

WIREWOUND - RESISTORS

The following equations and data may be used to calculate the admissible pulse load of wirewound resistors. The equations are the results of many separate experiments and represent the sum of experience. Several other factors, often application related, cannot be considered in our formula which should give safe operation information rather than exact limiting data.

After calculating the provisional results, testing to the specific requirements is recommended.

admissible pulse load $P_{\max} = \frac{K}{\sqrt{t}} [W]$

admissible pulse duration $t_{\max} = \frac{K^2}{P^2} [\text{sec}]$

where P= actual occurring power peek

minimum interval between pulses:

$$t_{\min} = P \cdot \frac{t}{P_{70}} [\text{sec}]$$

where t= actual pulse duration

The equations are applicable for the interval:

$$1 \cdot 10^{-6} \leq t \leq 100 \cdot 10^{-3} [\text{sec}]$$

under the conditions:

$$P_{\text{avg}}(t) \leq P_{70}$$

The following table also gives the maximum current I_{\max} and the minimum resistance R_{\min} which depends on the internal construction of the resistor.

Pulse Load – Table

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Serie	Type	P ₇₀ [W]	K	U _{max} [V]	I _{max} [A]	from R _{min} [Ω]	
KC	200-0	1	50	2.000	20	10R	
	202-0	2	100	4.000	20	20R	
	204-0	3	150	6.000	20	33R	
	200-040	1	100	2.000	30	30R	
	202-040	2	150	4.000	30	62R	
	204-040	3	200	6.000	30	100R	
KH	206-0/8	4	200	2.000	20	10R	
	208-0/8	5	250	4.000	20	15R	
	210-0/8	7	350	6.000	20	33R	
	212-0/8	7	300	4.000	20	15R	
	214-0/8	9	450	6.000	20	33R	
	216-0/8	11	550	8.000	20	47R	
	218-0/8	17	850	10.000	20	82R	
	206-040/840	4	300	2.000	30	30R	
	208-040/840	5	350	4.000	30	47R	
	210-040/840	7	450	6.000	30	100R	
	212-040/840	7	400	4.000	30	47R	
	214-040/840	9	550	6.000	30	100R	
	216-040/840	11	650	8.000	30	150R	
	218-040/840	17	950	10.000	30	240R	
	KV/KU	206-3/5	4	200	2.000	20	10R
		208-3/5	5	250	4.000	20	15R
		210-3/5	7	350	6.000	20	33R
		212-3/5	7	300	4.000	20	15R
214-3/5		9	450	6.000	20	33R	
216-3/5		11	550	8.000	20	47R	
218-3/5		17	850	10.000	20	82R	
206-340/540		4	300	2.000	30	30R	
208-340/540		5	350	4.000	30	47R	
210-340/540		7	450	6.000	30	100R	
212-340/540		7	400	4.000	30	47R	
214-340/540		9	550	6.000	30	100R	
216-340/540		11	650	8.000	30	150R	
218-340/540		17	950	10.000	30	240R	
KF		206-4	1.2	200	2.000	20	10R
		208-4	1.5	250	4.000	20	15R
		210-4	2.5	350	6.000	20	33R
		212-4	2.0	300	4.000	20	15R
	214-4	3.0	450	6.000	20	33R	
	216-4	4.0	550	8.000	20	47R	
	218-4	6.0	850	10.000	20	82R	

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Pulse Load - Table

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Serie	Type	P ₇₀ [W]	K	U _{max} [V]	I _{max} [A]	from R _{min} [Ω]	
KF	206-440	1.2	300	2.000	30	30R	
	208-440	1.5	350	4.000	30	47R	
	210-440	2.5	450	6.000	30	100R	
	212-440	2.0	400	4.000	30	47R	
	214-440	3.0	450	6.000	30	100R	
	216-440	4.0	650	8.000	30	150R	
	218-440	6.0	950	10.000	30	240R	
	KT	206-6	1.2	200	2.000	20	10R
208-6		1.5	250	4.000	20	15R	
210-6		2.5	350	6.000	20	33R	
212-6		2.0	300	4.000	20	15R	
214-6		3.0	450	6.000	20	33R	
216-6		4.0	550	8.000	20	47R	
218-6		6.0	850	10.000	20	82R	
206-640		1.2	300	2.000	30	30R	
208-640		1.5	350	4.000	30	47R	
210-640		2.5	450	6.000	30	100R	
212-640		2.0	400	4.000	30	47R	
214-640		3.0	550	6.000	30	100R	
216-640		4.0	650	8.000	30	150R	
218-640		6.0	950	10.000	30	240R	
KT		212-7	2.0	300	4.000	20	15R
		214-7	2.5	450	6.000	20	33R
		216-7	3.5	550	8.000	20	47R
		218-7	4.5	850	10.000	20	82R
	212-740	2.0	400	4.000	30	47R	
	214-740	2.5	550	6.000	30	100R	
	216-740	3.5	650	8.000	30	150R	
	218-740	4.5	950	10.000	30	240R	
KN	350-8	1.0					
	351-8	2.0					
	352-8	3.0					
	353-8	4.0					
	354-8	5.0					
KP	290-0/1	2.0	100	2.000	20	18R	
	292-0/1	4.0	200	4.000	20	27R	
	294-0/1	5.0	250	6.000	20	43R	
	296-0/1	6.5	300	8.000	20	62R	
	298-0/1	8.0	400	10.000	20	82R	
	290-040/140	2.0	200	2.000	30	48R	
	292-040/140	4.0	300	4.000	30	82R	
	294-040/140	5.0	350	6.000	30	120R	
	296-040/140	6.5	400	8.000	30	180R	
	298-040/140	8.0	500	10.000	30	240R	

