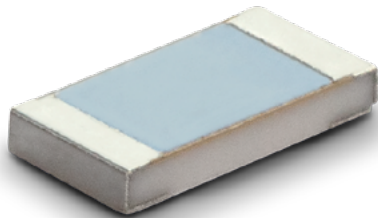


Data Sheet for Precision Resistors

SMD Resistor (metal foil)

Series RWA, RWB, RWD



- High Precision Metal Foil Resistor
- Resistance Tolerance up to $\pm 0,01\%$
- TCR rate up to $\pm 2\text{ppm}/^\circ\text{C}$
- Excellent Long Term Stability $\Delta R \pm 0,005\%$ @2000 h rated power
- Exactly definable values e.g. $3k529\Omega$

Electrical Specification	RWA	RWB	RWD
	0603	0805	1206
Resistance range	100 Ω ..5k Ω	10 Ω ..10k Ω	5 Ω ..30k Ω
Resistance tolerance	$\pm 0,05\%$, $\pm 0,1\%$	$\pm 0,02\%$, $\pm 0,05\%$, $\pm 0,1\%$	$\pm 0,01\%$.. $\pm 0,5\%$
Power rating @ 70°C (0W @ +155°C)	0,1W	0,2W	0,3W
Max. working voltage	22V	45V	95V
TCR-rate (ppm/°C)	± 5	± 2 ; ± 5 ; ± 10	
Working temperature range (max.)	-65..+155°C		

Series	TCR ppm/°C	Resistance Tolerance				
		$\pm 0,01\%$	$\pm 0,02\%$	$\pm 0,05\%$	$\pm 0,1\%$	$\pm 0,5\%$
RWA 0603	± 5	--	--	$1k\Omega \leq R < 5k\Omega$	$100\Omega \leq R < 1k\Omega$	--
	± 2	--	$1k\Omega \leq R < 10k\Omega$	$100\Omega \leq R < 10k\Omega$	$100\Omega \leq R < 1k\Omega$	--
RWB 0805	± 5	--	--	--	$30\Omega \leq R < 100\Omega$	--
	± 10	--	--	--	--	$10\Omega \leq R < 30\Omega$
RWD 1206	± 2	$1k\Omega \leq R < 30k\Omega$	$100\Omega \leq R < 30k\Omega$		$100\Omega \leq R < 1k\Omega$	--
	± 5	--	--	--	$30\Omega \leq R < 100\Omega$	--
	± 10	--	--	--	--	$5\Omega \leq R < 30\Omega$

Mechanical Specification	
Resistance technology / material	Metal foil
Design	0603, 0805, 1206
Connections	Axial tinned

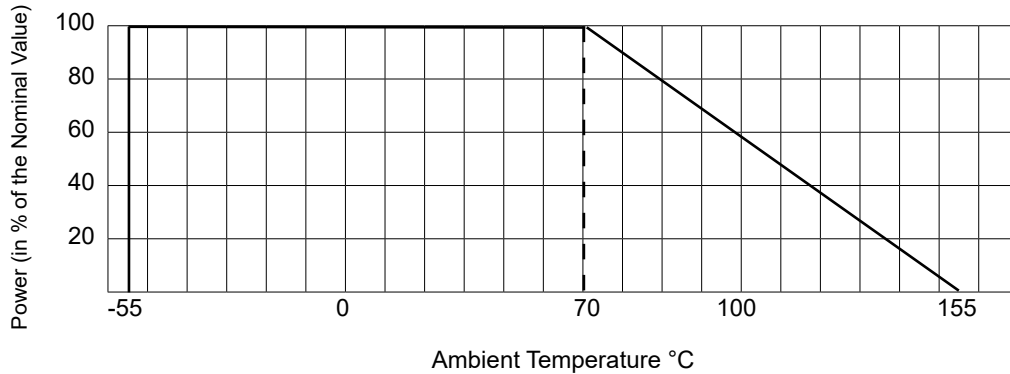
Parameters	Test Conditions	Specification
Short time overload	2,5 x rated voltage, 5 sec.	$\Delta R \pm 0,01\%$
Life span (biased)	70°C, rated voltage, 90 min. on 30 min off, 2000 h	$\Delta R \pm 0,005\%$
Temperature / humidity	65°C..-10°C, 90%..98% RH rated power, 10 x 240 h	$\Delta R \pm 0,02\%$
Temperature shock	-65°C..+150°C (each 30 min), 100 cycles	$\Delta R \pm 0,01\%$
High temperature exposure	+155°C, no bias 100 h	$\Delta R \pm 0,02\%$
Resistance to soldering heat	260°C, 10 sec.	$\Delta R \pm 0,01\%$

