

# DATA SHEET

**SMD POWER RESISTORS**  
RWx – REAL POWER

UP TO 3 W



Product Specification – Jun. 18, 2003 V.0

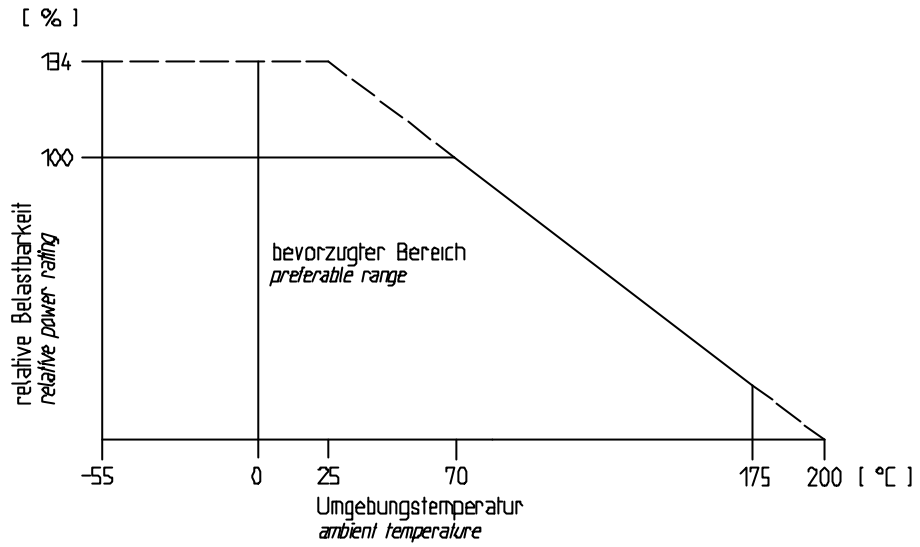


## Specification

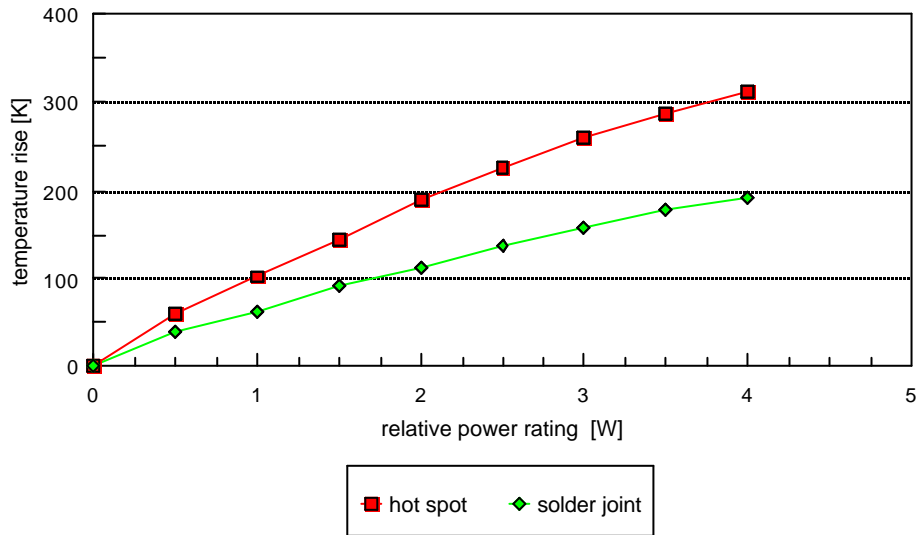
Type	RWP 5020	
Style	5020	
Power rating ( $\vartheta_0 = 200^\circ\text{C}$ )	W	$P_{25}$ 2,2 $P_{40}$ 2,0 $P_{70}$ 1,6 higher power depends on mounting technology
Tolerance	%	1   5
Resistance range	$\Omega$	10R ... 1M   1R0 ... 1M
Temperature coefficient	ppm $\text{K}^{-1}$	$\pm 50$   $\pm 200$
E-Series		E 96   E 12 preferred
max. cont. working voltage	$V_{\text{RMS}}$	500
Thermal resistance	K/W	90 <sup>1)</sup>
Insulation voltage (1min.)	$V_{\text{RMS}}$	1000
Insulation resistance		> 1000M $\Omega$ (dry)
Climatic category		55/175/56
Temperature range	$^\circ\text{C}$	-55 ... 175
Endurance ( $P_{70}$ , @ 70 $^\circ\text{C}$ , 1000h, interm.)	$\left[ \frac{\Delta R}{R} \right]$ %	$\leq 1,5$
Damp heat, steady state	$\left[ \frac{\Delta R}{R} \right]$ %	$\leq 1,5$
Resistance to soldering heat	$\left[ \frac{\Delta R}{R} \right]$ %	$\leq 0,25$
Short time overload (6,25 * $P_{70}$ /2sec.)	$\left[ \frac{\Delta R}{R} \right]$ %	$\leq 1\%$
Temperature shock	$\left[ \frac{\Delta R}{R} \right]$ %	$\leq 0,25$
Board-bending-test		no interruption
Solderability		suitable for wave and reflow soldering in acc. with CECC 00802

