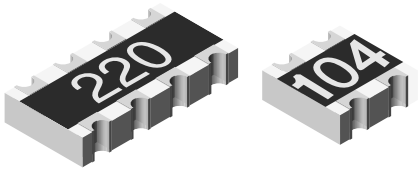
Thick Film Chip Resistor Array



CRA06P thick film resistor array is constructed on a high grade ceramic body with concave terminations. A small package enables the design of high density circuits. The single component reduces board space, component counts and assembly costs.

FEATURES

- Concave terminal array with square corners
- 4 and 8 terminal package with isolated resistors
- Wide ohmic range: 10R to 1M0
- Lead (Pb)-free solder contacts on Ni barrier layer
- Pure tin plating provides compatibility with lead (Pb)-free and lead containing soldering processes
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

STANDARD ELECTRICAL SPECIFICATIONS

MODEL	CIRCUIT	POWER RATING $P_{70\,°C}$ W	LIMITING ELEMENT VOLTAGE MAX. V≅	TEMPERATURE COEFFICIENT ± ppm/K	TOLERANCE ± %	RESISTANCE RANGE Ω	E-SERIES
CRA06P	03	0.063	50	100	1	10 to 1M	24 + 96
				200	2; 5		24
		Zero-Ohm-Resistor: $R_{max.}$ = 50 mΩ, $I_{max.}$ = 1 A					

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CRA06P 03 CIRCUIT
Rated dissipation at 70 °C (2)	W per element	0.063
Limiting element voltage (1)	V≅	50
Insulation voltage (1 min)	$V_{DC/AC}$ peak	100
Category temperature range	°C	- 55 to + 155
Insulation resistance	Ω	> 10^9

Notes

(1) Rated voltage: $\sqrt{P \times R}$.

(2) The power dissipation on the resistor generates a temperature rise against the local ambient, depending on the heat flow support of the printed-circuit board (thermal resistance). The rated dissipation applies only if the permitted film temperature of 155 °C is not exceeded.

PART NUMBER AND PRODUCT DESCRIPTION

Part Number: CRA06P08347K0JTA (3)

C	R	A	0	6	P	0	8	3	4	7	K	0	J	T	A		

MODEL	TERMINAL STYLE	PIN	CIRCUIT	VALUE	TOLERANCE	PACKAGING (4)	SPECIAL
CRA06	**P**	**04** **08**	**3** = 03	**R** = Decimal **K** = Thousand **M** = Million **0000** = 0 Ω Jumper	**F** = ± 1 % **G** = ± 2 % **J** = ± 5 % **Z** = 0 Ω Jumper	**TA** **TC**	Up to 2 digits

Product Description: CRA06P 08 03 473 J RT1 e3

CRA06P	08	03	473	J	RT1	e3
MODEL	TERMINAL COUNT	CIRCUIT TYPE	RESISTANCE VALUE	TOLERANCE	PACKAGING (4)	LEAD (Pb)-FREE
CRA06P	**04** **08**	**03**	**473** = 47 kΩ **4702** = 47 kΩ **10R0** = 10 Ω **100** = 10 Ω **000** = 0 Ω Jumper First two digits (3 for 1 %) are significant. Last digit is the multiplier.	**F** = ± 1 % **G** = ± 2 % **J** = ± 5 % **Z** = 0 Ω Jumper	**RT1** **RT6**	**e3** = Pure tin termination finish

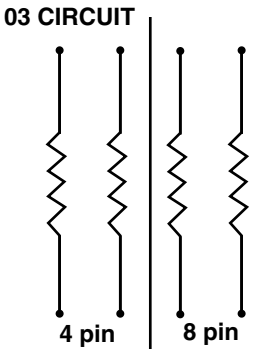
Notes

(3) Preferred way for ordering products is by use of the PART NUMBER.

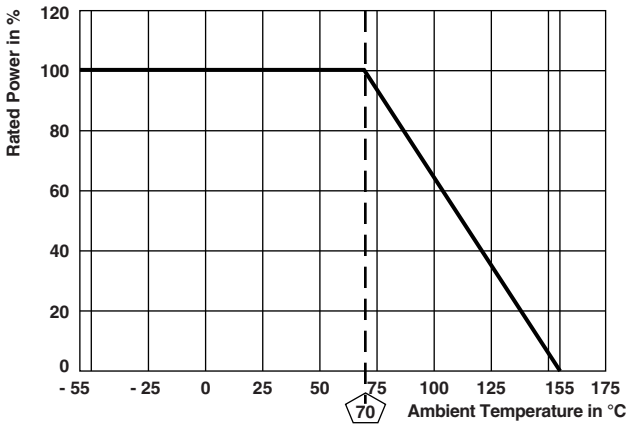
(4) Please refer to the table PACKAGING, see next page.

