/°C ±100PPM/°C
Complete Pb-Free 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)
High Precision Thin Film 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
High Precision Thin Film New (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						
Album Type *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
Plastic Bag Type 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						
Resistor Network 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						
Carbon Film - MELF 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

Aldinet

T.C.R.
PPM/°C & REMARKS

		Series	Power Rating	Value Range	Tol	T.C.R. PPM/°C & REMARKS
Metal Film - MELF 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
Moulded MELF (Metal Film) 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
Fusible Wire Wound MELF (0309) New		FA39	1W	0.47Ω ~ 820Ω	±2% ±5%	≤1Ω: ±400PPM/°C >1Ω: ±200PPM/°C
Jumper Wire		ZW	∅0.45mm ~ ∅1.20mm	0Ω	N/A	N/A
Zero Ohm		ZOC ZOT	1/8W ~ 1/4W	0Ω	N/A	ZOC (Ceramic Rod) ZOT (Steel Rod) ZOC 1/4W is EOL

THROUGH HOLE RESISTORS

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








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

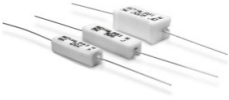







Product List

Aldinet

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

CEMENT TYPE RESISTORS

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

SHUNT & COIL RESISTORS

Shunt 	CSR	4.5A ~ 50A	3mΩ ~ 50mΩ	±2% ±5% ±10%	±400PPM/°C
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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 New Wirewound Power Resistors		PWR	1W	1Ω ~ 200Ω	±5%	1Ω≤R≤10Ω: ≤±50PPM/°C 10Ω<R≤200Ω: ≤±20PPM/°C
Metal Strip New Plastic Surface Mount Resistors		MP19	7W	3mΩ ~ 60mΩ	±1% ~ ±5%	±50PPM/°C
Chip Resistors Shunt New RS06, RS12, RS20, RS26, RS30		RS	2W ~ 15W	0.25mΩ ~ 5mΩ	±1% ~ ±5%	Depends on size, power & value. Refer to catalog

**Customized design capability



Product List

Series

Power
Rating

Value
Range

Tol

T.C.R.
PPM/°C & REMARKS

Aldinet

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Regardless of the application of ROYALOHM 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.

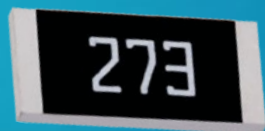
Anti Surge (AS) /High Precision Anti Surge (PS) Thick Film

Aldinet



Features:

- AEC-Q200 Compliant
- Superior Anti-Surge Voltage performance
- Wave & Re-flow soldering
- Precision Anti-Surge (PS series)



Application:

- Metering
- AV adapters
- LCD back-light
- Power Supply
- Chargers / Inverters
- Monitors
- Automotive
- Consumer Electronics

Alternative for:

Vishay : CRCWxxxx-IF, CRCWxxxx-HP e3

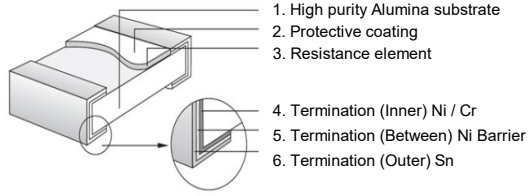
Yageo: SRxxxx_7W, SRxxxx_7T

IATF 16949
ISO 14001



Anti-Surge (AS) Thick Film

Aldinet

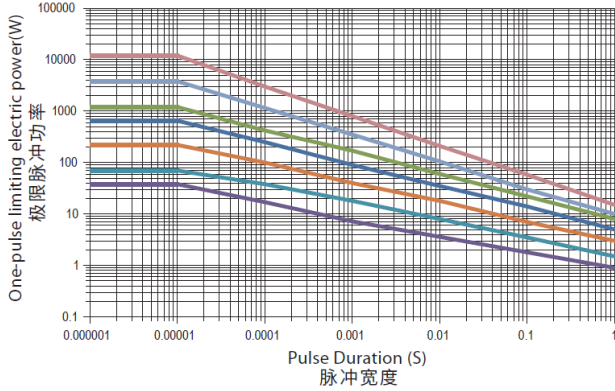


Operating Temperature -55 ~ +155°C

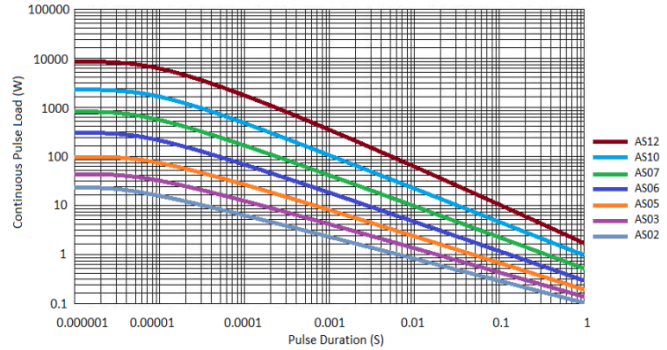
Type	Size	Power (70°C)	Max Working Voltage	Max Over load Voltage	Dielectric Withstanding Voltage	Tolerance	Resistance Range
AS02	0402	1/8W	50V	100V	100V	5% 10% 20%	1Ω~10M 1Ω≤R≤10Ω: ±400ppm/°C 10Ω<R≤10M: ±100ppm/°C
AS03	0603	1/4W	75V	150V	300V		
AS05	0805	1/2W	150V	300V	500V		
AS06	1206	0.6W	200V	400V	500V		
AS07	1210	3/4W	200V	500V	500V		
AS10	2010	1.55W	400V	800V	500V		
AS12	2512	2W	500V	1000V	500V		

AS Single Pulse

AS-Series Anti-Surge Thick Film Chip Resistors

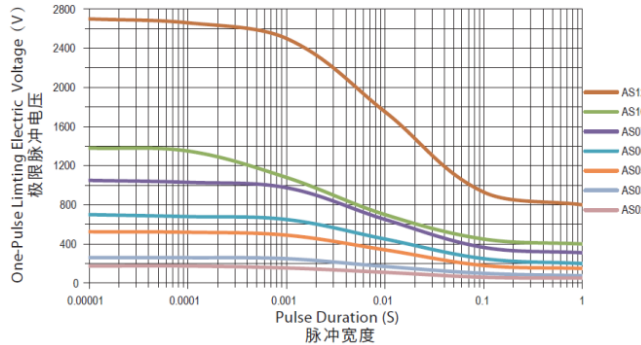


AS Continuous Pulse



Pulse Voltage Limit

AS-Series Anti-Surge Thick Film Chip Resistors

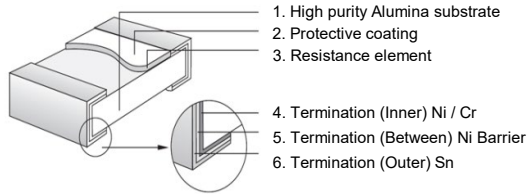


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High Precision Anti-Surge (PS) Thick Film

Aldinet

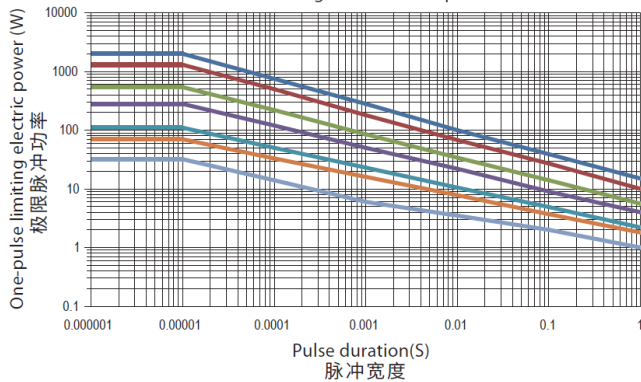


Operating Temperature -55 ~ +155°C

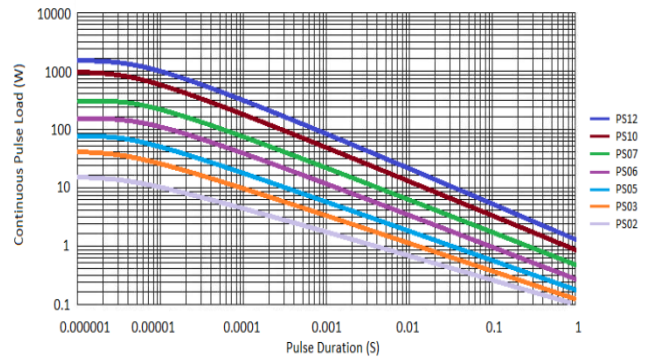
Type	Size	Power (70°C)	Max Working Voltage	Max Over load Voltage	Dielectric Withstanding Voltage	Tolerance	Resistance Range
PS02	0402	1/8W	50V	100V	100V	1% 5%	1Ω~10M PS02: 1Ω~10Ω: ±400PPM/°C 11Ω~100Ω: ±200PPM/°C 100Ω: ±100PPM/°C PS03, PS05, PS06, PS07, PS10, PS12: ±100ppm/°C
PS03	0603	1/4W	50V	100V	300V		
PS05	0805	1/3W	150V	300V	500V		
PS06	1206	1/2W	200V	400V	500V		
PS07	1210	3/4W	200V	500V	500V		
PS10	2010	1.25W	400V	800V	500V		
PS12	2512	2W	500V	1000V	500V		

