

# DATA SHEET

## LEADED POWER RESISTORS

KH, KV – Power sandfilled wirewound

UP TO 17.0 W



Product Specification – Jun. 18, 2003 V.0



Power Wirewound Ceramic Resistors, axial

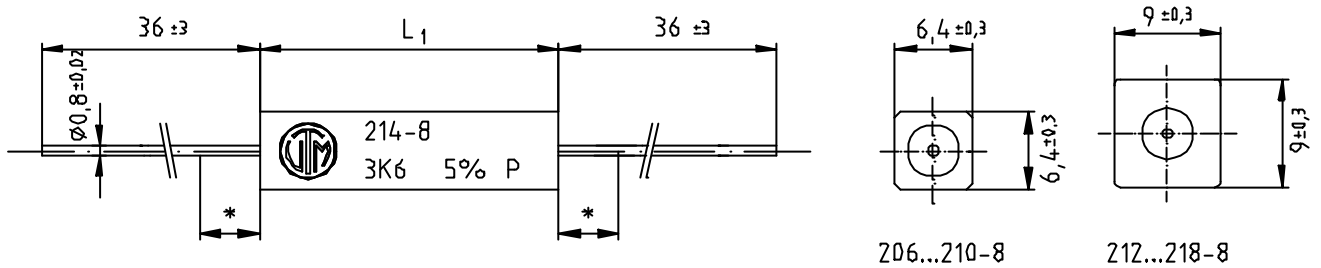
Specification

Type		KH206-8	KH208-8	KH210-8	KH212-8	KH214-8	KH216-8	KH218-8
Power rating P <sub>70</sub>	W	4	5	7	7	9	11	17
Resistance range		see Page 2						
E-series		E 24 (5%), E 12 (10%)						
Tolerance	%	± 5, ± 10						
Temperature coefficient	10 <sup>-6</sup> *K <sup>-1</sup>	depends on value see table page 3						
max. cont. working voltage	V <sub>RMS</sub>	$\sqrt{P_{70} \cdot R}$ for all Styles						
Insulation voltage (1min.)	V <sub>RMS</sub>	2000						
Insulation resistance	MΩ	> 10 <sup>4</sup>						
Derating	°C	linear 70 ... 350 (0W)						
Climatic category		55/200/21						
Temperature range	°C	- 55 ... 350						
Thermal resistance	KW <sup>-1</sup>	65	50	40	40	30	25	15
Failure rate (Total, ϑ <sub>0</sub> max., 60% conf. lev.)	10 <sup>-9</sup> *h <sup>-1</sup>	appr. 100, depends on value						
Endurance (P <sub>70</sub> , @70°C, 1000h, interm.)	$\left[\frac{\Delta R}{R}\right]$ %	± 3,0 average						
Damp heat, steady state (40°C, 93% r. h., 56d)	$\left[\frac{\Delta R}{R}\right]$ %	± 2,0						
Climatic sequence	$\left[\frac{\Delta R}{R}\right]$ %	± 2,0						
Resistance to soldering heat (260°C, 10s)	$\left[\frac{\Delta R}{R}\right]$ %	± 0,2 typ.						
Terminal strength	$\left[\frac{\Delta R}{R}\right]$ %	± 1,0						
Terminal tensile strength	N	50						
Solderability	s	2,5 Flowtime; solderglobule test IEC 60068-2-20-T						

Power Wirewound Ceramic Resistors, axial

Type	KH206-8	KH208-8	KH210-8	KH212-8	KH214-8	KH216-8	KH218-8
Standards	CECC 40202-001 and -005 applicable DIN 45921 T 202						
Marking	Printed in clear						

Dimensions in mm:



\* 6mm, reduced solderability in this area

Type	Resistance range			L <sub>1</sub>
	Min.		Max.	
	10%	5%		
KH206-8	0R056	0R10	9K1	20 ±1,0
KH208-8	0R075	0R15	15K	25 ±1,0
KH210-8	0R11	0R33	33K	38 ±1,0
KH212-8	0R075	0R15	15K	25 ±1,0
KH214-8	0R11	0R33	33K	38 ±1,0
KH216-8	0R15	0R51	47K	50 ±1,5
KH218-8	0R27	0R91	82K	75 ±2,0

# Series KH

## Power Wirewound Ceramic Resistors, axial

Temperature coefficient:

Type	TC +400 ±50 ppm K <sup>-1</sup>	TC +0 ±40 ppm K <sup>-1</sup>	TC +0 ±10 ppm K <sup>-1</sup>
KH206	R056 ... R20	R22 ... 300R	330R ... 9K1
KH208	R075 ... R30	R33 ... 470R	510R ... 15K
KH210	R11 ... R68	R75 ... 910R	1K0 ... 33K
KH212	R075 ... R30	R33 ... 470R	510R ... 15K
KH214	R11 ... R68	R75 ... 910R	1K0 ... 33K
KH216	R15 ... 1R0	1R1 ... 1K3	1K5 ... 47K
KH218	R27 ... 1R6	1R8 ... 2K4	2K7 ... 82K

Packaging:

