SPECIFICATION SHEET

AUTOMOTIVE CHIP RESISTORS CASE 2012 ATP05 SERIES

SPECIFICATION SHEET NO.	T0112- CRATP05FB9K31S	
ORIGINAL MFG/PART NO.	Aillen Capacitors/ATP05FB9K31	
NEXTGEN PART CODE	CRATP05FB9K31S	Indicate This Code For RFQ /Order
DATE	Jan. 12, 2026	
REVISION	A5	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	Thick-film Power Automotive Chip Resistors, 0805 (2012 Metric), ATP05 Series, Dimension L2.00*W1.25*H0.50mm, 2 Terminations, Tolerance: ±1.0%, Resistance 9.31K ohm, Dissipation Max. 1/4W @ 70℃, Temperature Coefficient Rate (TCR) Max. ±100ppm/°C Operating Temp. Range -55°C ~+155°C Package in Tape/Reel, 5,000pcs/Reel RoHS II Compliant with exemption 7C-I and Halogen free	
CUSTOMER		
CUSTOMER PART NUMBER		
CROSS REF. PART NUMBER		
MEMO		

VENDOR APPROVE
Issued/Checked/Approved NextGen Components, Inc. Mandy Xu NextGen Components, Inc. Ruby Zhang NextGen Components, Inc. Jack Zhang
Date: Jan. 12, 2026

CUSTOMER APPROVE
DATE:

DESCRIPTION

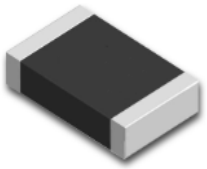


Image shown is a representation only. Exact specifications should be obtained from the product dimension.

The resistors are constructed in a high-grade ceramic body (aluminum oxide). Internal metal electrodes are added at each end and connected by a resistive paste that is applied to the top surface of the substrate. The composition of the paste is adjusted to give the approximate resistance required and the value is trimmed to within tolerance by laser cutting of this resistive layer. The resistive layer is covered with a protective coat. Finally, the two external end terminations are added. For ease of soldering the outer layer of these end terminations is a Tin (lead free) alloy.

MAIN FEATURE

- Automotive Grade AEC Q-200 Compliant
- 100% CCD Inspection
- High Power Rating
- Rohs II Compliant With Exemption 7C-I And Halogen Free

APPLICATION

- High Accuracy DC-power Supply
- Digital Multi-meter
- Telecommunication
- Computer
- Automotive Industry
- Medical And Military Equipment

ELECTRICAL CHARBCTERISTICS

• See Page 5 ~page 6

• All Products Parameters are Subject To NextGen Components' Final Confirmation.

HOW TO ORDER

- Please Follow Up Part Code Guide And Indicate Part Code CRATP05FB9K31S For RFQ/Order.

