THERMOMETRICS
A COMMITMENT TO EXCELLENCE

NTC Type CR1

Harsh Environment Chip Thermistor



Description

NTC type CR1 are NK format chip thermistors on Sn coated Alloy 52 leads with a high performance acid and moisture resistant coating. Our NTC chip thermistors are ideal for harsh environment applications and high volume assembly.

Features

- AEC Q200 Rev D Qualified
- Suitable for EGR, SCR, TMAP, OAT, HVAC & white goods applications
- Performance up to 190°C with excellent stability
- Small body diameter
- Fast response
- High thermal shock resistance
- Harsh environment fluids resistance
- Water immersion
- Flexible – coated leads can be formed
- Insulation resistance to 1kV d.c.
- Designed for accurate temperature measurement, control & compensation
- Tight tolerances on resistance and B value
- Available on bandolier to IEC 286-2 RoHS 2011/65/EC / REACH compliant

Applications

- Automotive
- HVAC
- White goods
- Marine
- Aerospace
- Military
- Industrial
- Healthcare

Amphenol
Advanced Sensors

Type CR1 Specifications

Specification Data	
Minimum operating temp.	-40°C
Performance up to:	190°C
Thermal time constant	15s (cooling) 2.4s (ambient change)
Dissipation factor	2.2mW/K
Mass	0.18g
Packing	1000/box 2000/reel

Options

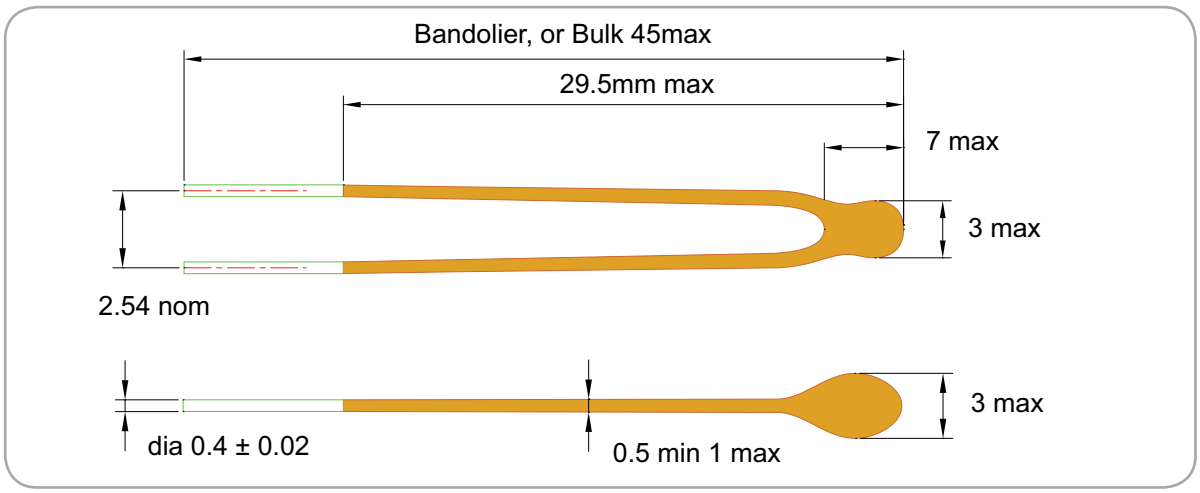
- Other resistance values and B values within the ranges shown
- Alternative reference temperatures 0°C to 100°C
- Bulk packed or bandolier up to H_1 = 48mm
- Lead materials : Steel/Alloy 52
- Contact Amphenol for specific application requirements

Coding:

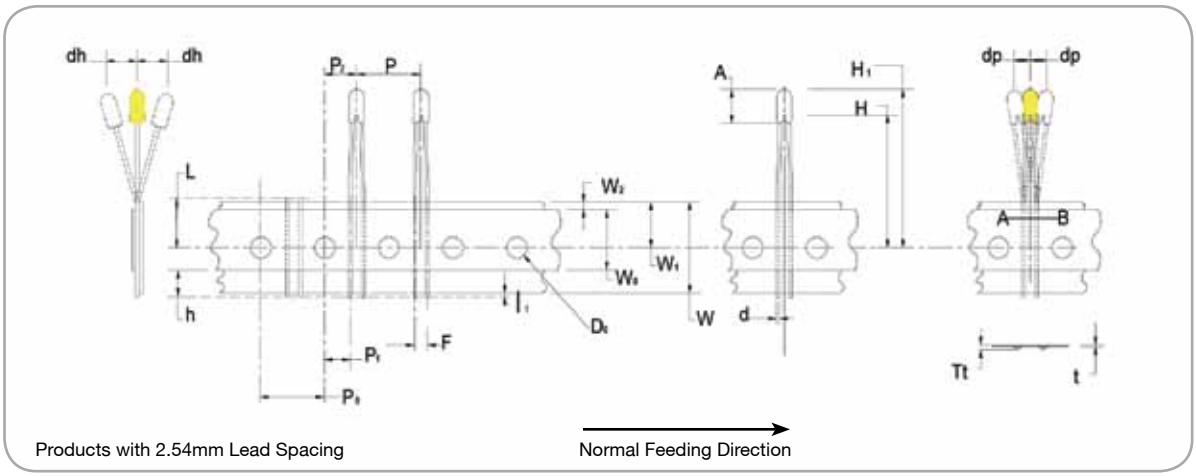
- Standard EGR Sensor - NKA202C2B2
- For CR1 Coating add Suffix C to Code

See Table on page 4 for standard resistance values

Typical Dimensions (mm)



Bandolier Schematic



Bandolier Specifications

Item	Symbol	Value (mm)
TOTAL BAND THICKNESS	t	0.7 ± 0.2
MAXIMUM BAND THICKNESS Including component lead/splices	Tt	1.5 MAXIMUM
CARRIER TAPE WIDTH	W	18 + 1.0 / - 0.5
ADHESION TAPE WIDTH The hold down tape shall not protrude beyond either edge of the carrier tape	W0	6.0 MINIMUM
POSITION OF ADHESION TAPE Gap between upper edges of carrier tape and hold-down tape	W2	3.0 MAXIMUM
SPROCKET HOLE POSITION	W1	9.0 ± 0.5
SPROCKET HOLE DIAMETER	D0	4.0 ± 0.2
PITCH OF COMPONENT	P	12.7 ± 1.0
SPROCKET HOLE PITCH	P0	12.7 ± 0.3
PITCH TOLERANCE OVER ANY 20 PITCHES		± 1.0
WIRE POSITION Distance between the ordinate and the first lead of the following component in the direction of unreeling or feeding. (Valid from upper edge of the tape to the seating plane)	P1	5.08 ± 0.7
HOLE CENTRE TO COMPONENT CENTRE	P2	6.35 ± 1.3
IN-PLANE COMPONENT DEVIATION Maximum deviation of the component body in the tape plane (from the nominal position)	dp	± 3
FRONT TO REAR DEVIATION The maximum lateral deviation of the component from the nominal position measured at the bottom centre of the component body. Maximum alignment deviation of the leads (valid from the upper edge of the tape to the seating plane) when dh is taken as zero, shall be 0.2mm. This dimension must remain in limits after the device has been cropped from the bandolier	dh	± 3
WIRE SPACING At upper edge of tape	F	2.5 ± 0.5
WIRE DIAMETER	d	0.4 ± 0.02
SEATING HEIGHT Distance between the abscissa and the seating plane of the component body with straight leads.	H	45 ±1
HEAD HEIGHT Distance between the abscissa and the top of the component body	H1	48 max
WIRE PROTRUSION (Adhesive tape) Protrusion of wires beyond the lower side of the adhesive tape	h	5 MAXIMUM
WIRE PROTRUSION (Carrier) Protrusion of wires beyond the lower side of the carrier tape	l1	NO PROTRUSION PERMITTED
CUT WIRE LENGTH For cut out components the length of the residual leads beyond the upper edge of the carrier tape measured from the abscissa	L	12 Nom
COMPONENT HEAD LENGTH	A	5 max