PS Single Pulse

PS-Series Anti-Surge Thick Film Chip Resistors

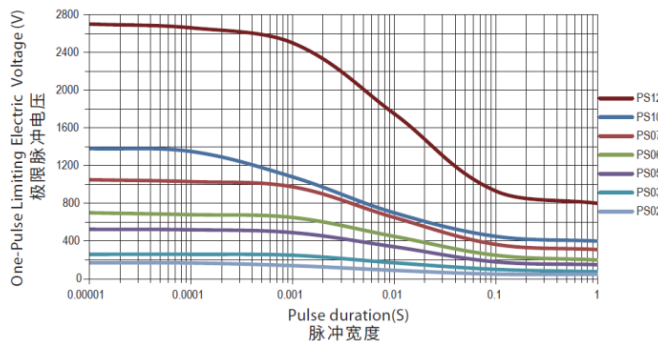


PS Continuous Pulse



Pulse Voltage Limit

PS-Series Anti-Surge Thick Film Chip Resistors



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ISO 14001

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Anti-Surge Wire Wound (KNPA Series)

Aldinet



Features:

- Excellent flame retardant coating
- Power up to 10W
- Low / High value available
- Anti surge function (IEC 61000-4-5)
- Surge immunity up to 10KV
- High Power in small body size available

Application:

- Motor Control Applications, TV, Monitors
- Test & Measurement Equipment
- Surge Protection & Voltage Divider
- Power Supply, Power Electronic control
- Dishwashers, Dryers, Washing Machines
- Energy / Smart / Digital meter

Cross Reference to:

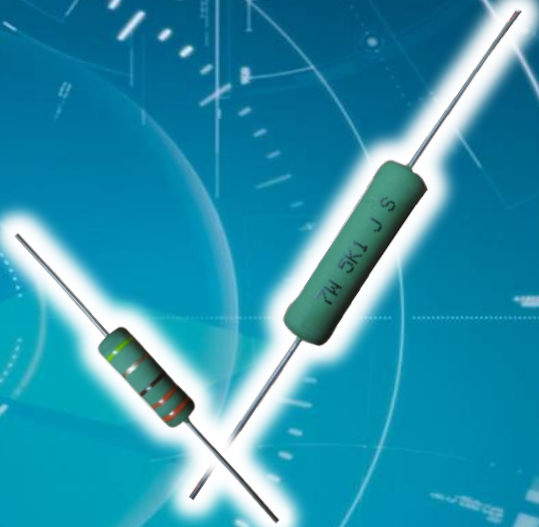
Vishay : Z300-G, CWHS

Firstohm : SWA

TT Electronics : WHS

* Higher surge available case to case basis

* Special fusing wire wound can be supplied on a case to case basis

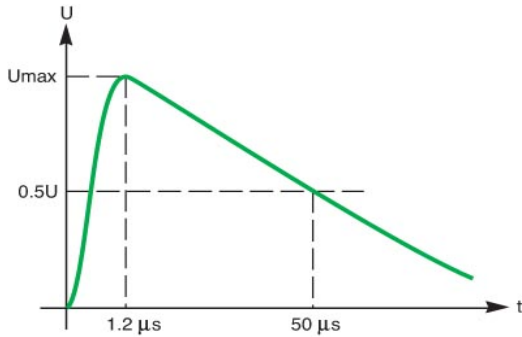


Anti-Surge Wire Wound (KNPA Series)

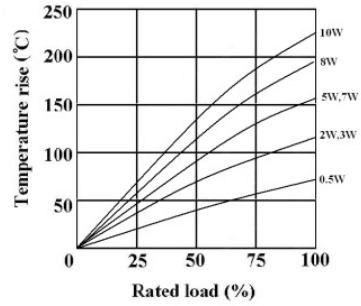
Aldinet



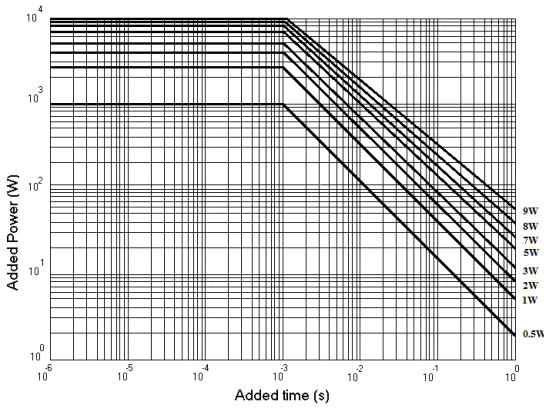
Surge Waveform (1.2/50µs)



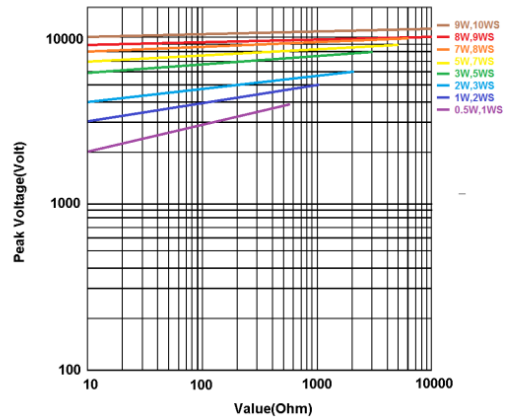
Heat Rise Chart



Pulse Capability



1.2/50µs Voltage Capability



*Operating Temperature: -55°C~+155°C

Watt	Dimension (mm)				Low Resistance Range	Max. Surge	Medium Resistance Range	Max. Surge	High Resistance Range	Max. Surge
	D ± 1.0	L ± 1.0	d ± 0.05	H ± 3.0						
1/2W 1WS	3.5	10.0	0.54	28	10Ω ~ 40Ω	2KV	43Ω ~ 240Ω	3KV	270Ω ~ 560Ω	4KV
1W 2WS	5.0	12.0	0.70	28	10Ω ~ 50Ω	3KV	51Ω ~ 240 Ω	4KV	270Ω ~ 1kΩ	5KV
2W 3WS	5.5	16.0	0.70	28	10Ω ~ 100Ω	4KV	110Ω ~ 240Ω	5KV	270Ω ~ 2kΩ	6KV
3W 5WS	6.5	17.5	0.75	28	10Ω ~ 100Ω	6KV	110Ω ~ 680Ω	7KV	750Ω ~ 3kΩ	8KV
5W 7WS	8.5	25.0	0.75	38	10Ω ~ 160Ω	7KV	180Ω ~ 680Ω	8KV	750Ω ~ 5kΩ	9KV
7W 8WS	8.5	30.0	0.75	38	10Ω ~ 160Ω	8KV	180Ω ~ 680Ω	9KV	750Ω ~ 6kΩ	10KV
8W 9WS	8.5	40.0	0.75	38	10Ω ~ 160Ω	9KV	180Ω ~ 680Ω	10KV	750Ω ~ 10kΩ	10KV
9W 10WS	8.5	53.0	0.75	38	10Ω ~ 160Ω	10KV	180Ω ~ 680Ω	10KV	750Ω ~ 15kΩ	10KV



