

DATA SHEET

LEADED POWER RESISTORS
KN – PRECISION current sensors

UP TO 9.0 W



Product Specification – Jun. 18, 2003 V.0



Low Ohmic Power Resistors , axial, low inductance

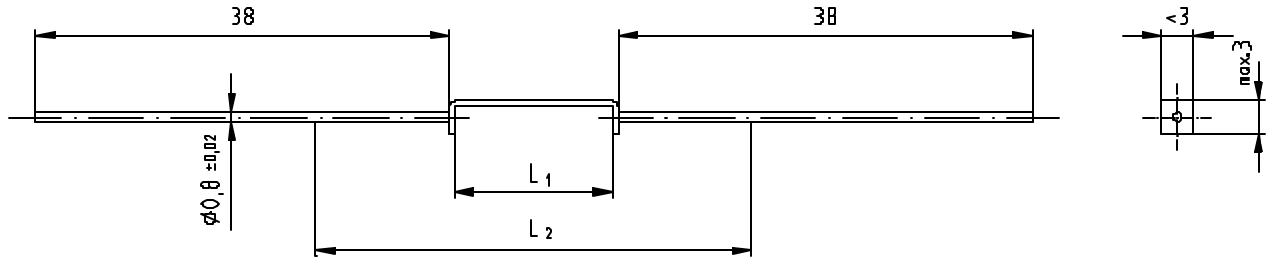
Specification

Type		KN350-0	KN351-0	KN352-0
Style		3313	3321	3332
Power rating P_{70}	W	1	2	3
Resistance range	Ω	0R003 ... 0R051	0R004 ... 0R068	0R006 ... 0R10
E-series			E 24 ab R01	
Tolerance	%		$\pm 1, \pm 3, \pm 5$	
Temperature coefficient	$10^{-6} * K^{-1}$		+ 200 ... + 1200 depends on value	
max. cont. working voltage	V_{RMS}		$\sqrt{P_{70} \cdot R}$ for all styles	
Insulation voltage (1min.)	V_{RMS}		non insulated	
Insulation resistance	Ω		non insulated	
Derating	$^{\circ}C$		linear 70 ... 300 (0W)	
Climatic category			55/200/56	
Temperature range	$^{\circ}C$		- 55 ... 300	
Thermal resistance	KW^{-1}	200	100	70
Failure rate (Total, ϑ_0 max., 60% conf. lev.)	$10^{-9} * h^{-1}$		appr. 10, depends on value	
Endurance (P_{70} , @ 70 $^{\circ}C$, 1000h, interm.)	$\left[\frac{\Delta R}{R} \right]$ %		$\pm 3,0$	
Damp heat, steady state (40 $^{\circ}C$, 93% r.h., 56d)	$\left[\frac{\Delta R}{R} \right]$ %		$\pm 0,5$	
Climatic sequence	$\left[\frac{\Delta R}{R} \right]$ %		$\pm 0,5$	
Terminal strength	$\left[\frac{\Delta R}{R} \right]$ %		$\pm 0,5$	

Low Ohmic Power Resistors , axial, low inductance

Type		KN350-0	KN351-0	KN352-0
Terminal tensile strength	N	30		
Resistance to soldering heat (260°C, 10s)	$\left[\frac{\Delta R}{R} \right] \%$	± 0,2 typ.		
Solderability	s	2,5 Flowtime, solderglobule test, IEC 60068-2-20-T		
Marking		value imprinted		

Dimensions in mm:



Type	L ₁	L ₂ ±1
KN350-0	12 ... 14,5	40
KN351-0	17,5 ... 21,5	45
KN352-0	29 ... 34	60

Measuring length L₂: Resistance value is measured over the centered length L₂ on terminals free of oxide and contaminations. Differing conditions require adequate corrections (R_{terminal} = 0,4mΩ/cm).