PART CODE GUIDE

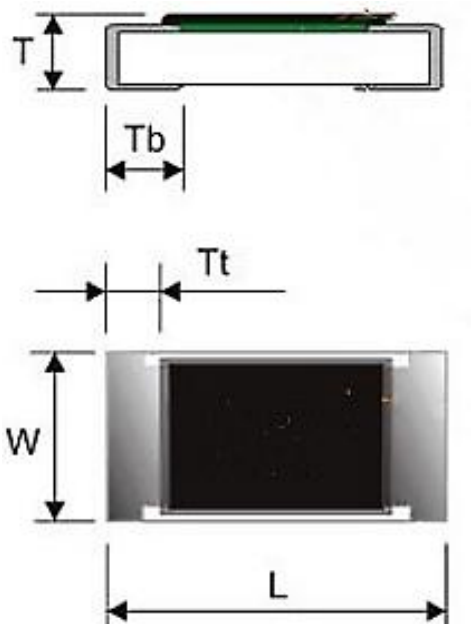
RFQ
Request For Quotation

CODE	NAME	KEY SPECIFICATION OPTION
CRATP	Product Index	Thick-film Power Automotive Chip Resistors
05	Case Size	05: 0805 (2012 Metric), L2.00*W1.25*H0.50mm
F	Resistance Tolerance	P: Jumper; F: +/-1%; J: +/-5%
B	Quantity Per Reel	A: 4Kpcs/7”Reel B: 5kpcs/7”Reel C:10kpcs/7”Reel
9K31	Resistance Value	1R2: 1.2ohm; 10R: 10ohm; 330R: 330ohm; 1K: 1Kohm; 10K: 10Kohm; 9K31: 9.31kohm; 100K: 100Kohm; 820K: 820Kohm 1M: 1.0Mohm; 1M2: 1.2Mohm
S	Suffix	Blank: N/A XX: Internal Control Code, Letter A~Z, a~z or digits (0~9) for Special/Custom Parameters

DIMENSION (Unit: mm)

Case Size: 0805 (2012 metric)

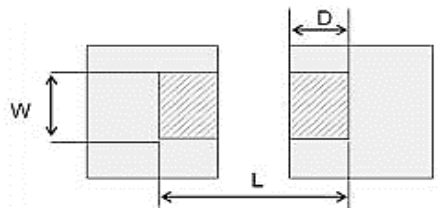
L2.00*W1.25*H0.50mm



ITEM	DIMENSION
L	2.00±0.10
W	1.25±0.10
T	0.50±0.15
T b	0.40±0.20
T t	0.40±0.20

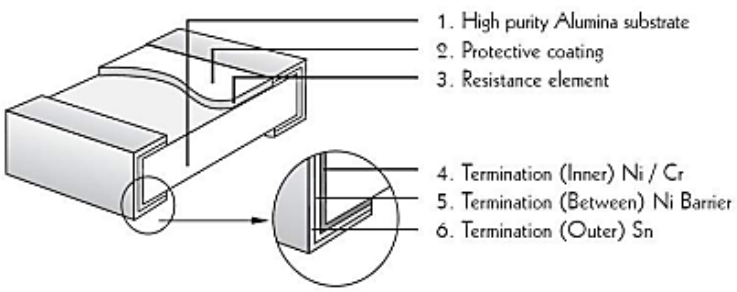
Recommended

Solder Pad



ITEM	DIMENSION
W	1.30
L	3.50
D	1.15

Construction



TEST CONDITIONS - FOR JUMPER (0 ohm)

ITEM	UNIT	SYMBOL	CHARACTERISTIC	CONDITION
Power Rating	W		1/4	@ 70℃
Max. Resistance	mRΩ		20	
Rated Current	A		3.5	
Peak Current	A		8.8	

GENERAL CONDITIONS - FOR DIFFERENT PART CODE

ITEM	UNIT	SYMBOL	CHARACTERISTIC	CONDITION
Operating Temperature Range	℃		-55 ~+155	
Storage Temperature Range	℃		5~+40	

Note

1) This is the maximum voltage that may be continuously supplied to the resistor element, “IEC publication 60115-8”

2) Max. Operation Voltage : So called RCWV (Rated Continuous Working Voltage) is determined by

RCWV = $\sqrt{Rated\ Power \times Resistance\ Value}$ or Max. RCWV listed above, whichever is lower.

