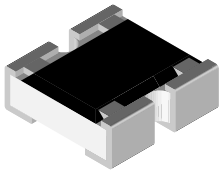
Thick Film Chip Attenuator, Surface Mount, Unbalanced π Type



FEATURES

- Single component reduces board space and component counts - replaces 3 or more components
- Tolerance matching and temperature tracking superior to individual components
- Maximum power dissipation: 0.075 W for CZA06S; 0.040 W for CZA04S
- Consult factory for extended values, non-standard tolerances, impedance matching and other attenuation values
- Frequency range: DC to 3 GHz
- Surface mount chip attenuator in a resistor array package
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb Available

e3 RoHS* Available

Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

STANDARD ELECTRICAL SPECIFICATIONS

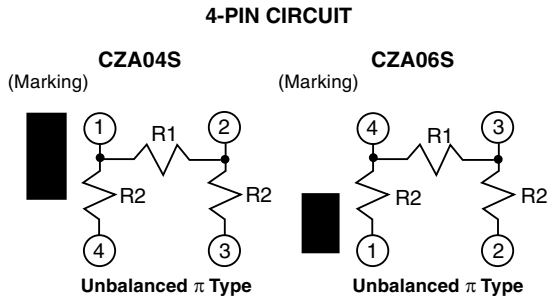
GLOBAL MODEL	POWER RATING $P_{70\,°C}$ W	IMPEDANCE Ω	ATTENUATION RANGE AND TOLERANCE	
			± 0.3 dB (L)	± 0.5 dB (H)
CZA04S	0.040	50	0 dB, 1 dB to 5 dB	6 dB to 20 dB
CZA06S	0.075	50/75/100/300/600	0 dB, 1 dB to 5 dB	6 dB to 20 dB

Note

- Power rating depends on the maximum temperature at the solder point, the component placement density and the substrate material

IMPEDANCE	50 Ω	75 Ω	100 Ω	300 Ω	600 Ω
Attenuation in dB (1)	1	1	1	1	1
	1.5	1.5	1.5	1.5	1.5
	2	2	2	2	2
	3	3	3	3	3
	4	4	4	4	4
	5	5	5	5	5
	6	6	6	6	6
	10	10	10	10	10
	11	11	11	11	11
	12	12	12	12	12
	13	13	13	13	13
	14	14	14	14	14
	15	15	15	15	15
	16	16	16	16	16
	17	17	17	17	17
	18	18	18	18	18
	19	19	19	19	19
	20	20	20	20	20

CIRCUIT SCHEMATIC



Note

(1) Consult factory for other attenuations

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CZA04S	CZA06S
Rated dissipation at 70 °C	W	0.040	0.075
VSWR		1.2 max.	1.2 max.
Category temperature range	°C	-55 to +125	-55 to +150
Frequency range		DC to 3 GHz	DC to 3 GHz

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CZA06S04015050LRT (preferred part numbering format)

C	Z	A	0	6	S	0	4	0	1	5	0	5	0	L	R	T	

MODEL	PIN COUNT	ATTENUATION	IMPEDANCE	TOLERANCE	PACKAGING	SPECIAL
CZA04S **CZA06S**	**04** = 4 pin	**010** = 1.0 dB **015** = 1.5 dB **020** = 2.0 dB **150** = 15.0 dB **000** = 0 dB or 0 Ω jumper	**050** = 50 Ω **075** = 75 Ω **100** = 100 Ω **000** = 0 Ω jumper	**H** = ± 0.5 dB **L** = ± 0.3 dB **Z** = 0 Ω Jumper	**EA** = lead (Pb)-free, T/R (all) **TD** = tin lead, T/R (04 only) **RT** = tin lead, T/R (06 only)	(Dash number) Up to 1 digit Blank = standard

Historical Part Number Example: CZA06S04015050LRT (will continue to be accepted)