Data Sheet for Precision Resistors

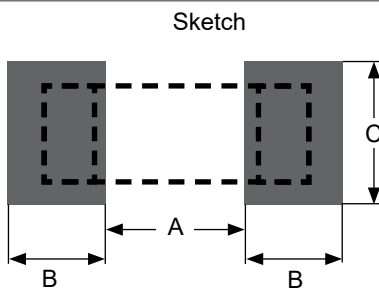
SMD Resistor (metal foil)

Series RWA, RWB, RWD

Power Derating Curve



Recommended Foot Prints



	A	B	C
RWA 0603	0,8 mm	0,9 mm	1 mm
RWB 0805	0,8 mm	1,2 mm	1,4 mm
RWD 1206	1,6 mm	1,5 mm	1,8 mm

Please note:

1. Storage

Storage conditions or environment may adversely affect solderability of the exterior terminals. Do not store in high temperature and humidity. The recommended storage environment is lower than 40°C, has less than 70% RH humidity and is free from harmful gases such as sulphur and chlorine.

2. Caution in Soldering

- IR and vapor phase reflow are recommended.
- Vacuum pick up is recommended for handling.
- If the use of a soldering iron becomes necessary, precautionary measures should be taken to avoid any possible damage / overheating.

3. Cleaning

Avoid the use of cleaning agents which could attack epoxy resins, which form part of the resistor construction.

4. Recommended Land Pattern

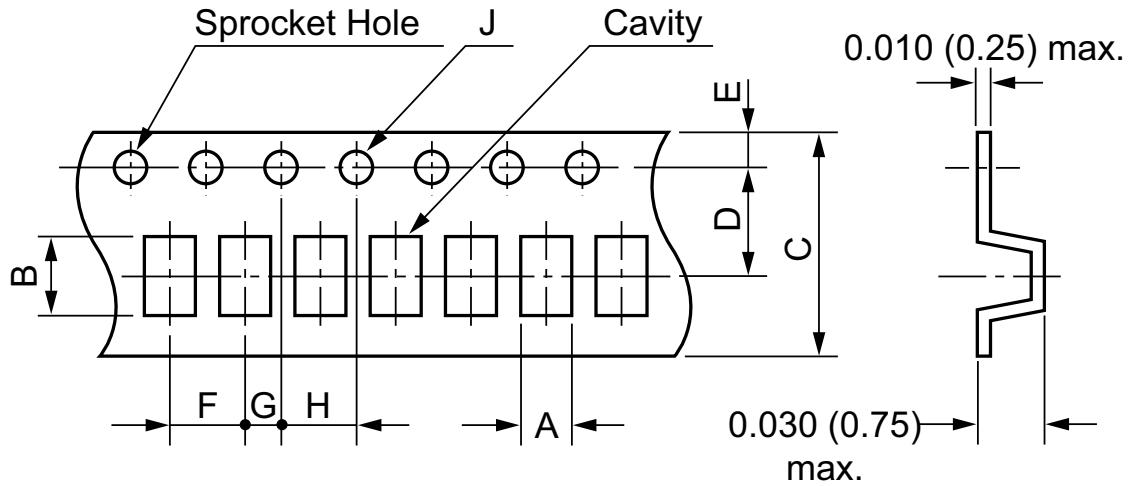
The dimensions of solder land must be determined in conformity with the size of resistors and with the soldering method. They are also subject to the mounting machine and the material of the substrate.

Data Sheet for Precision Resistors

SMD Resistor (metal foil)

Series RWA, RWB, RWD

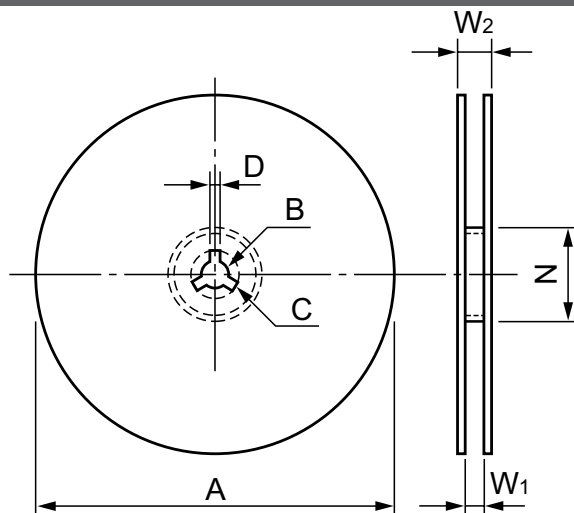
Blister Tape Dimensions



Series	A $\pm 0,1$	B $\pm 0,1$	C $\pm 0,2$	D $\pm 0,05$	E $\pm 0,1$	F $\pm 0,1$	G $\pm 0,05$	H $\pm 0,1$	J $\pm 0,55$
RWA 0603	1	1,8	8	3,5	1,75	4	2	4	1,55
RWB 0805	1,45	2,25	8	3,5	1,75	4	2	4	1,55
RWD 1206	1,9	3,5	8	3,5	1,75	4	2	4	1,55