ELECTRICAL CHARACTERISTICS - Ta = 25℃, FOR DIFFERENT PART CODE

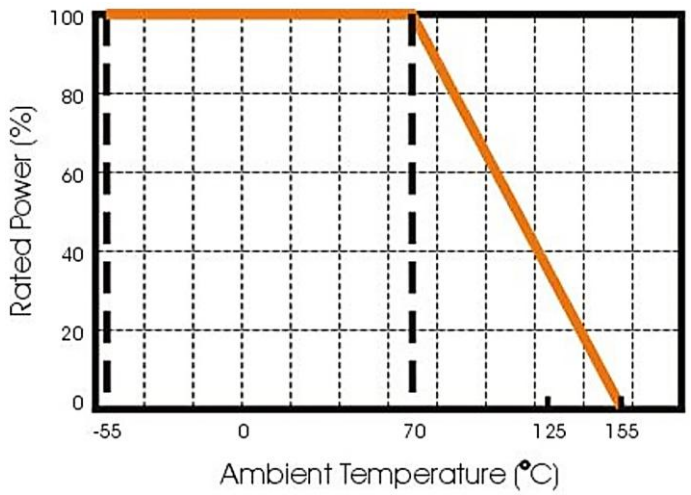
NextGen Part Code	Original Part Number	Resistance Tolerance	Resistance Range	Temp. Coefficient Rate (TRC)	Max. Dissipation @Tamb 70°C	Max. Operation Voltage (DC or RMS)	Max. Overload Voltage (DC or RMS)
		%	Ω	ppm/°C	W	V	V
CRATP05FB9K31S	ATP05FB9K31	±1.0	9.31K	±100	1/4	150	300

PRODUCT CHARACTERIZATION

Standard values of nominal resistance are taken from the E24 & E96 series for resistors with a tolerance Of ±1% & ±5%, The values of the E24/E96 series are in accordance with "IEC publication 60063"

DERATING

The power that the resistor can dissipate depends on the operating temperature; see the figure below:



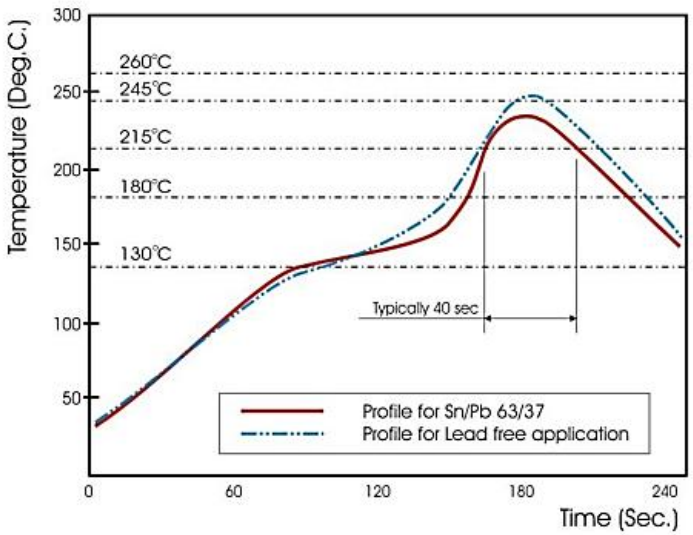
Maximum dissipation in percentage of rated power as a function of the ambient temperature

MOUNTING

Due to their rectangular shapes and small tolerances, Surface Mountable Resistors are suitable for handling by automatic placement systems. Chip placement can be on ceramic substrates and printed-circuit boards (PCBs). Electrical connection to the circuit is by individual soldering condition. The end terminations guarantee a reliable contact.

REFLOW SOLDERING CONDITION

The robust construction of chip resistors allows them to be completely immersed in a solder bath of 260 ℃ for 10 seconds. Therefore, it is possible to mount Surface Mount Resistors on one side of a PCB and other discrete components on the reverse (mixed PCBs). Surface Mount Resistors are tested for solderability at 235 ℃ during 2 seconds. The test condition for no leaching is 260℃ for 30 seconds. Typical examples of soldering processes that provide reliable joints without any damage are given in below.