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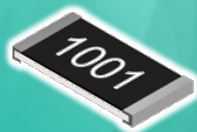
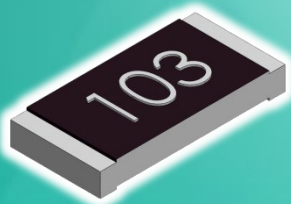
Automotive Thick Film Chip Resistors (CQ Series)

Aldinet



Features:

- AEC-Q200 Compliant
- Suitable for reflow and wave soldering
- Stable electrical capability, High reliability
- Anti Sulfuration
- Available in KIT packaging 1% E24

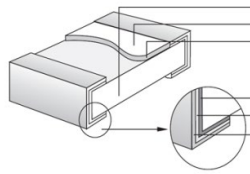
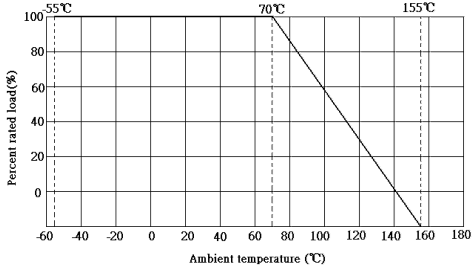


Application:

- Entertainment System
- Outdoor Electronic app
- Comfort & Safety Controls
- Lighting
- Batteries & Chargers
- Telecom
- Consumer Electronics
- General purpose

Automotive Thick Film Chip Resistors (CQ Series)

Derating Curve



1. High purity Alumina substrate
2. Protective coating
3. Resistance element
4. Termination (Inner) Ni / Cr
5. Termination (Between) Ni Barrier
6. Termination (Outer) Sn

Operating Temperature Range -55~+155°C

Type	Power (70°C)	Max Working Voltage	Max Overload Voltage	Dielectric With standing Voltage	Resistance Value of Jumper	Rated Current of Jumper	Max. Current of Jumper
CQ01	1/20W	25V	50V	/	<50mΩ	0.5A	1A
CQ02	1/16W	50V	100V	100V	<50mΩ	1A	2A
CQ03	1/10W	75V	150V	300V	<50mΩ	1A	2A
CQ05	1/8W	150V	300V	500V	<50mΩ	2A	5A
CQ06	1/4W	200V	400V	500V	<50mΩ	2A	10A
CQ07	1/2W	200V	500V	500V	<50mΩ	2A	10A
CQ10	3/4W	200V	500V	500V	<50mΩ	2A	10A
CQ12	1W	200V	500V	500V	<50mΩ	2A	10A

Characteristic

Test Item	Standard	Test Item	Standard
Temperature Coefficient	CQ01: $1\Omega \leq R \leq 10\Omega$ $\pm 400\text{ppm}/^\circ\text{C}$ $>10\Omega$: $\pm 200\text{ppm}/^\circ\text{C}$ CQ02-CQ12: $1\Omega \leq R \leq 10\Omega$: $\pm 200\text{ppm}/^\circ\text{C}$ $>10\Omega$: $\pm 100\text{ppm}/^\circ\text{C}$	Resistance to Soldering Heat	$\pm(1.0\%+0.05\Omega)$ Max
Short Time Overload	$\pm 1\%: \pm(1.0\%+0.1\Omega)$ Max $\pm 5\%: \pm(2.0\%+0.1\Omega)$ Max	Temperature Cycling	$\pm 1\%: \pm(0.5\%+0.1\Omega)$ Max $\pm 5\%: \pm(1.0\%+0.1\Omega)$ Max
Terminal Bending	$\pm(1.0\%+0.05\Omega)$ Max	Biased Humidity	$\pm 1\%: \pm(1.0\%+0.1\Omega)$ Max $\pm 5\%: \pm(3.0\%+0.1\Omega)$ Max
Solderability	Min. 95%coverage	Load Life	$\pm 1\%: \pm(1.0\%+0.1\Omega)$ Max $\pm 5\%: \pm(3.0\%+0.1\Omega)$ Max
Dielectric Withstanding Voltage	No evidence of flashover, mechanical damage, arcing or insulation breakdown	Moisture Resistance	$\pm 1\%: \pm(0.5\%+0.1\Omega)$ Max $\pm 5\%: \pm(3.0\%+0.1\Omega)$ Max

Note: 0.1Ω ~ 0.97Ω : ±800PPM/°C can be supply on a case to case basis.

Load Life test condition: 35% rated power at 125°C,1000H.

Anti-sulfurized performance: H₂S 3~5ppm,50°C ±2°C,91%~93%RH,1000H;Excellent stability



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CHIP RESISTORS ALBUM KIT

Aldinet



Useful electronic tool for:

- Design engineers (DE)
- R&D
- start-up projects
- pilot production

Features:

- Wide range of values packed per chip size/series/tolerance
- Stackable & easy to handle

Available in Different SMD series:

- Std. Thick Film, Automotive Grade, High Power, Ultra High Power
- 0201 to 2512 / F, J / E6, E12, E24, E96



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since
1978
Resistors Specialist
www.royalohm.com

Fusible Wire-Wound Fixed Resistors (FWR / FWRA)

Aldinet



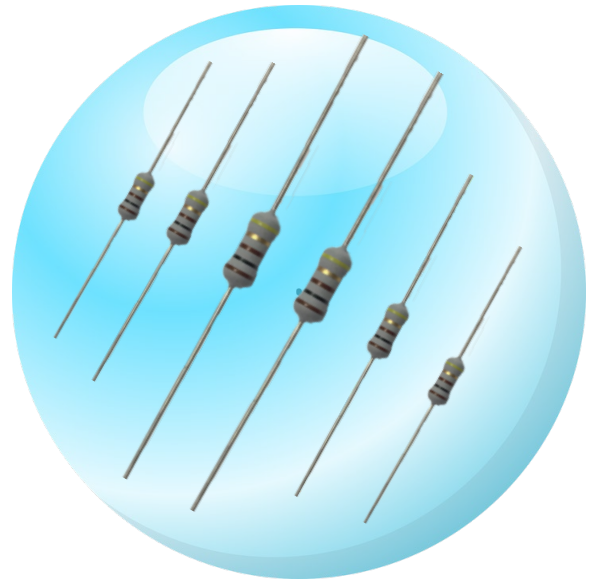
Features:



- **UL approved - No. E306074**
- **Surge Voltage up to 7KV**
- **Fuse function**
- **Rated Voltage up to 250V**
- **Available at 5% from 1W,1W-S, 2W,2W-S,3W,3W-S**
- **Surge function base on IEC 61000-4-5**
- **Excellent flame resistance**

Application:

- **LED Lighting / LED Drivers**
- **Mobile & Laptop Charger**
- **Energy Meter**
- **Test & Measurement Equipment**
- **Surge Protection & Voltage Divider**
- **Power Supply, Discharge Path Resistors**
- **White Goods**



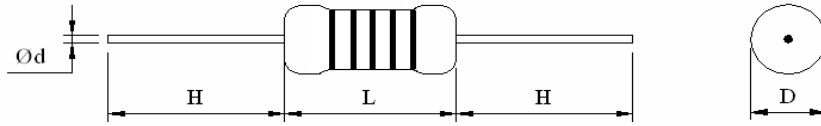
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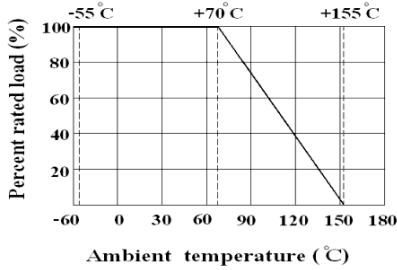
Fusible Wire-Wound Fixed Resistors



Dimension

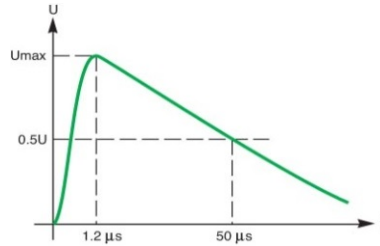


Derating Curve

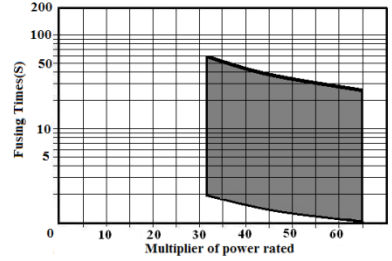


Surge Waveform (1.2/50µs)