PACKAGING						
MODEL	TAPE WIDTH	DIAMETER	PITCH	PIECES/REEL	PACKAGING CODE	
					PAPER TAPE	
					PART NUMBER	PRODUCT DESCRIPTION
CRA06P	8 mm	180 mm/7"	4 mm	5000	TA	RT1
		330 mm/13"	4 mm	20 000	TC	RT6

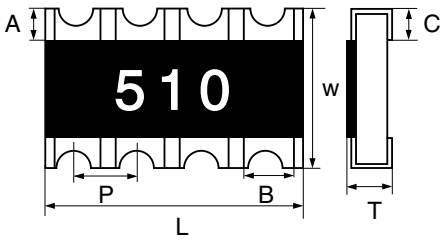
CIRCUIT



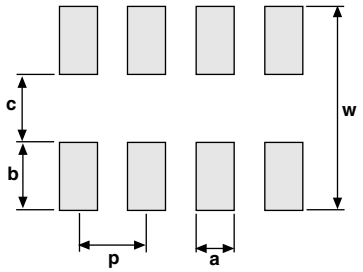
DERATING



DIMENSIONS



PIN NO#	DIMENSIONS in millimeters						
	L	A	B	C	P	T	W
4	1.60	0.30	0.40	0.40	0.80	0.60	1.60
8	3.20	0.30	0.40	0.40	0.80	0.60	1.60
Tol.	± 0.20	± 0.20	± 0.15	± 0.20	-	± 0.10	± 0.15



SOLDER PAD DIMENSIONS in millimeters					
	c	w	p	a	b
WAVE	0.8	2.6	0.8	0.4	0.9

TEST PROCEDURES AND REQUIREMENTS

EN 60115-1			
TEST (clause)	**CONDITIONS OF TEST**	**REQUIREMENTS PERMISSIBLE CHANGE ($\Delta R/R$) (1)**	
		STABILITY CLASS 1 OR BETTER	**STABILITY CLASS 2 OR BETTER**
	Stability for product types: **CRA06P**	10 Ω to 1 MΩ	10 Ω to 1 MΩ
Resistance (4.5)	-	± 1 %	± 2 %; ± 5 %
Temperature coefficient (4.8.4.2)	(20/- 55/20) °C and (20/125/20) °C	± 100 ppm/K	± 200 ppm/K
Overload (4.13)	$U = 2.5 \times (P_{70} \times R)^{1/2}$ ≤ 2 x $U_{max.}$; 0.5 s	± (0.25 % R + 0.05 Ω)	± (0.5 % R + 0.05 Ω)
Solderability (4.17.5) (2)	Aging 4 h at 155 °C, dryheat Solder bath method; 235 °C; 2 s Visual examination	Good tinning (≥ 95 % covered) no visible damage	
Resistance to soldering heat (4.18.2)	Solder bath method; (260 ± 5) °C; (10 ± 1) s	± (0.25 % R + 0.05 Ω)	± (0.5 % R + 0.05 Ω)
Rapid change of temperature (4.19)	30 min at LCT = - 55 °C; 30 min at UCT = 125 °C; 5 cycles	± (0.25 % R + 0.05 Ω)	± (0.5 % R + 0.05 Ω)
Damp heat, steady state (4.24)	(40 ± 2) °C; 56 days; (93 ± 3) % RH	± (1 % R + 0.05 Ω)	± (2 % R + 0.1 Ω)
Climatic sequence (4.23)	16 h at UCT = 125 °C; 1 cycle at 55 °C; 2 h at LCT = - 55 °C; 1 h/1 kPa at 15 °C to 35 °C; 5 cycles at 55 °C $U = (P_{70} \times R)^{1/2}$ $U = U_{max.}$; whichever is less severe	± (1 % R + 0.05 Ω)	± (2 % R + 0.1 Ω)
Endurance at 70 °C (4.25.1)	$U = (P_{70} \times R)^{1/2}$ $U = U_{max.}$; whichever is less severe 1.5 h “ON”; 0.5 h “OFF”; 70 °C; 1000 h	± (1 % R + 0.05 Ω)	± (2 % R + 0.1 Ω)
Extended endurance (4.25.1.8)	Duration extended to 8000 h	± (2 % R + 0.1 Ω)	± (4 % R + 0.1 Ω)
Endurance at upper category temperature (4.25.3)	UCT = 125 °C; 1000 h	± (1 % R + 0.05 Ω)	± (2 % R + 0.1 Ω)

Notes

(1) Figures are given for a single element.

(2) Solderability is specified for 2 years after production or requalification. Permitted storage time is 20 years.

APPLICABLE SPECIFICATIONS

• EN 60115-1	Generic specification
• EN 140400	Sectional specification
• EN 140401-802	Detail specification
• IEC 60068-2-X	Variety of environmental test procedures
• EIA 481	Packaging of SMD components

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay’s knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Vishay:

CRA06P0832K20JTA CRA06P083680RJTA CRA06P08315R0JTA CRA06P08333R0JTA CRA06P08315K0JTA CRA06P083100RJTA CRA06P08310K0JTA CRA06P0833K30JTA CRA06P0831K00JTA CRA06P0834K70JTA CRA06P08328R0JTA CRA06P08322R0JTA CRA06P08333R2FTA CRA04P08035R10JRT7 CRA04P08037R50JRT7 CRA06P0803470JRT1 CRA06P08347K0JTA CRA06P083470KJTA CRA06P080349R9FRT1 CRA04P08310R0JTD CRA06P083100KJTA CRA06P083120KJTA CRA06P083150RJTA CRA06P083180RJTA CRA06P08327K0JTA CRA06P0832K70JTA CRA06P083330KJTA CRA06P08333K0JTA CRA06P08347R0JTA CRA06P08356R0JTA CRA06P0835K60JTA CRA06P08310K0FTA CRA06P08322R0FTA CRA06P08349R9FTA CRA06P08339R2FTA CRA06P083499RFTA CRA06P08351R0FTA CRA06P083698RFTA CRA06P083845RFTA