Infrared soldering profile forChip Resistors

TEST AND REQUIREMENT

TEST	PROCEDURE / TEST METHOD	REQUIREMENT
Electrical Characteristics JISC5201-1: 1998 Clause 4.8	DC resistance values measurement, Temperature Coefficient of Resistance (T.C.R) Natural resistance change per change in degree centigrade. $\frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6$ (ppm/°C) t1 : 20°C+5°C-1°C R_1 : Resistance at reference temperature R_2: Resistance at test temperature	Within the specified tolerance Refer to "QUICK REFERENCE DATA"
Resistance to soldering heat(R.S.H) MIL-STD-202 method 210	Un-mounted chips completely immersed for 10±1second in a SAC solder bath at 270℃±5ºC	ΔR/R max. ±(1.0%+0.05Ω) no visible damage
Solderability J-STD-002	a) Bake the sample for 155℃ dwell time 4hrs/ solder dipping 235℃/ 5sec. b) Steam the sample dwell time 8 hour/ solder dipping 215℃/ 5sec. c) Steam the sample dwell time 8 hour/ solder dipping 260℃/ 7sec.	95% coverage min., good tinning and no visible damage
Temperature cycling JESD22 Method JA-104	1000 cycles, -55℃ ~ +155℃, dwell time 30min maximum	ΔR/R max. ±(1.0%+0.05Ω) No visible damage
Moisture Resistance MIL-STD-202 method 106	65±2°C, 80~100% RH, 10 cycles, 24 hours/ cycle	ΔR/R max. ±(1.0%+0.05Ω) No visible damage
Bias Humidity MIL-STD-202 method 103	1000+48/-0 hours; 85°C, 85% RH, 10% of operation power	ΔR/R max. ±(2.0%+0.10Ω) No visible damage
Operational Life MIL-STD-202 method 108	1000+48/-0 hours; 35% of operation power, 125±2°C	ΔR/R max. ±(2.0%+0.1Ω) No visible damage
High Temperature Exposure MIL-STD-202 Method 108	1000+48/-0 hours; without load in a temperature chamber controlled 155±3°C	ΔR/R max. ±(2.0%+0.10Ω) No visible damage

TEST AND REQUIREMENT

TEST	PROCEDURE / TEST METHOD	REQUIREMENT
Board Flex AEC-Q200-005	Resistors mounted on a 90mm glass epoxy resin PCB(FR4),bending once 2mm for 60sec.	ΔR/R max. ±(1.0%+0.05Ω) No visible damage
Terminal strength AEC-Q200-006	Pressurizing force: 1Kg, Test time: 60±1sec.	No remarkable damage or removal of the terminations
Thermal shock MIL-STD-202 method 107	Test –55 to 155℃/ dwell time 15min/ Max transfer time 20sec 300cycles	ΔR/R max. ±(1.0%+0.05Ω) No visible damage
ESD AEC-Q200-002	Test contact 1.0KV (0.5KV for 0402 only)	ΔR/R max. ±(1.0%+0.05Ω) No visible damage
Mechanical Shock MIL-STD-202 method 213	Test ½ Sine Pulse, Peak value: 100g, normal duration: 6ms, Velocity change:12.3ft/sec. Three shocks in each direction, total 18 shocks.	Within product specification tolerance and no visible damage.
Vibration MIL-STD-202 method 204	Test 5g's for 20 min., 12 cycles each of 3 orientations.	△R/R max. ±(1%+0.05Ω) and no visible damage
Resistance to Solvents : MIL-STD-202 Method 215	Solvent is Isopropyl alcohol, immersion 3mins at 25℃ and brush 10 strokes with a toothbrush with a handle made of a non-reactive material (wet bristle), immersion and brush 3 times and then air blow dry.	No superficial defect on marking, encapsulation, coating, appearance. Electrical characteristics within products specification and tolerance. Inspect at 3X max. for marking, inspect at 10X for part damage.
External Visual MIL-STD-883 method 2009	Electrical test not required. Inspect device construction, marking and workmanship	No visual damage
Physical Dimension JESD22 method JB-100	Verify physical dimensions(L, W, T, Tb, Tt)	Within the specified tolerance

TEST AND REQUIREMENT

Essentially all tests are carried out according to the schedule of IEC publication 115-8, category LCT/UCT/56(rated temperature range : Lower Category Temperature, Upper Category Temperature; damp heat, long term, 56 days). The testing also meets the requirements specified by EIA, EIAJ and JIS.

