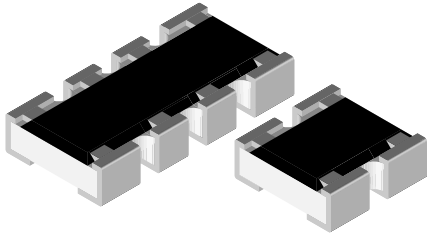


Thick Film Resistor Array



The CRA04S thick film resistor array is constructed on a high grade ceramic body with convex terminations. A small package enables the design of high density circuits. The single component reduces board space, component counts, and assembly costs.

FEATURES

- Convex terminal array with square corners
- Wide ohmic range: 1R0 to 1M0
- 4 or 8 terminal package with isolated resistors
- Lead (Pb)-free solder contacts on Ni barrier layer
- Pure tin plating provides compatibility with lead (Pb)-free and lead containing soldering processes
- Compatible with "Restriction of the use of Hazardous Substances" (RoHS) directive 2002/95/EC (issue 2004)
- Operating temperature range of - 55 °C to + 150 °C



STANDARD ELECTRICAL SPECIFICATIONS							
MODEL	POWER RATING P _{70°C} W	CIRCUIT	LIMITING ELEMENT VOLTAGE MAX. V≡	TEMPERATURE COEFFICIENT ppm/K	TOLERANCE %	RESISTANCE RANGE Ω	E-SERIES
CRA04S	0.063	03	50	± 200	± 5	1R0 - 1M0	24
				± 100	± 1; ± 2	10R - 1M0	24

Jumper: Zero-Ohm-Resistor available; R ≤ 50 mΩ

TECHNICAL SPECIFICATIONS		
PARAMETER	UNIT	CRA06P 03 CIRCUIT
Rated Dissipation at 70 °C	W	0.063
Limiting Element Voltage ¹⁾	V≡	50
Insulation Voltage (1 min)	V _{dc/ac peak}	100
Category Temperature Range	°C	- 55 to + 150
Insulation Resistance	Ω	> 10 ⁹

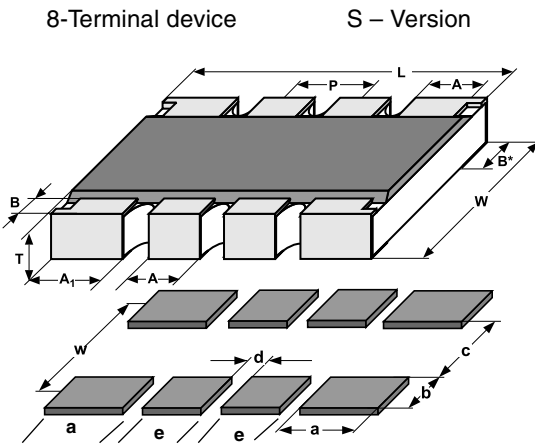
1) Rated voltage: $\sqrt{P \times R}$

PART NUMBER AND PRODUCT DESCRIPTION							
PART NUMBER: CRA04S08310K0JTD							
C	R	A	0	4	S	0	8
3	1	0	K	0	J	T	D
MODEL	TERMINAL STYLE	PIN	CIRCUIT	VALUE	TOLERANCE	PACKING	SPECIAL
CRA04	S	04 08	3 = 03	R = Decimal K = Thousand M = Million 0000 = 0 Ω Jumper	F = ± 1 % G = ± 2 % J = ± 5 % Z = 0 Ω Jumper	TD = RT7 TC = RT6 PZ = PZ	up to 2 digits
PRODUCT DESCRIPTION: CRA04S0803 473 J RT7 e3							
CRA04S	08	03	473	J	RT7	e3	
MODEL	TERMINAL COUNT	CIRCUIT TYPE	RESISTANCE VALUE	TOLERANCE	PACKING ¹⁾	LEAD (Pb)-FREE	
CRA04S	04 08	03	473 = 47 kΩ 4702 = 47 kΩ 10R0 = 10 Ω 100 = 10 Ω 000 = 0 Ω Jumper	F = ± 1 % G = ± 2 % J = ± 5 % Z = 0 Ω Jumper	RT7 RT6 PZ	e3 = Pure Tin Termination Finish	
First two digits (three for 1 %) are significant. Last digit is the multiplier.							

1) Please refer to table PACKING, on page 6.

NOTE: Products can be ordered using either the Product Description or the Part Number.