IEC 61000-4-5



Fusing Curve



Type FWR/FWRA	Dimension (mm)				Resistance Range
	D ± 1.0	L ± 1.0	d ± 0.05	H ± 3.0	
1WS	3.5	9.5	0.54	28	0.47Ω-470Ω
1W/2WS	5.0	12.0	0.70	25	0.47Ω-470Ω
2W/3WS	5.5	16	0.70	28	0.47Ω-470Ω
3W	6.5	17.5	0.75	28	0.47Ω-470Ω

Remark: FWRA surge can withstand 2KV-7KV

Characteristic

Test Item	Standard	Test Item	Standard
Temperature coefficient	<20Ω: ±400 PPM/°C; ≥20Ω: ±300PPM/°C	Load Life in humidity	ΔR/R ≤ ±(5.0%+0.05Ω)
Short time overload	ΔR/R ≤ ±(2.0%+0.05Ω)	Load Life	ΔR/R ≤ ±(5.0%+0.05Ω)
Solderability	Min. 95% coverage	Fusing	x32 times within 60sec.
Resistance to soldering heat	ΔR/R ≤ ±(1.0%+0.05Ω)	Non-Flame	No evidence of flaming or arcing
Temperature cycling	ΔR/R ≤ ±(2.0%+0.05Ω)	Terminal strength	No evidence of mechanical damage



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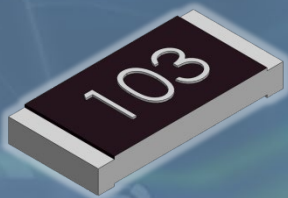
High Power Thick Film (HP Series)

Aldinet



Features:

- Comply with AEC-Q200
- High Power in standard size
- Can produce in low ohmic value ($0.1\Omega \sim 0.976\Omega$)
- Space Saver
- Suitable for both wave & re-flow soldering
- Available in KIT packaging (E24)



Application:

- AV adapters
- Automotive
- PDA's
- Digital Meter
- Industrial
- Battery Charger
- LCD back-light
- Camera strobe
- SMPS / Power Supply
- General purpose

Alternative for Yageo:

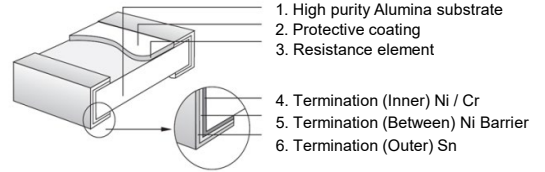
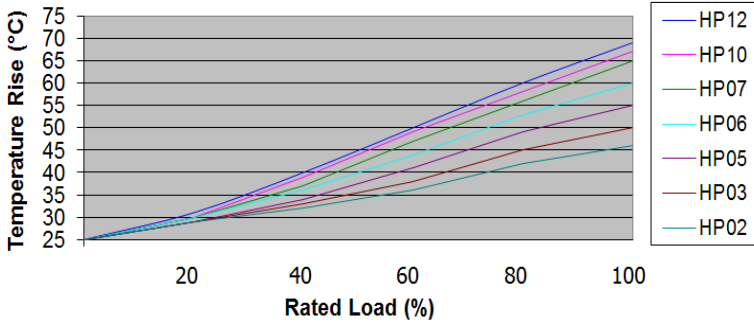
RCxx-7W

ACxx-7W

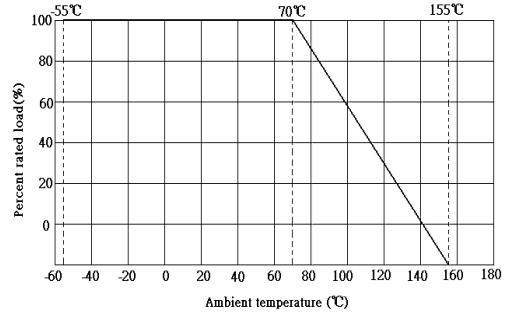


High Power Thick Film (HP Series)

Heat Rise Chart



Derating Curve



Type	Value Range 1%(E96) 5%(E24)	Power @ (70°C)	Max Working Voltage	Max Overload Voltage	I _{max} 0Ω
HP02	1Ω-10MΩ	1/10W	50V	100V	3A
HP03	0.1Ω~0.976Ω 1Ω-10MΩ	1/5W	75V	150V	5A
HP05		1/3W	150V	300V	6A
HP06		1/2W	200V	400V	10A
HP07		3/4W	200V	500V	12A
HP10		1W	200V	500V	12A
HP12		2W	300V	500V	16A

Characteristic

Test Item	Standard	Test Item	Standard
Temperature Coefficient	HP02: 1Ω≤R ≤ 10Ω: ±400 ppm/°C 10Ω<R ≤100Ω: ±200 ppm/°C 100Ω<R ≤10M : ±100 ppm/°C HP03 & HP05 : 0.1Ω<R ≤10Ω: ±200 ppm/°C 10Ω<R ≤10M : ±100 ppm/°C HP06 ~ HP12 : ±100ppm/°C	Solderability	Min. 95%coverage
		Dielectric Withstanding Voltage	No evidence of flashover, mechanical damage, arcing or insulation breakdown
		Resistance to Soldering Heat	±(1%+0.05Ω) Max
		Temperature Cycling	1%:±(0.5%+0.05Ω) Max 5%:±(1%+0.05Ω) Max
Short Time Overload	1%:±(1%+0.1Ω) Max 5%:±(2%+0.1Ω) Max	Load Life in Humidity	1%:±(1%+0.1Ω) Max 5%:±(3%+0.1Ω) Max
Terminal Bending	±(1%+0.05Ω) Max	Load Life	1%:±(1%+0.1Ω) Max 5%:±(3%+0.1Ω) Max



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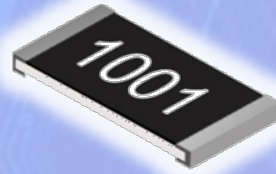
High Precision Thin Film (TC Series)

Aldinet



Features:

- Ni Cr Resistance element
- Very tight tolerance
- Extremely low TCR
- Complete lead-free



Application:

- Energy / Electronic Meter
- Lighting
- Power Supply
- Consumer Electronics
- Communication / Telecom
- Industrial Controls
- Medical equipment
- Instrumentation



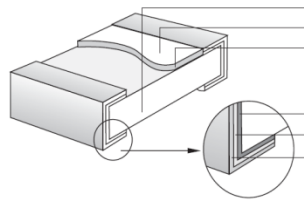
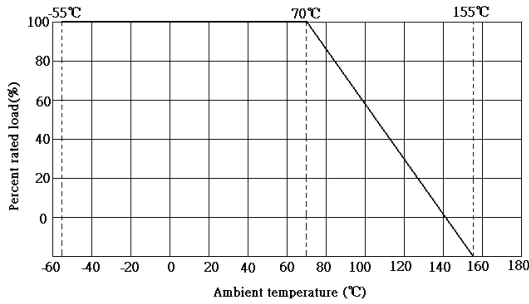
***AEC-Q200 Compliant Available in Sizes : 0402-1206 (TN Series)

High Precision Thin Film (TC Series)

Aldinet



Derating Curve



1. High purity Alumina substrate (高纯度氧化铝基板)
2. Protective coating (保护层)
3. Resistance element (阻抗元素)
4. Termination (Inner) Ni / Cr [端面(内)镍/铬层]
5. Termination (Between) Ni Barrier [端面(中)镍层]
6. Termination (Outer) Sn [端面(外)锡层(无铅)]