The tests are carried out in accordance with IEC publication 68, "Recommended basic climatic and mechanical robustness testing procedure for electronic components" and under standard atmospheric conditions according to IEC 60068-1, subclause 5.3. Unless otherwise specified, the following value supplied :

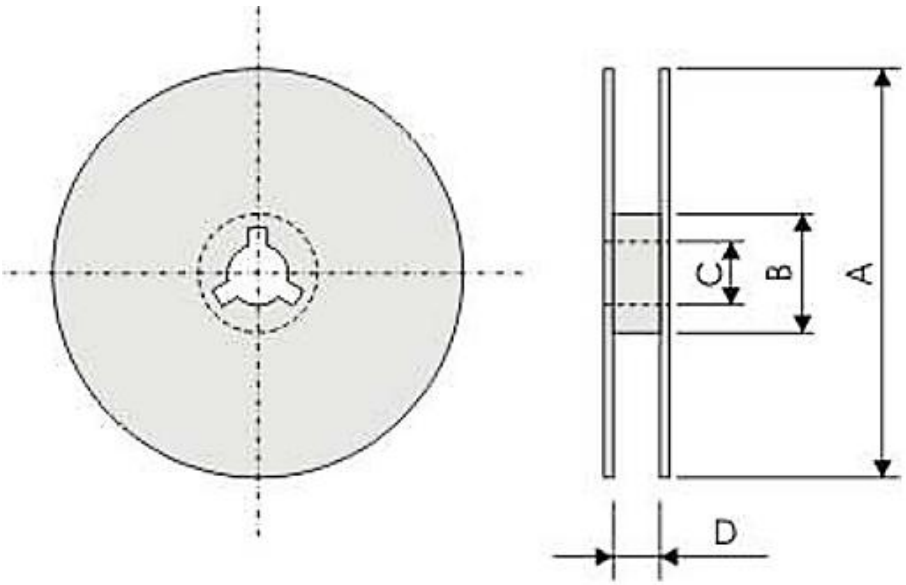
Temperature: 15° C to 35° C.

Relative humidity: 45% to 75%.

Air pressure: 86kPa to 106 kPa (860 mbar to 1060 mbar).

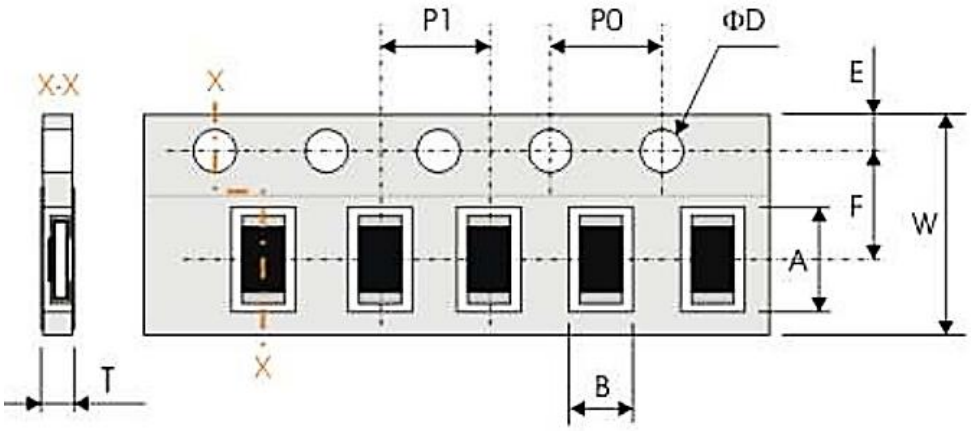
All soldering tests are performed with midly activated flux.