Type	Packaging	Pieces	Pack.-Code
KH206-8	bulk taped	200	B
		1000	R
KH208-8	bulk taped	200	B
		1000	R
KH210-8	bulk taped	200	B
		1000	R
KH212-8	bulk taped	200	B
		1000	R
KH214-8	bulk taped	100	B
		500	R
KH216-8	bulk	100	B
KH218-8	bulk	100	B

Taping in accordance to IEC 60286-1 only reel available

Ordering example:      KH 206-8      5      B      9R1  
                                  Type      Tolerance      Pack.-Code      R-Value

**Power Wirewound Ceramic Resistors**  
**vertical**

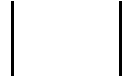
**Specification**

Type		KV206-3	KV208-3	KV210-3	KV212-3	KV214-3	KV216-3	KV218-3
Power rating P <sub>70</sub>	W	4	5	7	7	9	11	17
Resistance range		see table Page 2						
E-series		E 24 (5%), E 12 (10%)						
Tolerance	%	± 5, ± 10						
Temperature coefficient	10 <sup>-6</sup> *K <sup>-1</sup>	$\sqrt{P_{70} \cdot R}$ depends on value see table Page 3						
max. cont. working voltage	V <sub>RMS</sub>	for all Styles						
Insulation voltage (1min.)	V <sub>RMS</sub>	2000						
Insulation resistance	MΩ	> 10 <sup>4</sup>						
Derating	°C	linear 70 ... 350 (0W)						
Climatic category		55/200/21						
Temperature range	°C	- 55 ... 350						
Thermal resistance	KW <sup>-1</sup>	65	50	40	40	30	25	15
Failure rate (Total, ϑ <sub>0</sub> max., 60% conf. lev.)	10 <sup>-9</sup> *h <sup>-1</sup>	appr. 100, depends on value						
Endurance (P <sub>70</sub> , @70°C, 1000h, interm.)	$\left[ \frac{\Delta R}{R} \right]$ %	± 3,0 average						
Damp heat, steady state (40°C, 93% r. h., 56d)	$\left[ \frac{\Delta R}{R} \right]$ %	± 2,0						
Climatic sequence	$\left[ \frac{\Delta R}{R} \right]$ %	± 2,0						
Resistance to soldering heat (260°C, 10s)	$\left[ \frac{\Delta R}{R} \right]$ %	± 0,2 typ.						
Terminal strength	$\left[ \frac{\Delta R}{R} \right]$ %	± 1,0						
Terminal tensile strength	N	50						
Solderability	s	2,5 Flowtime; solderglobule test IEC 60068-2-20-T						
Standards		CECC 40202-002 and -006 applicable DIN 45921 T 202						

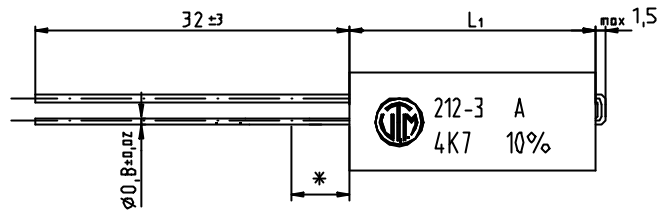
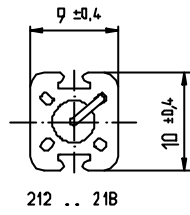
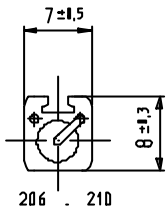
# Series KV

## Power Wirewound Ceramic Resistors vertical

Marking



Printed in clear



\* 6mm, reduced solderability in this area

# Series KV

## Power Wirewound Ceramic Resistors vertical

Dimensions in mm:

Type	Resistance range			L <sub>1</sub>
	Min.		Max.	
	10%	5%		
KV206-3	R056	R10	9K1	20 ±1,0
KV208-3	R075	R15	15K	25 ±1,0
KV210-3	R11	R33	33K	38 ±1,0
KV212-3	R075	R15	15K	25 ±1,0
KV214-3	R11	R33	33K	38 ±1,0
KV216-3	R15	R51	47K	50 ±1,5
KV218-3	R27	R91	82K	75 ±2,0

## Series KV

### Power Wirewound Ceramic Resistors vertical

Temperature coefficient:

Type	TC +400 ±50 ppm K <sup>-1</sup>	TC +0 ±40 ppm K <sup>-1</sup>	TC +0 ±10 ppm K <sup>-1</sup>
KV206	R056 ... R20	R22 ... 300R	330R ... 9K1
KV208	R075 ... R30	R33 ... 470R	510R ... 15K
KV210	R11 ... R68	R75 ... 910R	1K0 ... 33K
KV212	R075 ... R30	R33 ... 470R	510R ... 15K
KV214	R11 ... R68	R75 ... 910R	1K0 ... 33K
KV216	R15 ... 1R0	1R1 ... 1K3	1K5 ... 47K
KV218	R27 ... 1R6	1R8 ... 2K4	2K7 ... 82K

Packaging:

Type	Packaging	Pieces	Pack.-Code
KV206-3	bulk	200	B
KV208-3	bulk	200	B
KV210-3	bulk	200	B
KV212-3	bulk	200	B
KV214-3	bulk	200	B
KV216-3	bulk	200	B
KV218-3	bulk	100	B

Ordering example:

KV 206-3	5	B	1K3
Type	Tolerance	Pack.-Code	R-Value