Type	Power (70°C)	Max Working Voltage	Max Overload Voltage	Dielectric Withstanding Voltage	Resistance Range		TCR.
					±0.1% ±0.25%	±0.5% ±1%	
TC02 (0402)	1/16W	25V	50V	100V	100Ω~2k	100Ω~2k	±5PPM
					50Ω~12k	50Ω~12k	±10PPM
					10Ω~332k	10Ω~332k	±25PPM
					10Ω~332k	10Ω~332k	±50PPM
TC03 (0603)	1/10W	75V	150V	300V	100Ω~4k	100Ω~4k	±5PPM
					10Ω~50k	10Ω~50k	±10PPM
					4.7Ω~1M	1Ω~1M	±25PPM
					4.7Ω~1M	1Ω~1M	±50PPM
TC05 (0805)	1/8W	150V	300V	500V	100Ω~15k	100Ω~15k	±5PPM
					10Ω~100k	10Ω~100k	±10PPM
					4.7Ω~2M	1Ω~2M	±25PPM
					4.7Ω~2M	1Ω~2M	±50PPM
TC06 (1206)	1/4W	200V	400V	500V	100Ω~15k	100Ω~15k	±5PPM
					10Ω~200k	10Ω~200k	±10PPM
					4.7Ω~3M	1Ω~3M	±25PPM
					4.7Ω~3M	1Ω~3M	±50PPM
TC07 (1210)	1/3W	200V	400V	500V	100Ω~15k	100Ω~15k	±5PPM
					10Ω~200k	10Ω~200k	±10PPM
					4.7Ω~3M	1Ω~3M	±25PPM
					4.7Ω~3M	1Ω~3M	±50PPM
TC10 (2010)	1/3W	200V	400V	500V	100Ω~25k	100Ω~25k	±5PPM
	1/2W				50Ω~200k	50Ω~200k	±10PPM
					4.7Ω~3M	1Ω~3M	±25PPM
					4.7Ω~3M	1Ω~3M	±50PPM
TC12 (2512)	3/4W	200V	400V	500V	100Ω~25k	100Ω~25k	±5PPM
					50Ω~200k	50Ω~200k	±10PPM
					4.7Ω~3M	1Ω~3M	±25PPM
					4.7Ω~3M	1Ω~3M	±50PPM



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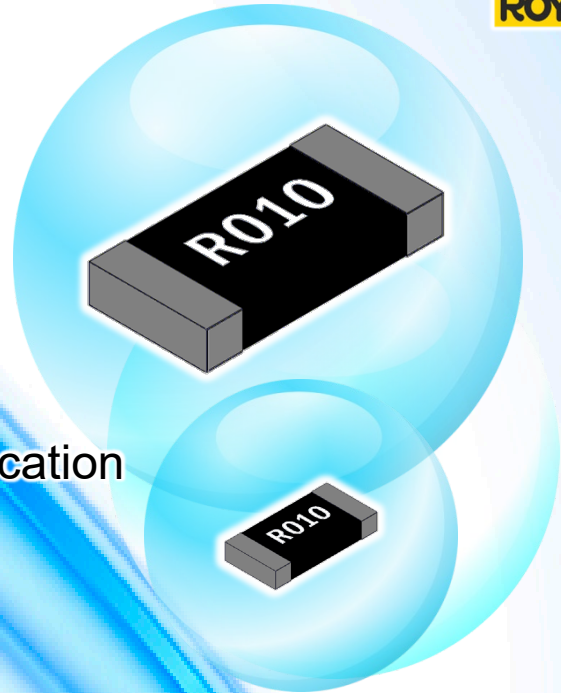
Metal Strip Chip Resistors (LR12)

Aldinet



Features:

- Power Rating up to 3 watt
- Low T.C.R. until ± 50 PPM
- Value range: 1-350m Ω
- Tolerance : $\pm 1\%$, $\pm 5\%$
- Ideal for current sensing application



Applications:

- BMS
- AV adapters
- LED back-light
- Camera strobe
- SMPS / Power Supply
- Rectifiers
- Power Banks / Lithium Battery
- Industrial Inverter
- Digital Meters
- Sensor
- Motor Controller
- BLDC Motor

Alternative for:

Vishay : WSL

TT : LRMA

ROHM : PMR

Bourns : CRA



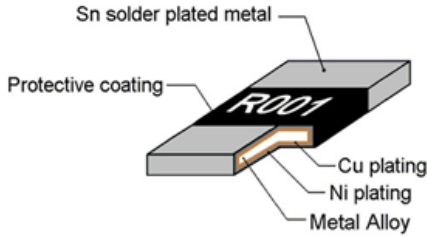
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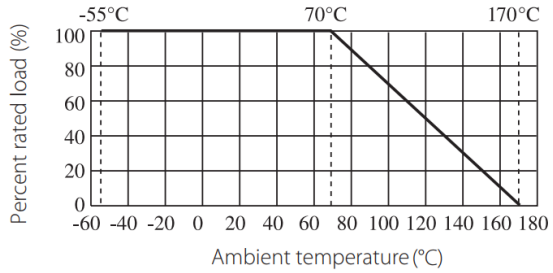
Metal Strip Chip Resistors (LR12)



Structure

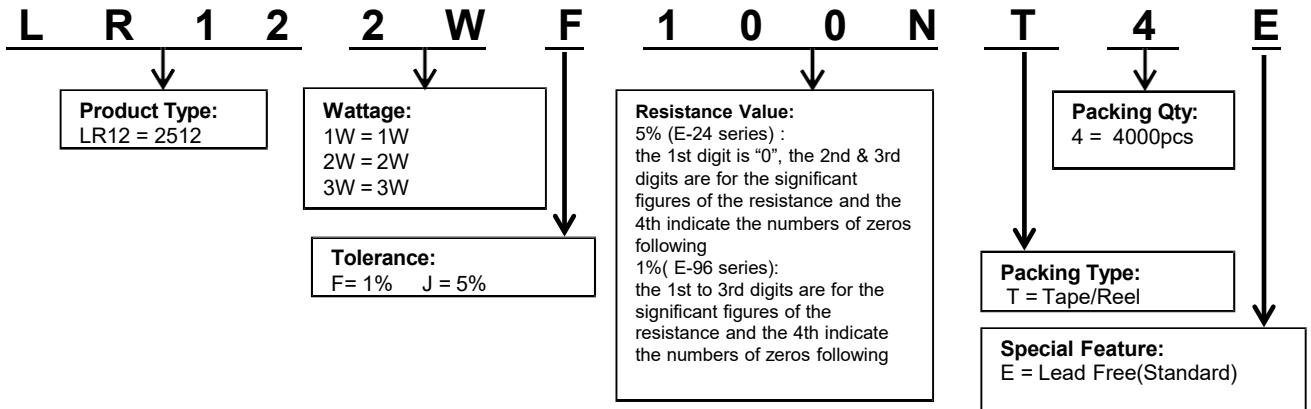


Derating Curve



Size	Power Rating	Resistance Range (mΩ)	Tol.	TCR	Packing T/R (7")
LR12 (2512)	1W	1 ~ 350	1%	±50ppm/°C	4K
	2W				
	3W	1, 2, 5	5%		
		10 ~ 350			

Ordering Procedure (Example: LR12 2W 1% 0.001Ω 50ppm T/R-4000)



Cross Reference

ROYALOHM	Vishay	KOA	Panasonic	ROHM	NIC	TT /IRC	TAI	SEI	BOURNS
LR	WSL	TLR	ERJM	PMR	NCLP	LRMA/P	RLM25,RLP25	CSNL	CRA



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Power Ribbon Wire-Wound Resistors (QL/QRZG)

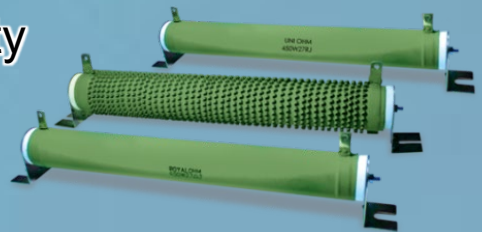


Features:

- High power load up to 2500W
- Good resistivity to short time overload
- High resistivity to heat in low TCR
- Too low or high ohmic value can supplied on a case to case basis
- Multi-terminal / variable types available by request

Application:

- Discharge Equipment
- Power load bank
- Tools that requires stability & reliability
- Industrial braking function
- EV Battery pack
- Drone charging station



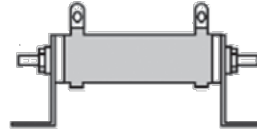
Power Ribbon Wire-Wound Resistors (QL/QRZG)



