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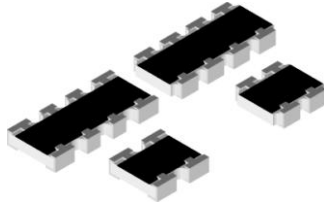
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Thick Film Resistor Array



CRA06E and CRA06S Thick Film resistor arrays are 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 available with either scalloped corners (E version) or square corners (S version)
- Wide ohmic range: 10R to 1M Ω
- 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)



STANDARD ELECTRICAL SPECIFICATIONS							
MODEL	CIRCUIT	POWER RATING $P_{70^\circ\text{C}}$ W	LIMITING ELEMENT VOLTAGE MAX. V_{\equiv}	TEMPERATURE COEFFICIENT ppm/K	TOLERANCE %	RESISTANCE RANGE Ω	E-SERIES
CRA06E CRA06S	03	0.063	50	± 100 ± 200	± 1 $\pm 2; \pm 5$	10R - 1M Ω	24 + 96 24
Zero-Ohm-Resistor available; $R_{\text{max.}} = 50 \text{ m}\Omega$, $I_{\text{max.}} = 1 \text{ A}$							

TECHNICAL SPECIFICATIONS		
PARAMETER	UNIT	CRA06E & S
Rated Dissipation at 70 °C ⁽²⁾	W per element	0.063
Limiting Element Voltage ⁽¹⁾	V_{\equiv}	50
Insulation Voltage (1 min)	$V_{\text{dc/ac peak}}$	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 rates dissipation applies only if the permitted film temperature of 155 °C is not exceed.

PART NUMBER AND PRODUCT DESCRIPTION							
PART NUMBER: CRA06S08347K0JTA							
C	R	A	0	6	S	0	8
3	4	7	K	0	J	T	A
MODEL	TERMINAL STYLE	PIN	CIRCUIT	VALUE	TOLERANCE	PACKAGING ⁽⁴⁾	SPECIAL
CRA06	S E	04 08	3 = 03	R = Decimal K = Thousand M = Million 0000 = 0 Ω Jumper	F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$ Z = 0 Ω Jumper	TA TC	Up to 2 digits
PRODUCT DESCRIPTION: CRA06S 08 03 473 J RT1 e3							
CRA06S	08	03	473	J	RT1	e3	
MODEL	TERMINAL COUNT	CIRCUIT TYPE	RESISTANCE VALUE	TOLERANCE	PACKAGING ⁽⁴⁾	LEAD (Pb)-FREE	
CRA06S CRA06E	04 08	03	473 = 47 k Ω 4702 = 47 k Ω 10R0 = 10 Ω 100 = 10 Ω 000 = 0 Ω Jumper First two digits (3 for 1 %) are significant. Last digit is the multiplier.	F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$ 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

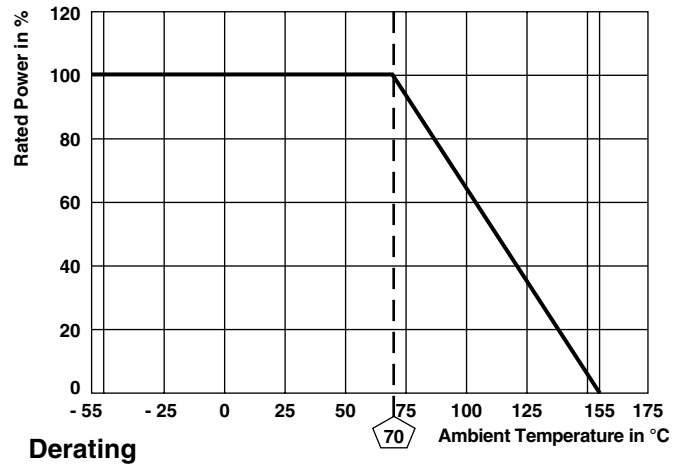
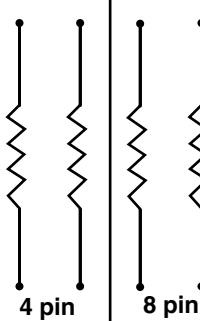
(4) Please refer to table PACKAGING, see next page

AVAILABLE TYPES AND RANGES				
MODEL	TERMINAL COUNT	CIRCUIT	TEMPERATURE COEFFICIENT	TOLERANCE
CRA06S	04	03	± 100 ppm/K	± 1 %
			± 200 ppm/K	± 5 %; ± 2 %
	08	03	± 100 ppm/K	± 1 %
			± 200 ppm/K	± 5 %; ± 2 %
CRA06E	08	03	± 100 ppm/K	± 1 %
			± 200 ppm/K	± 5 %; ± 2 %

