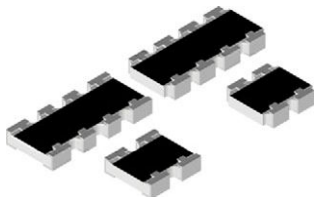


## Thick Film Chip Resistor Array



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: 10  $\Omega$  to 1 M $\Omega$
- 4 or 8 terminal package with isolated resistors
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### STANDARD ELECTRICAL SPECIFICATIONS

MODEL	CIRCUIT	POWER RATING $P_{70}$ W	LIMITING ELEMENT VOLTAGE MAX. $V_{\Sigma}$	TEMPERATURE COEFFICIENT $\pm$ ppm/K	TOLERANCE $\pm$ %	RESISTANCE RANGE $\Omega$	SERIES
CRA06E CRA06S	03	0.063	50	100 200	1 2; 5	10R to 1M	E24; E96 E24
Zero-Ohm-Resistor: $R_{max.} = 50 \text{ m}\Omega$ , $I_{max.} = 1 \text{ A}$							

### TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CRA06E AND CRA06S
Rated dissipation at 70 °C <sup>(1)</sup>	W per element	0.063
Limiting element voltage <sup>(2)</sup>	$V_{\Sigma}$	50
Insulation voltage (1 min)	$V_{DC/AC \text{ PEAK}}$	100
Category temperature range	°C	-55 to +155
Insulation resistance	$\Omega$	$> 10^9$

#### Notes

<sup>(1)</sup> Rated voltage:  $\sqrt{P \times R}$

<sup>(2)</sup> 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 <sup>(1)</sup>

CRA06S08347K0JT A																	
C	R	A	0	6	S	0	8	3	4	7	K	0	J	T	A		
MODEL	TERMINAL STYLE		PIN	CIRCUIT	VALUE		TOLERANCE		PACKAGING <sup>(2)</sup>		SPECIAL						
CRA06	S E		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: CRA06S 08 03 -05 473 J RT1 e3

CRA06S	08	03	473	J	RT1	e3
MODEL	TERMINAL COUNT	CIRCUIT TYPE	RESISTANCE VALUE	TOLERANCE	PACKAGING	LEAD (Pb)-FREE
CRA06E CRA06S	04 08	03	1R0 = 1 $\Omega$ 10R = 10 $\Omega$ 47K = 47 k $\Omega$ 1M0 = 1 M $\Omega$ 0R0 = 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 $\Omega$ jumper	RT1 RT6	e3 = pure tin termination finish

#### Notes

<sup>(1)</sup> Preferred way for ordering products is by use of the PART NUMBER

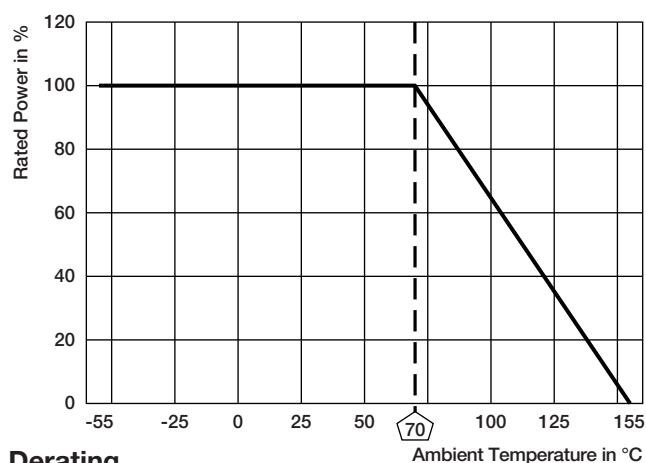
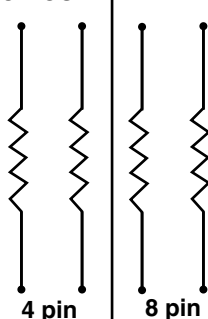
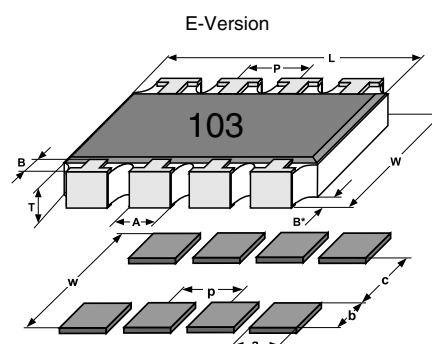
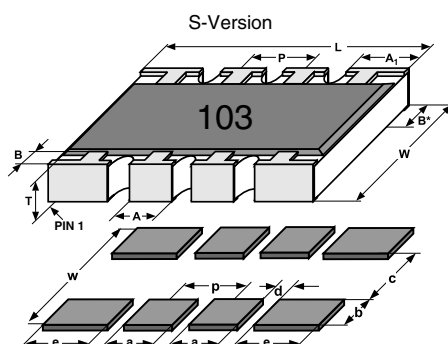
<sup>(2)</sup> Please refer to table PACKAGING, see next page

**AVAILABLE TYPES AND RANGES**

MODEL	TERMINAL COUNT	CIRCUIT	TEMPERATURE COEFFICIENT	TOLERANCE
CRA06S	04	03	$\pm 100$ ppm/K	$\pm 1\%$
			$\pm 200$ ppm/K	$\pm 2\%; \pm 5\%$
	08	03	$\pm 100$ ppm/K	$\pm 1\%$
			$\pm 200$ ppm/K	$\pm 2\%; \pm 5\%$
CRA06E	08	03	$\pm 100$ ppm/K	$\pm 1\%$
			$\pm 200$ ppm/K	$\pm 2\%; \pm 5\%$

**PACKAGING**

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

**CIRCUIT**
**03 CIRCUIT**

**Derating**
**DIMENSIONS**


MODEL	PIN NO#	DIMENSIONS in millimeters							
		L	A	A <sub>1</sub>	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.	$\pm 0.15$	$\pm 0.15$	$\pm 0.15$	$\pm 0.15$	$\pm 0.15$	$\pm 0.1$	$\pm 0.1$	$\pm 0.15$

REFLOW 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 ( $\Delta R/R$ ) <sup>(1)</sup>	
		STABILITY CLASS 1 OR BETTER	STABILITY CLASS 2 OR BETTER
	Stability for product types:		
	<b>CRA06E / CRA06S</b>	10 $\Omega$ to 1 M $\Omega$	10 $\Omega$ to 1 M $\Omega$
Resistance (4.5)	-	$\pm 1 \%$	$\pm 2 \%$ ; $\pm 5 \%$
Temperature coefficient (4.8.4.2)	(20 / -55 / 20) °C and (20 / 125 / 20) °C	$\pm 100$ ppm/K	$\pm 200$ 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) <sup>(2)</sup>	Aging 4 h at 155 °C, dry heat 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**
<sup>(1)</sup> Figures are given for a single element

<sup>(2)</sup> 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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