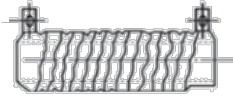
QH Type



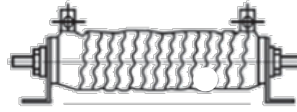
QL Type



QR Type



QRZG Type



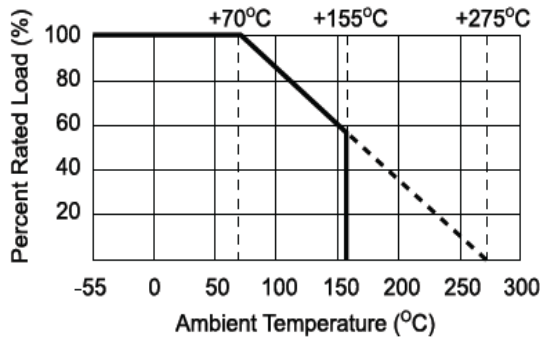
Operating temperature -55 ~ +155 °C

Type	Power Rating	Resistance Range	Tolerance
QH/QL	20W - 2500W	1Ω - 200K	5% ,10%
QR/QRZG Ribbon Wire	200W - 2500W	0.2Ω - 100Ω	5% ,10%

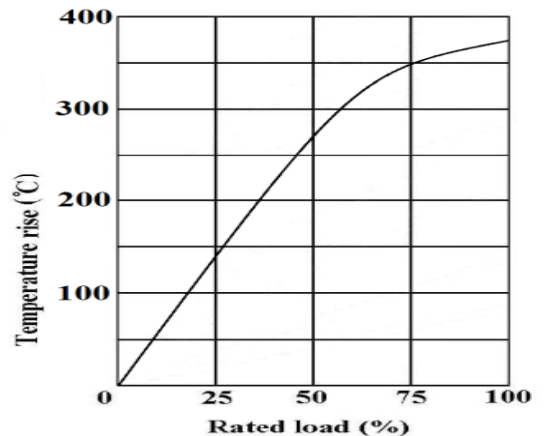
Electrical Characteristics

Temperature Coefficient	<20Ω : ± 400 PPM/°C Max. ≥20Ω : ± 300 PPM/°C Max.
Short Time Overload	2.5x rate power 5sec.
Load Life	70°C 1000Hr.
Insulation Resistance	DC 500V ≥20MΩ

Derating Curve



Temperature Rise Chart



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Shunt Resistors

Aldinet



SERIES:

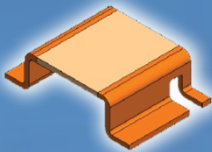
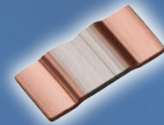
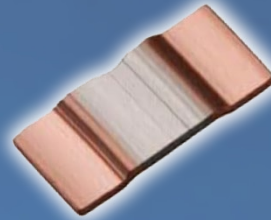
RS : Alloy Plate

LR : Alloy Strip

TL : Metal Film

ML & MS : Metal Foil

MW : Wide Terminal Metal Foil

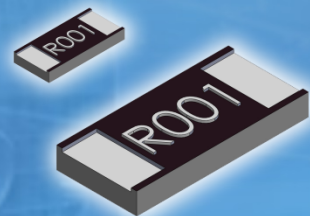


Features:

- High Power up to 15W
- Excellent Long Term Stability
- Sizes : 0201 to 5930
- T.C.R : +/-300PPM to +/-50PPM
- Value : 0.25mR-10R
- Tol.: +/-0.5%,1%,2%,5%

Applications:

- Battery Management System
- Power Supply/Module
- Current/Voltage Module
- Welding Machines
- Mobile Electronic Equipment
- Energy/Digital Meter
- BLDC Motor
- Industrial Tools/Controls

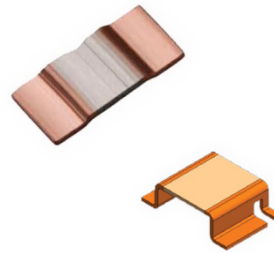
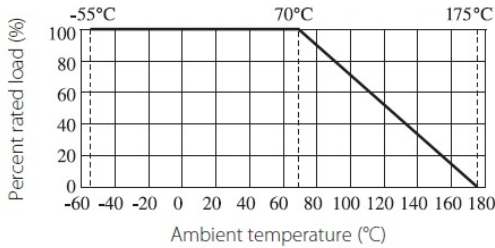


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Chip Resistors Shunt (RS Series)

Derating Curve



Operating Temperature Range -55~+175°C

Type	Power (70°C)	Resistance Range ±1%, ±2%, ±5%	T.C.R (PPM/°C)
RS06	2W	0.3mΩ	≤±300
		0.5mΩ	≤±200
		1mΩ	≤±150
RS12	6W	0.25mΩ	≤±200
		0.3mΩ	≤±150
		0.5mΩ	≤±115
	5W	0.75mΩ	≤±115
		1mΩ	≤±100
		2mΩ	≤±50
		3mΩ	≤±50
	4W	3mΩ	≤±50
3W	4mΩ	≤±50	
2.5W	5mΩ	≤±50	
RS20	12W	0.2mΩ	≤±200
	10W	0.3mΩ	≤±150

Type	Power (70°C)	Resistance Range ±1%, ±2%, ±5%	T.C.R (PPM/°C)
RS20	9W	0.5mΩ	≤±75
	8W	1mΩ	≤±50
	7W	1mΩ, 1.5mΩ	≤±50
	6W	2mΩ	≤±50
	5W	3mΩ	≤±50
	4W	4mΩ	≤±50
RS30	3W	5mΩ	≤±50
	15W	0.2mΩ	≤±100
	10W	0.3mΩ	≤±100
	8W	0.5mΩ	≤±75
		1mΩ	≤±50
	7W	2mΩ	≤±50
RS26	5W	3mΩ	≤±50
	3W	0.5mΩ	≤±100

Characteristic

Test Item	Standard
Short Time Overload	±1%, ±2%:±(1.0%+0.0005Ω) ±5%:±(2.0%+0.0005Ω)
Solderability	Min. 95%coverage
Rapid Change of Temperature	±(1.0%+0.0005Ω)
Low Temperature Storage	±(1.0%+0.0005Ω)

Test Item	Standard
High Temperature Exposure	±(1.0%+0.0005Ω)
Resistance to Soldering Heat	±(1.0%+0.0005Ω)
Load Life in Humidity	±1%, ±2%: ±(1.0%+0.0005Ω) ±5%:±(3.0%+0.0005Ω)
Load Life	±1%, ±2%: ±(1.0%+0.0005Ω) ±5%:±(3.0%+0.0005Ω)



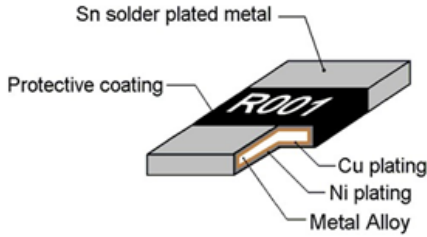
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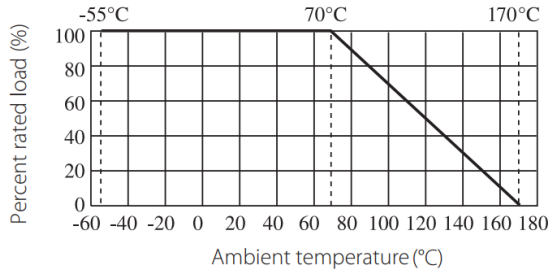
Metal Strip Chip Resistors (LR12)