<sup>1)</sup> Thermal datas according to DIN 44050 with solder pads as on page 3

Derating:

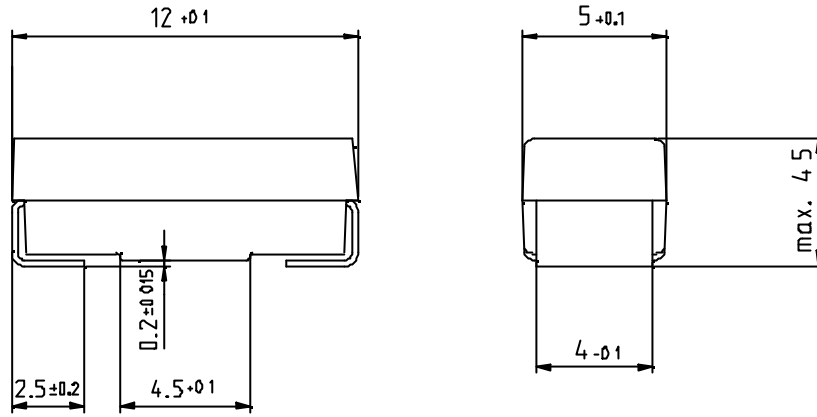


Temperature rise:

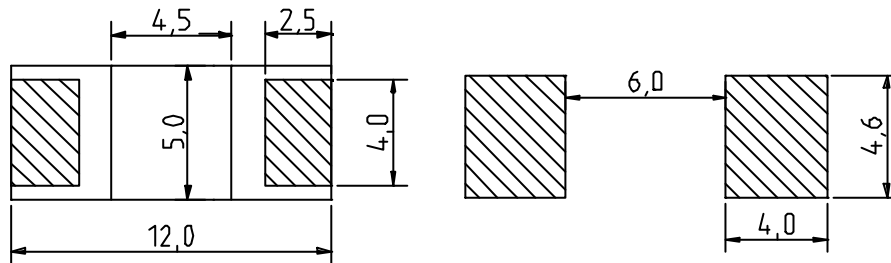


Part mounted on FR4,  
 pads as recommended (see page 3),  
 copper Layer 35µm

Dimensions in mm:



recommended solder pads:



bottom view

solder pads

Marking: Resistor: printed in clear: Type - Value - Tolerance  
Package additional Batch-Nr.- Production date

Packaging: Blister tape 24mm antistatic / 1500 pcs. on reel 330mm  $\varnothing$

Ordering example: RWP 5020	F	K	--	13	10K
Type	Tolerance	E. Plastic tape reel	TC	reel diameter	R-value