DIMENSIONS



SOLDER PAD DIMENSIONS [in millimeters]						
	c	w	d	a	b	c
WAVE	0.45	1.0	0.2	0.4	0.5	0.3

The dimensions shown are for a 8 pin part. For parts with different pin numbers use the same pitch and add or subtract pads as required.

PIN NO#	DIMENSIONS [in millimeters]							
	L	A	A ₁	B	B*	P _{NOM}	T	W
4	1.0 ± 0.1	-	0.33	0.15	0.25	0.65	0.35	1.0
8	2.0 ± 0.2	0.30	0.4	0.15	0.25	0.50	0.45	1.0
TOL.	-	± 0.15	± 0.15	± 0.10	± 0.1	-	± 0.1	± 0.15

DESCRIPTION

Production is strictly controlled and follows a set of instructions established for reproducibility. A thick film layer is deposited on a high grade ceramic substrate. The resistor elements are covered by a protective coating designed for electrical, mechanical and climatic protection. The wrap around terminations receive a final pure tin on nickel plating.

The result of the determined production is verified by an extensive testing procedure. Only accepted products are laid directly into the paper tape in accordance with **EIA 481**.

ASSEMBLY

The resistors are suitable for processing on automatic SMD assembly systems. They are suitable for automatic soldering using wave and solder paste reflow. Due to the design, arrays have automatic placement capability. The resistors are lead (Pb)-free, the pure tin plating provides compatibility with lead (Pb)-free and lead-containing soldering processes. All products comply with the CEFC-EECA-EICTA list of legal restrictions on hazardous substances.

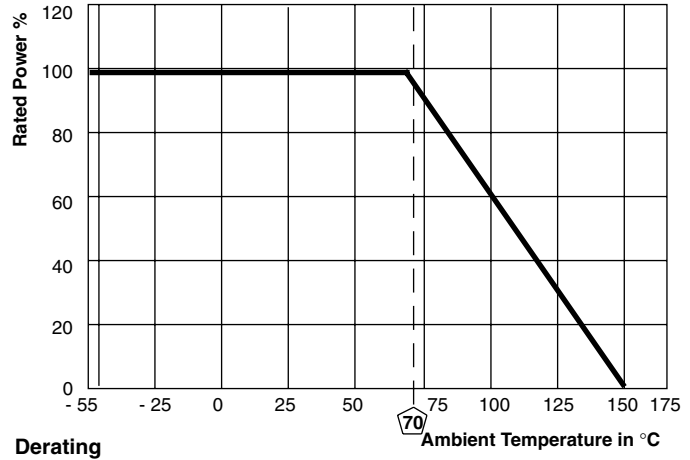
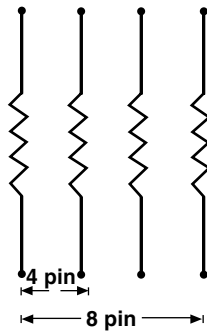
This includes full compatibility with the following directives:

- 2000/53/EC End of Vehicle Life Directive (ELV)
- 2000/53/EC Annex II to End of Vehicle Life Directive (ELV II)
- 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)
- 2002/96/EC Waste Electrical and Electronic Equipment Directive (WEEE)

Solderability is specified for 2 years after production or requalification. The permitted storage time is 20 years.

CIRCUIT

03 Circuit



PACKAGING					
MODEL	TAPE WIDTH	DIAMETER	PIECES	PITCH	PACKING CODE
					PAPER TAPE
CRA04	8 mm	180 mm/7"	10 000	2 mm	RT7
	8 mm	330 mm/13	20 000	2 mm	RT6
	8 mm	330 mm/13"	50 000	2 mm	PZ

Packing: according to EIA 481



PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST RESULTS
Endurance Test at 70 °C per EIA 575-3.14	1000 hours at 70 °C, 1.5 hours "ON", 0.5 hours "OFF"	± 1.5 %
Overload per EIA 575-3.6	Short time overload	± 0.5 %
Thermal Shock	per EIA 575-3.5	± 0.5 %
Moisture Resistance	per EIA 575-3.10	± 1.0 %
Resistance to Soldering Heat EIA 575 3.8	10 seconds at 260 °C solder bath temperature	± 2.0 %
High Temperature Exposure	per EIA 575-3.7	± 1.0 %
Low Temperature Operations	per EIA 575-3.6	± 0.5 %
Solderability & Leaching	EIA 575-3.12	95 % Coverage



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