Dimensions in mm

Reel Dimensions



RWA	0603
A	180 (0/-1,5)
N	60 (+1/0)
B	13 ($\pm 0,2$)
C	21 (+0,8)
D	2 ($\pm 0,5$)
W1	9 (+1/0)
W2	13 (± 1)

Dimensions in mm

Packaging

RWA 0603, RWB 0805, RWD 1206

100 pcs. / 500 pcs. / 1000 pcs. / 5000 pcs.
Tape on Reel

Data Sheet for Precision Resistors

SMD Resistor (metal foil)

Series RWA, RWB, RWD

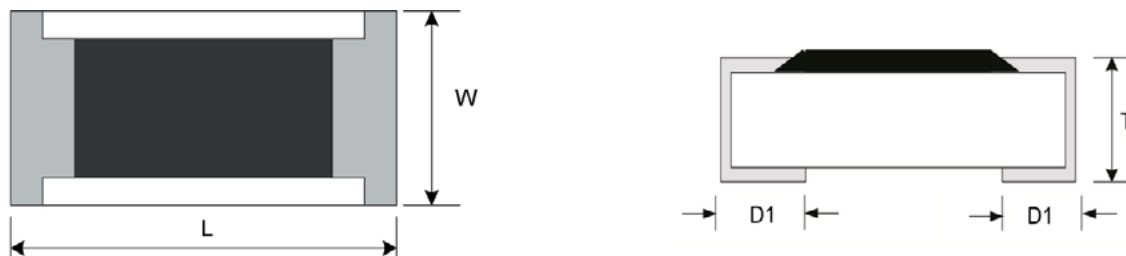
Order code

Description

Series:	RW				
Type / size: 0603 ($100\Omega \leq R < 1k\Omega$) 0805 ($10\Omega \leq R < 10k\Omega$) 1206 ($5\Omega \leq R < 30k\Omega$)		A 0603 B 0805 D 1206			
Resistance tolerance: $\pm 0,5\%$ (not for 0603) $\pm 0,1\%$ $\pm 0,05\%$ $\pm 0,02\%$ (not for 0603) $\pm 0,01\%$ (only 1206)			W0,5% W0,1% W0,05% W0,02% W0,01%		
Temperature coefficient: 10ppm/°C - see condition below for 0805: $10\Omega \leq R < 30\Omega$ @ $\pm 0,5\%$ for 1206: $5\Omega \leq R < 30\Omega$ @ $\pm 0,5\%$ 5ppm/°C - see condition below for 0603: $100\Omega \leq R < 1k\Omega$ @ $\pm 0,1\%$ for 0603: $1k\Omega \leq R < 5k\Omega$ @ $\pm 0,05\%$ for 0805: $30\Omega \leq R < 100\Omega$ @ $\pm 0,1\%$ for 1206: $30\Omega \leq R < 100\Omega$ @ $\pm 0,1\%$ 2ppm/°C - see condition below for 0805: $100\Omega \leq R < 1k\Omega$ @ $\pm 0,1\%$ for 0805: $100\Omega \leq R < 10k\Omega$ @ $\pm 0,05\%$ for 0805: $1k\Omega \leq R < 10k\Omega$ @ $\pm 0,02\%$ for 1206: $100\Omega \leq R < 1k\Omega$ @ $\pm 0,1\%$ for 1206: $100\Omega \leq R < 30k\Omega$ @ $\pm 0,05\%$.. $0,02\%$ for 1206: $1k\Omega \leq R < 30k\Omega$ @ $\pm 0,01\%$			TK10 TK5 TK2		
Resistance value - please choose: Depends on Type/Size, ppm, tolerance!					xxkxxx

Order Example	Series	Type	Resistance tolerance	Temperature coefficient	Resistance value
Choice	RWA	0603	$\pm 0,1\%$	5ppm/°C	100 Ω
Code	RWA	0603	W0,1%	TK5	100R00

Drawing



	$L_{\pm 0,2 \text{ mm}}$	$W_{\pm 0,2 \text{ mm}}$	$D1_{\pm 0,25 \text{ mm}}$	$T_{\pm 0,1 \text{ mm}}$
RWA 0603	1,6 mm	0,8 mm	0,3 mm	0,5 mm
RWB 0805	2,0 mm	1,25 mm	0,4 mm	0,5 mm
RWD 1206	3,2 mm	1,6 mm	0,5 mm	0,5 mm