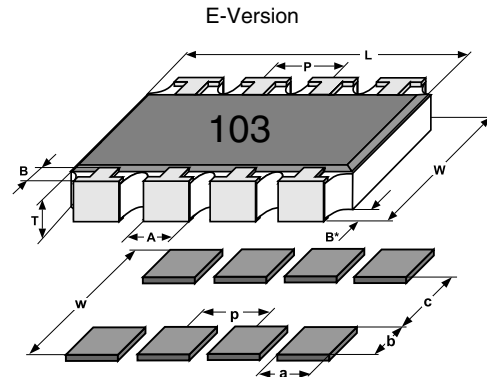
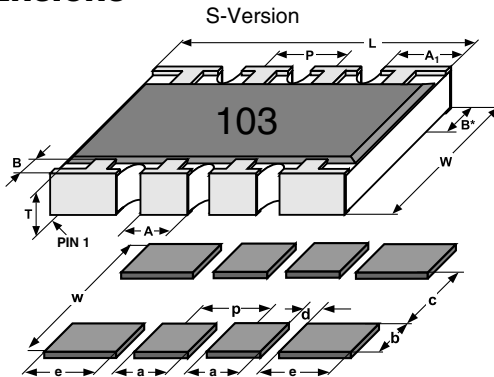
PACKAGING						
MODEL	TAPE WIDTH	DIAMETER	PITCH	PIECES/REEL	PACKAGING CODE	
					PAPER TAPE	
					PART NUMBER	PRODUCT DESCRIPTION
CRA06	8 mm	180 mm/7"	4 mm	5000	TA	RT1
		330 mm/13"	4 mm	20 000	TC	RT6

CIRCUIT

03 CIRCUIT



DIMENSIONS



MODEL	PIN NO#	DIMENSIONS [in millimeters]								
		L	A	A ₁	B	B*	P	T	W	
CRA06S	4	1.6	0.38	0.61	0.3	0.3	0.8	0.5	1.5	
CRA06E	8	3.2	0.38	-	0.3	0.3	0.8	0.5	1.5	
CRA06S	8	3.2	0.38	0.61	0.3	0.3	0.8	0.5	1.5	
	TOL.	± 0.15	± 0.15	± 0.15	± 0.15	± 0.15	± 0.1	± 0.1	± 0.15	

SOLDER PAD DIMENSIONS [in millimeters]								
MODEL	PINS	c	w	d	p	a	b	e
CRA06S	4	0.8	3.1	0.36		0.44	1.15	
CRA06E CRA06S	8	0.8	3.1	0.36	0.8	0.44	1.15	0.63

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: CRA06E/CRA06S	10 Ω to 1 M Ω	10 Ω to 1 M Ω
Resistance (4.5)	-	$\pm 1 \%$	$\pm 2 \%$; $\pm 5 \%$
Temperature coefficient (4.8.4.2)	20/- 55/20 °C and 20/125/20 °C	± 100 ppm/K	± 200 ppm/K
Overload (4.13)	$U = 2.5 \times (P_{70} \times R)^{1/2}$ $\leq 2 \times U_{max.}$; 0.5 s	$\pm (0.25 \% R + 0.05 \Omega)$	$\pm (0.5 \% R + 0.05 \Omega)$
Solderability (4.17.5) ⁽²⁾	Aging 4 h at 155 °C, dryheat solder bath method; 235 °C; 2 s visual examination	Good tinning ($\geq 95 \%$ covered) no visible damage	
Resistance to soldering heat (4.18.2)	Solder bath method; (260 \pm 5) °C; (10 \pm 1) s	$\pm (0.25 \% R + 0.05 \Omega)$	$\pm (0.5 \% R + 0.05 \Omega)$
Rapid change of temperature (4.19)	30 min at LCT = - 55 °C; 30 min at UCT = 125 °C; 5 cycles	$\pm (0.25 \% R + 0.05 \Omega)$	$\pm (0.5 \% R + 0.05 \Omega)$
Damp heat, steady state (4.24)	(40 \pm 2) °C; 56 days; (93 \pm 3) % RH	$\pm (1 \% R + 0.05 \Omega)$	$\pm (2 \% R + 0.1 \Omega)$
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	$\pm (1 \% R + 0.05 \Omega)$	$\pm (2 \% R + 0.1 \Omega)$
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	$\pm (1 \% R + 0.05 \Omega)$	$\pm (2 \% R + 0.1 \Omega)$
Extended endurance (4.25.1.8)	Duration extended to 8000 h	$\pm (2 \% R + 0.1 \Omega)$	$\pm (4 \% R + 0.1 \Omega)$
Endurance at upper category temperature (4.25.3)	UCT = 125 °C; 1000 h	$\pm (1 \% R + 0.05 \Omega)$	$\pm (2 \% R + 0.1 \Omega)$

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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