Structure

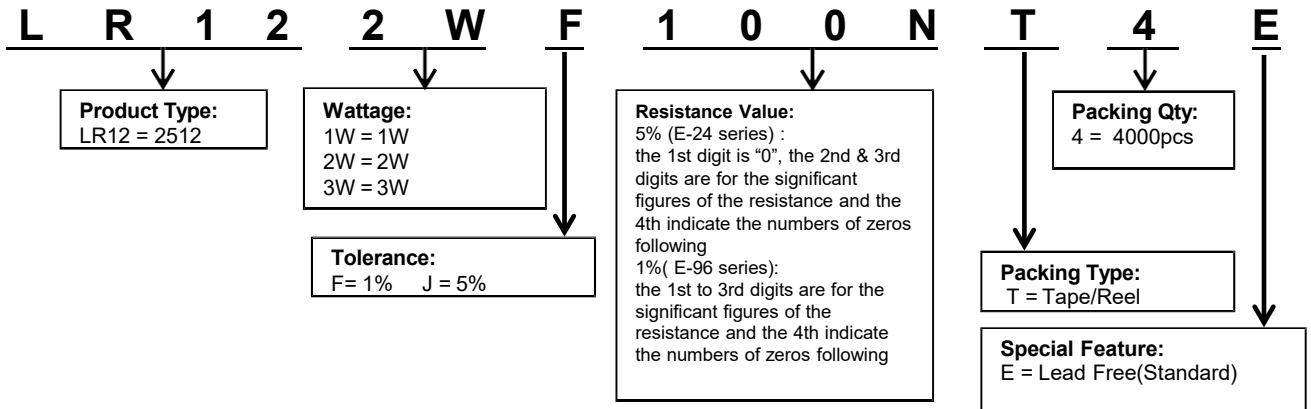


Derating Curve



Size	Power Rating	Resistance Range (mΩ)	Tol.	TCR	Packing T/R (7")
LR12 (2512)	1W	1 ~ 350	1%	±50ppm/°C	4K
	2W				
	3W	1, 2, 5 10 ~ 350	5%		

Ordering Procedure (Example: LR12 2W 1% 0.001Ω 50ppm T/R-4000)



Cross Reference

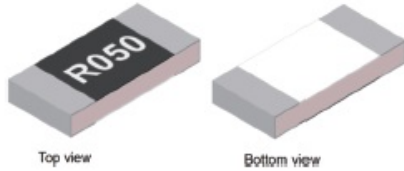
ROYALOHM	Vishay	KOA	Panasonic	ROHM	NIC	TT /IRC	TAI	SEI	BOURNS
LR	WSL	TLR	ERJM	PMR	NCLP	LRMA/P	RLM25,RLP25	CSNL	CRA



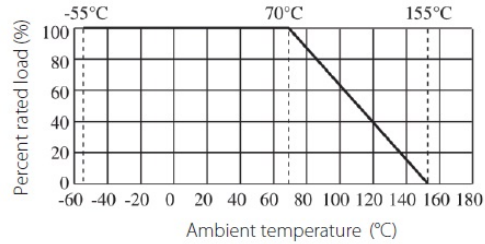
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Metal Film Low-Resistance Chip Resistors (TL Series)



Derating Curve



Operating Temperature Range -55~+155°C

Type	Power (70°C)	Resistance Range& TCR	Max Rating Current	Max Overload Current
TL01	1/10W	50mΩ≤R<100mΩ: ±100PPM/°C 100mΩ≤R<10Ω: ±50PPM/°C	1.41A	3.16A
TL02	1/8W		1.58A	3.54A
	1/4W		2.24A	5.00A
TL03	1/5W		2.00A	4.47A
	2/5W	2.83A	6.32A	
TL05	1/4W	39mΩ≤R<50mΩ: ±150PPM/°C 50mΩ≤R<100mΩ: ±100PPM/°C 100mΩ≤R≤10Ω: ±50PPM/°C	2.53A	5.66A
	1/2W		3.58A	8.00A
TL06	1/2W		3.58A	8.00A
	1W		5.06A	11.32A
TL07	1W	5.06A	11.32A	
TL10	1.5W	100mΩ≤R≤10Ω: ±50PPM/°C	3.87A	8.66A
TL12	2W		4.47A	10.00A
	3W		5.48A	12.25A

Characteristic

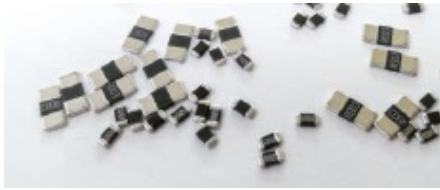
Test Item	Standard	Test Item	Standard
Short Time Overload	±(1.0%+0.001Ω)	Temperature Cycling	±(1.0%+0.001Ω)
Insulation Resistance	≥10GΩ	Load Life in Humidity	±(1.0%+0.001Ω)
Solderability	Min. 95%coverage	Load Life (Endurance)	±(1.0%+0.001Ω)
Resistance to Soldering Heat	±(1.0%+0.001Ω)		



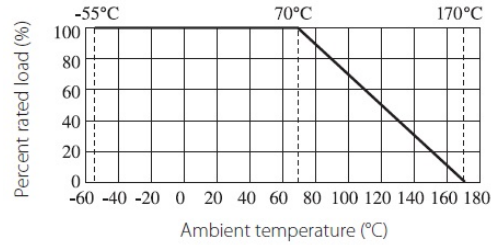
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Metal Alloy Low Resistance Chip Resistors (ML Series)



Derating Curve



Operating Temperature Range -55~+170°C

Type	Power (70°C)	T.C.R (PPM/°C)	Resistance Range		Resistance Value of Jumper
			0.5%	1%, 2%, 5%	
ML05	1/2W	$\leq \pm 100$	/	0.5mΩ~1mΩ	$\leq 0.2m\Omega$
		$\leq \pm 75$	/	1.5mΩ~2mΩ	
		$\leq \pm 50$	7mΩ~13mΩ	2.5mΩ~13mΩ	
	1W	$\leq \pm 100$	/	0.5mΩ~1mΩ	
		$\leq \pm 75$	/	1.5mΩ~2mΩ	
		$\leq \pm 50$	7mΩ~13mΩ	2.5mΩ~13mΩ	
ML06	1W	$\leq \pm 50$	5mΩ~50mΩ	1mΩ~50mΩ	$\leq 0.2m\Omega$
	1.5W	$\leq \pm 50$	5mΩ~10mΩ	1mΩ~10mΩ	/
ML12	2W	$\leq \pm 75$	/	0.5mΩ~0.75mΩ	$\leq 0.2m\Omega$
		$\leq \pm 50$	5mΩ~450mΩ	101mΩ~450mΩ	
	3W	$\leq \pm 75$	/	0.5mΩ~0.75mΩ	
		$\leq \pm 50$	5mΩ~100mΩ	1mΩ, 1.5mΩ, 3mΩ~9mΩ	
ML25	4W	$\leq \pm 100$	/	0.2mΩ	/
		$\leq \pm 50$	/	0.25mΩ~0.8mΩ	/
		$\leq \pm 50$	/	1mΩ~3mΩ	/
ML28	4W	$\leq \pm 50$	7mΩ~450mΩ	4mΩ~450mΩ	/
		$\leq \pm 50$	/	/	/
ML27	3W	$\leq \pm 75$	/	0.5mΩ	/
		$\leq \pm 50$	7mΩ~60mΩ	1mΩ~60mΩ	/
	5W	$\leq \pm 75$	/	0.5mΩ	/
		$\leq \pm 50$	7mΩ~500mΩ	1mΩ~500mΩ	/

Characteristic

Test Item	Standard
Short Time Overload	$\pm(0.5\%+0.0005\Omega)$
Resistance to Soldering Heat	$\pm(0.5\%+0.0005\Omega)$
Solderability	Min. 95%coverage

Test Item	Standard
Thermal Shock	$\pm(0.5\%+0.0005\Omega)$
Load Life	$\pm(1.0\%+0.0005\Omega)$ ML27: $\pm(2.0\%+0.0005\Omega)$



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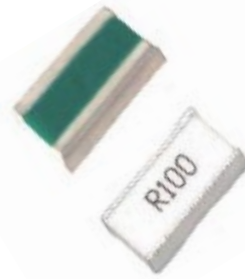
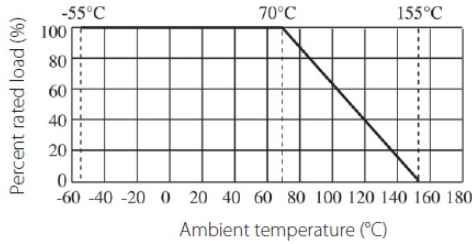
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Metal Foil Wide Terminal Chip Resistors (MW Series)