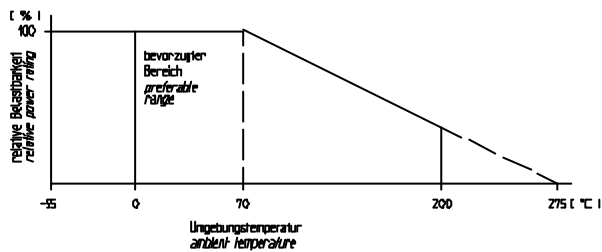
## Specification

Type		RWN 5020	RWC 5020
Style		5020	
		non inductive, no winding	wirewound on ceramic
Power rating $\vartheta_0 = 200^\circ\text{C}$	W	$P_{25}$ 2,2 $P_{40}$ 2,0 $P_{70}$ 1,6	
Single pulse	$I_{\max}$ A $E_{i, \max}$ mWs $T_{\text{imp, max}}$ ms	50 625 5	
periodic pulse load	$I_{\max}$ A $E_{i, \text{per, max}}$ mWs $t_{\text{imp, max}}$ ms $t_{\text{pause}}$ ms	30 (R003 ... R018) 40 (R022 ... R050) 225 5 100	
Tolerance	%	1, 2, 5 (F, G, J)	1, 2, 5 (F, G, J)
Resistance range	$\Omega$	0R003 ... 0R050	0R051 ... 82R
Temperature coefficient	ppm $\text{K}^{-1}$	see diagram	$\pm 80$
E-Series		R003, R005, $\geq$ R010 : E 12	E 12
max. cont. working voltage	$V_{\text{RMS}}$	diverging values on request $\sqrt{P \cdot R}$	
Thermal resistance	K/W	100 <sup>1)</sup>	
Insulation voltage (1min.)	$V_{\text{RMS}}$	1000	
Insulation resistance		> 1000M $\Omega$ (dry)	
Climatic category		55/175/56	
Temperature range	$^\circ\text{C}$	-55 ... 200	
Endurance ( $P_{70}$ , 70 $^\circ\text{C}$ , 1000h)	$\left[ \frac{\Delta R}{R} \right]$ %	$\leq 1,0$	
Damp heat, steady state	$\left[ \frac{\Delta R}{R} \right]$ %	$\leq 0,25$	
Resistance to soldering heat	$\left[ \frac{\Delta R}{R} \right]$ %	$\leq 0,25$	
Short time overload ( $5 * P_{70}/5\text{sec}$ )	$\left[ \frac{\Delta R}{R} \right]$ %	$\leq 1\%$	

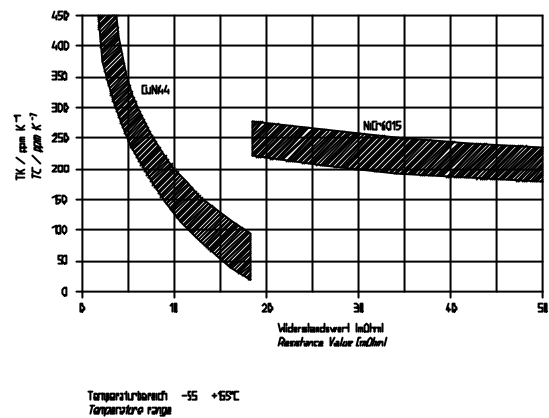
Temperature shock	$\left[ \frac{\Delta R}{R} \right] \%$	$\leq 0,25$
Board-bending-test		no interruption
Solderability		suitable for wave and reflow soldering in acc. with CECC 00802

1) Thermal datas according to DIN 44050 with solder pads as on page 3.

