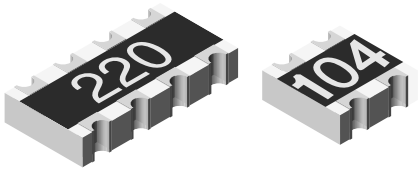
Thick Film Chip Resistor Array



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
- AEC-Q200 qualified
- 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 (1)

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

MODEL	TERMINAL STYLE	PIN	CIRCUIT	VALUE	TOLERANCE	PACKAGING (2)	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

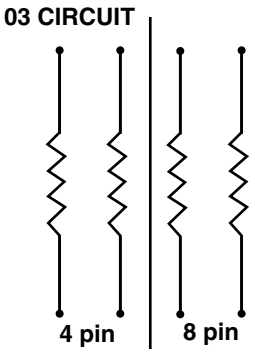
(1) Preferred way for ordering products is by use of the PART NUMBER

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

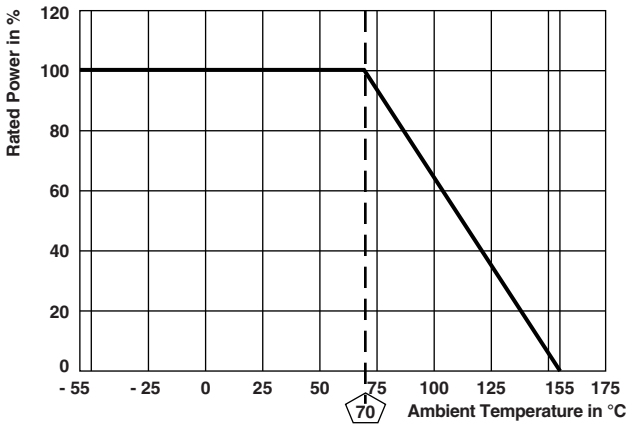
For technical questions, contact: thickfilmchip@vishay.com

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

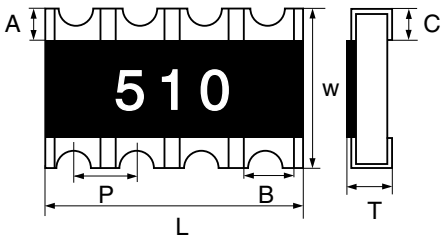
CIRCUIT



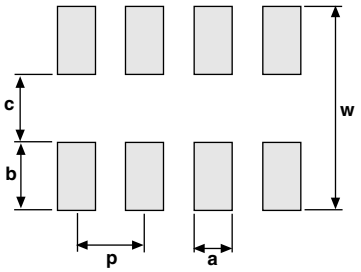
DERATING



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

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