Aldinet



Derating Curve



Operating Temperature Range -55~+155°C

Type	Power (70°C)	T.C.R (PPM/°C)	Max Rating Current	Max Overload Current	Resistance Rang		
					±0.5%	±1%	±2%
MW08	1W	±100	31.62A	50A	/	/	1mΩ
		±100	22.36A	35.35A	2mΩ~9mΩ	/	/
		±50	10A	15.81A	10mΩ~100mΩ	/	/
MW12	1.5W	±100	38.72A	61.23A	/	/	/
		±100	27.38A	43.30A	2mΩ~9mΩ	/	/
		±50	12.24A	19.36A	10mΩ~100mΩ	/	/
MW15	2W	±100	44.72A	70.71A	/	/	/
		±100	31.62A	50A	/	2mΩ~9mΩ	/
		±50	14.14A	22.36A	10mΩ~20mΩ	/	/
MW25	3W	±100	54.77A	86.60A	/	1mΩ~9mΩ	/
		±50	17.32A	27.38A	10mΩ~100mΩ	/	/

Characteristic

Test Item	Standard	Test Item	Standard
Short Time Overload	±(1.0%+0.5mΩ)	Load Life in Humidity	±(2.0%+0.5mΩ)
High Temperature Exposure	±(1.0%+0.5mΩ)	Load Life (Endurance)	±(2.0%+0.5mΩ)
Low Temperature Storage	±(1.0%+0.5mΩ)	Resistance to Soldering Heat	±(1.0%+0.5mΩ)
Temperature Cycling	±(1.0%+0.5mΩ)		



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Ultra High Power Thick Film (SP Series)

Aldinet



Features:

- High Power Rating up to 6W
- Surge Withstanding Capability
- AEC-Q200 Compliant
- Suitable for both wave & reflow soldering
- SP12 available in KIT packaging (E-24)
- Product design patent # : I566261



Application:

- EV Charging system
- Lighting converter/beacon
- Automotive
- Consumer electronics
- LCD back light
- Power supply/tools
- Medical
- Battery Chargers/BMS
- Telecom Equipment
- Digital Cameras
- Computer & Wi Fi modules
- Warning System & Security
- Relay
- Inverter
- Automation Controls
- Energy Management



Alternative for:

Bourns CHP
Vishay RCP

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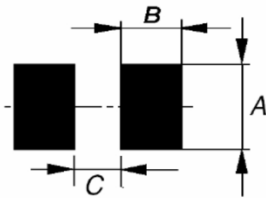
since
1978
Resistors Specialist

Ultra High Power Thick Film (SP Series)

Power Rate Comparison

Power (70°C)			
Size	Standard	HP	SP
0402	1/16W	1/10W	-
0603	1/10W	1/5W	-
0805	1/8W	1/3W	-
1206	1/4W	1/2W	-
2010	3/4W	1W	2W
2512	1W	2W	3W
2817	-	-	4W
4320	-	-	5W
4527	-	-	6W

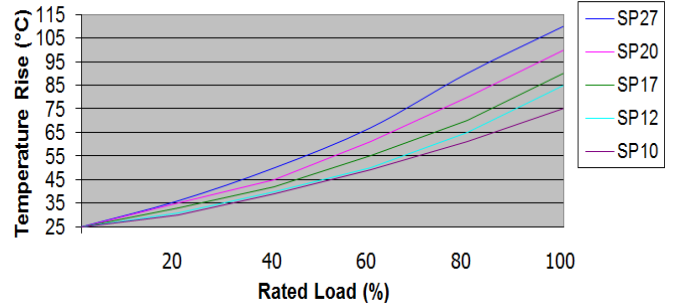
**SP series value range 1%, 5% 1R-10M



Recommended Solder Pad

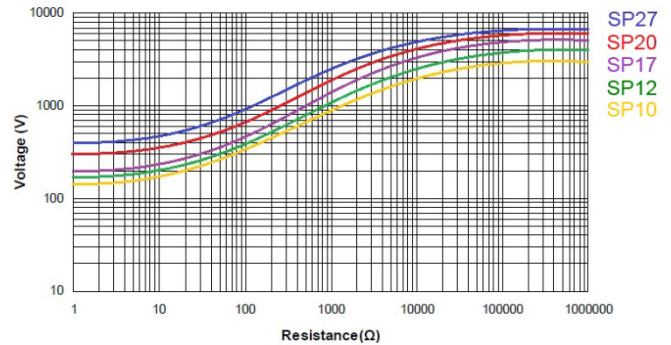
Size	Dimension(mm)		
	A	B	C
SP10	3.00	2.00	3.90
SP12	3.70	2.80	2.70
SP17	4.70	3.30	3.40
SP20	5.50	3.90	6.10
SP27	7.20	4.00	6.50

Heat Rise Chart



Surge Performance

SP Series 1.2/50us Lightning Surge



4 Layer PCB specification:

- 1) Outside 2 layers(Top and Bottom)with copper foil thickness at 2oz.
- 2) Inside 2 layers(middle layers)with copper foil thickness at 4oz.

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Wide Terminal Thick Film (WR Series)

Aldinet



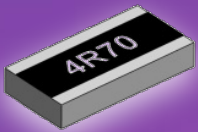
Features:

- Comply with AEC-Q200
- High Power
- Suitable for both wave & re-flow soldering



Application:

- Consumer Electronics
- Printer
- Power Supply
- Lighting
- Automotive / EV Charging
- BLDC Motors
- Alarms & securities

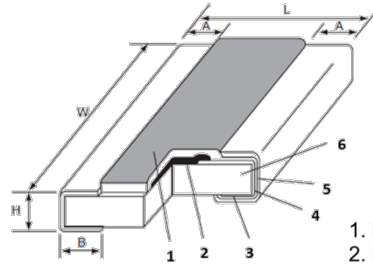
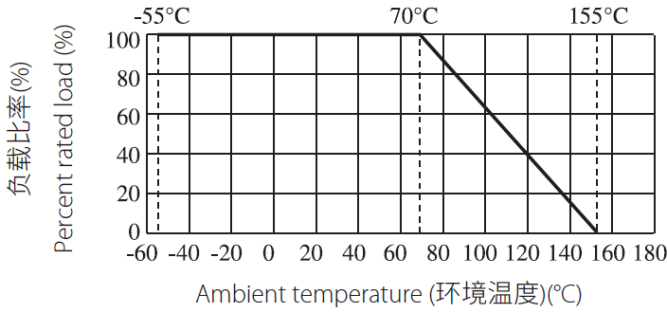


Wide Terminal Thick Film (WR Series)

Aldinet



Derating Curve



1. Protective layer
2. Resistive Element
3. Termination (Inner) Ni / Cr
4. Termination (Between) Ni
5. Termination (Outer) Sn
6. High purity Alumina substrate

Dielectric Withstanding Voltage : 500V

Type	Power (70°C)	Resistance Range 1%,5%	Max Working Voltage	Max Over load Voltage	T.C.R.
WR08 (0508)	1/3W	10Ω ~ 1M	150V	300V	10Ω : ±400 10Ω~100Ω: ±200 >100Ω: ±100
	2/3W	10mΩ ~ <10Ω	/	/	10Ω~ <30mΩ: ±400 >30Ω~ 10Ω: ±150
	/	Jumper<50mΩ	4A	8A	/
WR12 (0612)	1/2W	>10Ω ~ 1M	200V	400V	10Ω~100Ω: ±200 >100Ω: ±100
	1W	10mΩ ~ 10Ω	/	/	10Ω~ <100mΩ: ±200 100mΩ~ 10Ω: ±150
	/	Jumper<50mΩ	5A	10A	/
WR20 (1020)	1W	>1Ω ~ 1M	200V	400V	1Ω~ 10Ω : ±400 <10Ω~100Ω: ±200 >100Ω: ±100
		10mΩ ~ 1Ω	/	/	10Ω~ <30mΩ: ±200 30Ω~ 1Ω: ±100
	/	Jumper<50mΩ	6A	12A	/
WR18 (1218)	1W	10mΩ ~ 1MΩ	200V	400V	10Ω~ <30mΩ: ±200 30Ω~ 1Ω: ±100 1Ω~ 10Ω : ±400 <10Ω~100Ω: ±200 >100Ω: ±100
	/	Jumper<50mΩ	6A	10A	/
WR25 (1225)	2W	>1Ω ~ 1M	200V	400V	1Ω~ 10Ω : ±400 <10Ω~100Ω: ±200 >100Ω: ±100
	3W	10mΩ ~ 1Ω	/	/	10Ω~ <30mΩ: ±150 30Ω~ 1Ω: ±100
	/	Jumper<50mΩ	6A	15A	/



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