EGR SENSOR	Resistance	B value 25/85°C	Coating	Packing
NKA202C2B2	R100= 186.6Ω ± 2%	3540K ± 0.75%	CR1	Bandoliered H_1 = 45 ±1mm

NKA Standard Range Resistance Values

(other values available upon request)

R25 Ω	Material System	B Value 25/85°C K	Maximum# Operating Temp. °C (°F)	Code R25°C ± 1%	Code R25°C ± 2%	Code R25°C ± 3%	Code R25°C ± 5%	Code R25°C ± 10%
500	2	3540 ± 1%	170 (338)	NKA501C2*1	NKA501C2*2	NKA501C2*3	NKA501C2*5	NKA501C2*10
500	2A	3627 ± 1%	170 (338)	NKA501C2A*1	NKA501C2A*2	NKA501C2A*3	NKA501C2A*5	NKA501C2A*10
500	7	3977± 1%	170 (338)	NKA501C7*1	NKA501C7*2	NKA501C7*3	NKA501C7*5	NKA501C7*10
1000	2	3540 ± 1%	170 (338)	NKA102C2*1	NKA102C2*2	NKA102C2*3	NKA102C2*5	NKA102C2*10
1000	2A	3627 ± 1%	170 (338)	NKA102C2A*1	NKA102C2A*2	NKA102C2A*3	NKA102C2A*5	NKA102C2A*10
1000	7	3977± 1%	170 (338)	NKA102C7*1	NKA102C7*2	NKA102C7*3	NKA102C7*5	NKA102C7*10
2000	2	3540 ± 1%	170 (338)	NKA202C2*1	NKA202C2*2	NKA202C2*3	NKA202C2*5	NKA202C2*10
2050	2	3540 ± 0.75%	170 (338)		NKA202C2B2			
2000	2A	3627 ± 1%	170 (338)	NKA202C2A*1	NKA202C2A*2	NKA202C2A*3	NKA202C2A*5	NKA202C2A*10
2000	7	3977± 1%	170 (338)	NKA202C7*1	NKA202C7*2	NKA202C7*3	NKA202C7*5	NKA202C7*10
2700	1	3977 ± 0.75%	190 (374)	NKA272C1*1	NKA272C1*2	NKA272C1*3	NKA272C1*5	NKA272C1*10
5000	4A	3435 ± 1%	170 (338)	NKA502C4A*1	NKA502C4A*2	NKA502C4A*3	NKA502C4A*5	NKA502C4A*10
5000	1	3977 ± 0.75%	190 (374)	NKA502C1*1	NKA502C1*2	NKA502C1*3	NKA502C1*5	NKA502C1*10
10000	4A	3435 ± 1%	170 (338)	NKA103C4A*1	NKA103C4A*2	NKA103C4A*3	NKA103C4A*5	NKA103C4A*10
10000	5	3740 ± 1%	170 (338)	NKA103C5*1	NKA103C5*2	NKA103C5*3	NKA103C5*5	NKA103C5*10
10000	1	3977 ± 0.75%	190 (374)	NKA103C1*1	NKA103C1*2	NKA103C1*3	NKA103C1*5	NKA103C1*10
12000	5	3740 ± 1%	170 (338)	NKA123C5*1	NKA123C5*2	NKA123C5*3	NKA123C5*5	NKA123C5*10
30000	8	3977± 1%	170 (338)	NKA303C8*1	NKA303C8*2	NKA303C8*3	NKA303C8*5	NKA303C8*10
50000	8	3977± 1%	170 (338)	NKA503C8*1	NKA503C8*2	NKA503C8*3	NKA503C8*5	NKA503C8*10

Replace * in the table codes shown above as follows:

Loose-packed ..... R

Bandoliered ..... B

Note: Add Suffix C to Code for CR1

See separate tables for resistance - temperature data

Amphenol

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