Packaging:

Type	Packaging	Pieces	Pack.-Code
KN350-0	bulk	200	B
KN351-0	bulk	200	B
KN352-0	bulk	200	B

Ordering example: KN 351-0 3 B 0R033
 Type Tolerance Pack.-Code R-Value

Low Ohmic Power resistors

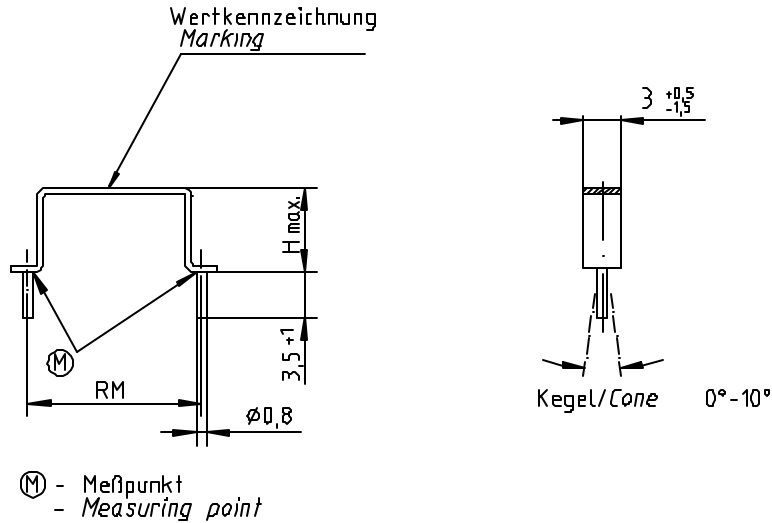
Specification

Type		KN350-009	KN351-009 KN351-010	KN352-009 KN352-010 KN352-011
Power rating P_{70}	W	0,5	1,0	1,5
Resistance range	Ω	0R003 ... 0R051	0R004 ... 0R068	0R006 ... 0R1
E-series			E 24 \geq 0R01	
Tolerances	%		$\pm 1, \pm 3, \pm 5$	
Temperature coefficient	$10^{-6} * K^{-1}$		+ 200 ... + 1200	
max. cont. working voltage	V_{RMS}		for all styles	
Insulation voltage (1min.)	V_{RMS}		$\sqrt{P_{70} \cdot R}$	non insulated
Insulation resistance	Ω		non insulated	
Derating, linear	$^{\circ}C$		70 ... 300 (0W)	
Climatic category			55/200/56	
Temperature range	$^{\circ}C$		- 55 ... 300	
Thermal resistance	KW^{-1}	200	100	70
Failure rate (Total, ϑ_0 max., 60% conf. lev.)	$10^{-9} * h^{-1}$		ca. 10, depends on value	
Endurance (P_{70} , 70 $^{\circ}C$, 1000h)	$\left[\frac{\Delta R}{R} \right]$ %		$\pm 3,0$	
Damp heat, steady state (40 $^{\circ}C$, 93% r.h., 56d)	$\left[\frac{\Delta R}{R} \right]$ %		$\pm 0,5$	
Climatic sequence	$\left[\frac{\Delta R}{R} \right]$ %		$\pm 0,5$	
Terminal strength	$\left[\frac{\Delta R}{R} \right]$ %		$\pm 0,5$	

Low Ohmic Power resistors

Type		KN350-009	KN351-009 KN351-010	KN352-009 KN352-010 KN352-011
Terminal tensile strength	N	30		
Resistance to soldering heat (260°C, 10s)	$\left[\frac{\Delta R}{R} \right]$ %	± 0,2 typ.		
Solderability	s	2,5 Flowtime, solderglobule test IEC 60068-2-20-T		
Marking		Value imprinted		

Dimension in mm:



Type	RM	Hmax.
KN350-009	10	6,5
KN351-009		10,5
KN352-009		17,0
KN351-010	15	8
KN352-010		14,5
KN352-011	20	12

Construction: The resistive elements consist of a flat metal-band. Spotwelded Cu-terminals ensure high stability of contacts. Thus, this construction results in a noninductive resistor of both high stability and overload capacity.

Low Ohmic Power resistors

Packaging:

Type	Packaging	Pieces	Pack.-Code
KN350-009	bulk	200pcs.	B
KN351-009 KN351-010	bulk	200pcs.	B
KN352-009 KN352-010 KN352-011	bulk	200St.	B

Ordering example:

KN 351-009	1	B	0R033
Type	Tolerance	Pack.-Code	R-Value

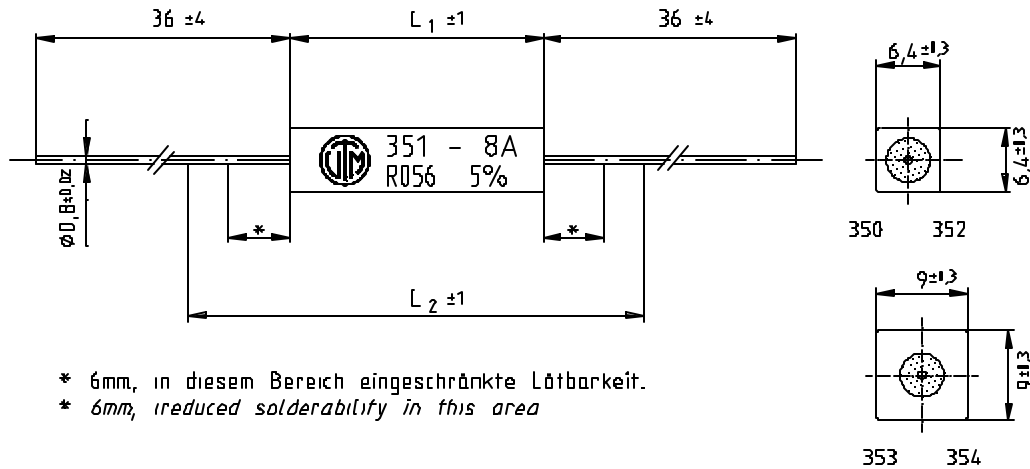
Low Ohmic Power Resistors
low inductance, Ceramic Case
Specification

Type		KN350-8	KN351-8	KN352-8	KN353-8	KN354-8
Style		7718	7725	7738	9925	9938
Power rating P_{70}	W	4	5	7	7	9
Resistance range	Ω	0R003 ... 0R051	0R004 ... 0R068	0R006 ... 0R1	0R004 ... 0R068	0R006 ... 0R1
E-series		E 24 > R010	E 24 > R010	E 24 > R010	E 24 > R010	E 24 > R010
Tolerance	%	$\pm 1, \pm 3, \pm 5$				
Temperature coefficient	$10^{-6} * K^{-1}$	+ 200 ... + 1200 depends on value				
max. cont. working voltage	V_{RMS}	$\sqrt{P_{70} \cdot R}$ for all styles				
Insulation voltage (1min.)	V_{RMS}	2000				
Insulation resistance	Ω	$> 10^4 M$				
Derating	$^{\circ}C$	linear 70 ... 250 (0W)				
Climatic category		55/200/56				
Temperature range	$^{\circ}C$	- 55 ... 250				
Thermal resistance	KW^{-1}	65	50	38	35	30
Failure rate (Total, ϑ_0 max., 60% conf. lev.)	$10^{-9} * h^{-1}$	appr. 10, depends on value				
Endurance (P_{70} , @ 70 $^{\circ}C$, 1000h, interm.)	$\left[\frac{\Delta R}{R} \right] \%$	$\pm 3,0$ average				
Damp heat, steady state (40 $^{\circ}C$, 93% r. h., 56d)	$\left[\frac{\Delta R}{R} \right] \%$	$\pm 0,5$				
Climatic sequence	$\left[\frac{\Delta R}{R} \right] \%$	$\pm 0,5$				
Terminal strength	$\left[\frac{\Delta R}{R} \right] \%$	$\pm 0,5$				

Low Ohmic Power Resistors
low inductance, Ceramic Case

Type		KN350-8	KN351-8	KN352-8	KN353-8	KN354-8
Terminal tensile strength	N	50				
Resistance to soldering heat (260°C, 10s)	$\left[\frac{\Delta R}{R}\right]$ %	± 0,2 typ.				
Solderability	s	2,5 Flowtime, solderglobule test, IEC 60068-2-20T				
Marking		Printed in clear				

Dimensions in mm:



	KN350-8	KN351-8	KN352-8	KN353-8	KN354-8
L ₁	18	25	38	25	38
L ₂	40	45	60	45	60

Measuring Length L₂: Resistance value is measured over the centered length L₂, on terminals free of oxide and contaminations. Differing conditions require adequate corrections ($R_{terminal} = 0,4m\Omega/cm$).

Low Ohmic Power Resistors
low inductance, Ceramic Case

Packaging:

Type	Packaging	Pieces	Pack.-Code
KN350-8	bulk	200	B
KN351-8	bulk	200	B
KN352-8	bulk	200	B
KN353-8	bulk	200	B
KN354-8	bulk	200	B

Ordering example:

KN 350-8	5	B	0R015
Type	Tolerance	Pack.-Code	R-Value

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