Please ask VITROHM for details or see:
 "Design Notes for Current Sense Resistors"
 available from VITROHM or at:
www.vitrohm.de

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Serie	Type	P ₇₀ [W]	K	U _{max} [V]	I _{max} [A]	from R _{min} [Ω]
KWP	330-3/5/7	2.0	100	2.000	20	18R
	331-3/5/7	2.0	100	2.000	20	18R
	332-3/5/7	2.5	150	4.000	20	27R
	333-3/5/7	3.0	200	6.000	20	39R
	335-3/5/7	4.5	250	6.500	20	43R
	336-3/5/7	4.5	250	8.000	20	47R
	337-3/5/7	5.5	300	8.000	20	47R
	338-3/5/7	8.0	450	10.000	20	56R
	330-340/540/740	2.0	200	2.000	30	18R
	331-340/540/740	2.0	200	2.000	30	18R
	332-340/540/740	2.5	250	4.000	30	27R
	333-340/540/740	3.0	300	6.000	30	39R
	335-340/540/740	4.5	350	6.500	30	43R
	336-340/540/740	4.5	350	8.000	30	47R
337-340/540/740	5.5	450	8.000	30	47R	
338-340/540/740	8.0	600	10.000	30	56R	
KWA	KWA15	15	700	8.000	20	38R
	KWA20	20	900	10.000	20	68R
	KWA30	30	1.300	15.000	20	100R
	KWA40	40	1.700	17.000	20	130R
KWV	302-3	2	100	600	10	3R3
	304-3	3	150	1.000	10	9R1
	306-3	5	200	2.000	20	10R
	308-3	7	250	3.000	20	15R
	309-3	10	350	4.000	20	18R
	310-3	10	350	4.000	20	18R
CRF	251-4	1.0	12	500	10	10R
	252-4	1.6	18	550	10	10R
	253-4	2.0	20	650	10	10R
	254-4	2.5	35	550	10	10R
	256-4	3.5	42	900	10	10R
	257-4	4.3	55	1.000	10	10R
CR	251-0	1.0	25	500	10	3R3
	252-0	1.6	48	550	10	10R
	253-0	2.0	50	650	10	9R1
	254-0	2.5	65	550	10	9R1
	255-0	3.0	75	750	10	11R
	256-0	3.5	85	900	10	11R
	257-0	4.3	110	1.000	10	24R
	258-0	5.0	125	1.500	10	30R
	259-0	6.5	165	2.000	10	43R

Pulse Load – Table

VITROHM

Serie	Type	P ₇₀ [W]	K	U _{max} [V]	I _{max} [A]	from R _{min} [Ω]
CR	251-040	1.0	35	500	10	3R3
	252-040	1.6	65	550	10	8R2
	253-040	2.0	70	650	10	9R1
	254-040	2.5	90	550	10	9R1
	255-040	3.0	105	750	10	11R
	256-040	3.5	120	900	10	11R
	257-040	4.3	155	1.000	10	24R
	258-040	5.0	175	1.500	10	30R
	259-040	6.5	230	2.000	10	43R
BW	234-0	0.75		600		
	235-0	1.5		1.000		
BWF	236-0	1.5	special datasheet available	600	special datasheet available	
	237-0	0.75		400		
RZC	RZC6720	1.6	65	550	10	9R1
RZI	RZI6720	1.6	90	550	10	9R1
RZF	RZF6720	1.6	35	550	10	9R1
RWC	RWC5020	1.6	25	500	10	3R3
RWI	RWI5020	1.6	35	500	10	3R3
RWS	RWS5020	1.6	12	500	10	10R
RWF	RWF5020	1.6	15	400	10	10R
RX	RX0207W5	0.5	13	350	10	3R3
	RX04101W	1.0	25	450	10	3R3
	RX05151W	1.0	25	650	10	3R3
	RX05123W	3.0	70	540	10	9R1
	RX06133W	3.0	70	580	10	9R1
	RX05163W	3.0	75	660	10	9R1
	RX07163W	3.0	75	800	10	9R1
	RX06163W5	3.5	75	800	10	11R
	RX07164W	4.0	75	800	10	11R
	RX08205W5	5.5	135	1300	10	11R
	RX09265W	5.0	115	1800	10	11R
	RX10266W	6.0	120	1800	10	30R
	RX10348W	8.0	185	2400	10	30R
	RX103410W	10.0	185	2400	10	30R
	RX104010W	10.0	225	3000	10	34R
RX104012W	12.0	225	3000	10	34R	
RX104812W	12.0	250	4000	10	34R	

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Serie	Type	P ₇₀ [W]	K	U _{max} [V]	I _{max} [A]	from R _{min} [Ω]
SLR	SLR2	2	100	N/A	N/A	N/A
	SLR3	3	150	N/A	N/A	N/A
	SLR5	5	250	N/A	N/A	N/A
	SLR5B	5	250	N/A	N/A	N/A
	SLR7	7	350	N/A	N/A	N/A
	SLR7B	7	350	N/A	N/A	N/A
	SLR10	10	500	N/A	N/A	N/A
	SLR10A	10	500	N/A	N/A	N/A
	SLR33	3+3	300	N/A	N/A	N/A
	SLR33B	3+3	300	N/A	N/A	N/A
	SLR55	5+5	500	N/A	N/A	N/A