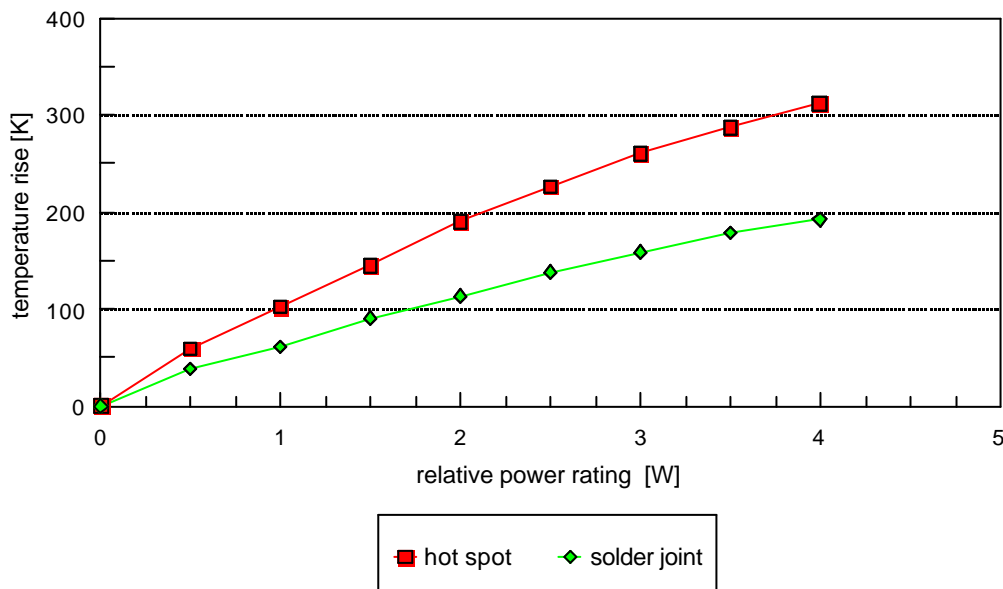
Derating:



TC-Diagram (RWN 5020):

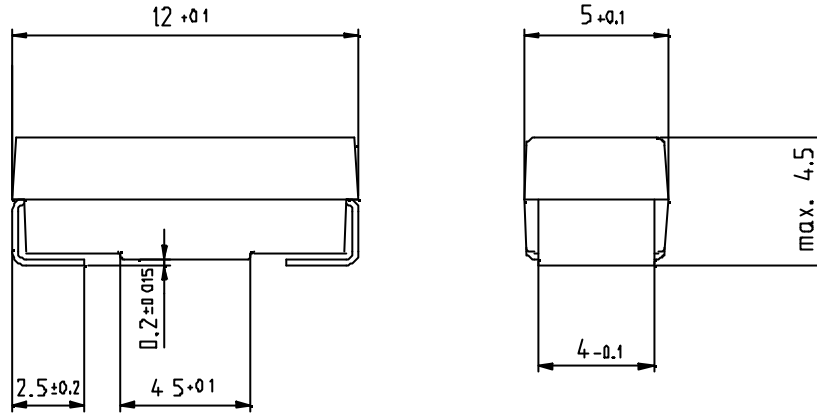


Temperature rise:

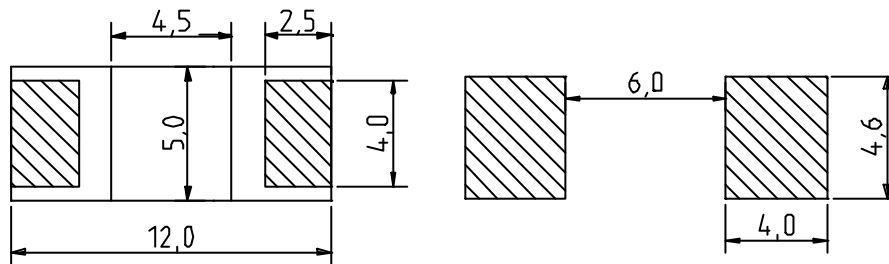


Part mounted on FR4,  
 pads as recommended,  
 copper layer 35µm.

Dimensions in mm:



recommended solder pads:



bottom view

solder pads

Marking: Resistor: printed in clear: Type - Value - Tolerance

Packaging: additional Batch-No. - Production date

Packaging: Blister tape 24mm antistatic / 1500pcs. on reel 330mm  $\phi$

Ordering example: RWC 5020 F K -- 13 1R  
 Typ Toleranz Blistergurt TK Rollendurchmesser R-Wert