REEL DIMENSION (Unit: mm),



CODE	DIMENSION 7” Reel for 12mm tape	DIMENSION 7” Reel for 8mm tape
A	Ø178.0±2.0	Ø178.0±2.0
B	Ø60.0 ±1.0	Ø60.0 ±1.0
C	13.0±0.20	13.0±0.20
D	12.4±1.00	9.0±0.5

TAPE DIMENSION (Unit: mm)



CODE	DIMENSION
A	2.40±0.20
B	1.65±0.20
W	8.00±0.30
F	3.50±0.20
E	1.75±0.10
P 1	4.00±0. 10
P0	4.00±0.10
ΦD	1.50+0.10/-0.0
T	1.0 Max.

TAPING QUANTITY

Tape	Paper Tape		
	4 mm Pitch		
Reel Size	7”	10”	13”
ATP05 Series	5000	10000	20000

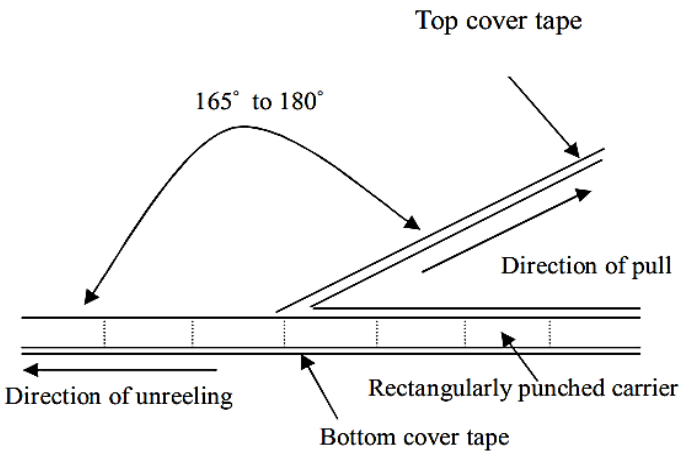
PERFORMANCE OF TAPING

Strength of Carrier Tape and Top Cover Tape

Carrier Tape: When a tensile force 1.02kgf is applied in the direction of unreeling the tape, the tape shall withstand this force. Top cover Tape: When a tensile force 1.02kgf is applied to the tape, the tape shall withstand this force.

Peel Force of Top Cover Tape

Unless otherwise specified, the peel force of top cover tape shall be 10.2 to 71.4 g f when the top cover tape is pulled at a speed of 300mm/min with the angle between the taped during peel and the direction of unreeling maintained at 165 to 180°as illustrated in Fig.



CAUTION

- Don’t apply excess mechanical stress to the component and terminals at soldering. Do not use this product with bend.
- Do not clean or wash the component for it is not hermetically sealed.
- Do not use strong acidity flux, more than 0.2wt% chlorine content, in flow soldering.
- Don’t be close to fire.
- This specification mentions the quality of the component as a single unit. Please insure the component is thoroughly evaluated in your application circuit
- Expire date (Shelf life) of the products is 12 months after delivery under the conditions of a sealed and an unopened package. Please use the products within 12 months after delivery. If you store the products for a long time (more than 12 months), use carefully because the products may be degraded in the solder-ability or rusty. Please confirm solder-ability and characteristics for the products regularly.
- Exposure components under soldering condition that is exceeding our recommendation will increase the failure dangerous.
- Please contact us before using the product as automobile electronic component.
- Please return one of these specifications after your signature of acceptance.
- When something gets doubtful with this specifications, we shall jointly work to get an agreement.
- For questions on technology, prices and delivery, please contact our sales offices or e-mail: sales@NextGenComponent.com .

IMPORTANT NOTES AND DISCLAIMER

1. ROHS COMPLIANCE: The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU RoHS Directive (EU) 2015/863 EC (RoHS3). RoHS Test Report for this product can be obtained at Download Center.

2. REACH COMPLIANCE: REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, REACH Test Report for this product can be obtained at Download Center.

3. All Product parametric performance is indicated in the Electrical Characteristics for the listed herein test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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