CZA	06S	04	015	050	L	RT
MODEL	CASE SIZE	PIN COUNT	ATTENUATION	IMPEDANCE	TOLERANCE	PACKAGING

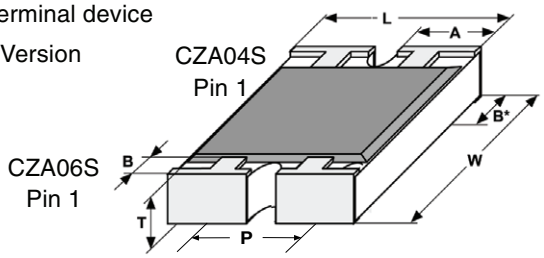
Note

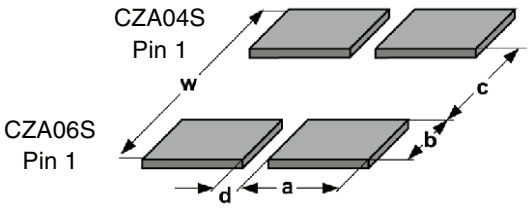
- For additional information on packaging, refer to the Surface Mount Network Packaging document (www.vishay.com/doc?31540)

DIMENSIONS

4-Terminal device

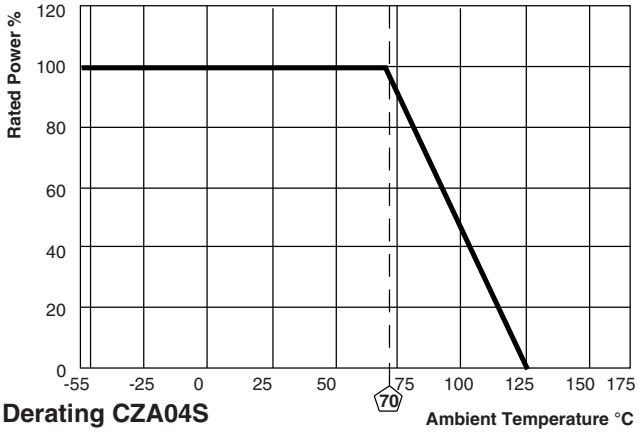
S - Version



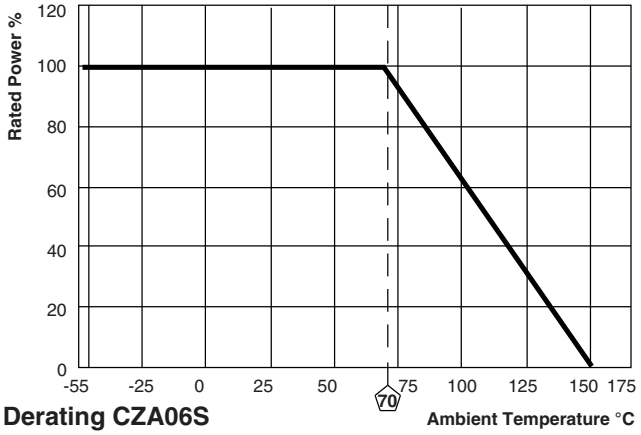


GLOBAL MODEL	DIMENSIONS in inches (millimeters)						
	L	W	T	A	P	B	B*
CZA04S	0.039 ± 0.004 (1.00 ± 0.10)	0.039 ± 0.006 (1.00 ± 0.15)	0.014 ± 0.004 (0.36 ± 0.10)	0.013 ± 0.006 (0.33 ± 0.15)	0.026 (0.65)	0.006 ± 0.004 (0.15 ± 0.10)	0.010 ± 0.004 (0.25 ± 0.10)
CZA06S	0.063 ± 0.006 (1.60 ± 0.15)	0.059 ± 0.006 (1.50 ± 0.15)	0.020 ± 0.004 (0.51 ± 0.10)	0.024 ± 0.006 (0.61 ± 0.15)	0.031 (0.80)	0.012 ± 0.006 (0.30 ± 0.15)	0.012 ± 0.006 (0.30 ± 0.15)

GLOBAL MODEL	SOLDER PAD DIMENSIONS in inches (millimeters)				
	c	w	d	a	b
CZA04S	0.018 (0.45)	0.083 (2.10)	0.008 (0.20)	0.018 (0.45)	0.032 (0.82)
CZA06S	0.031 (0.80)	0.122 (3.10)	0.014 (0.36)	0.025 (0.63)	0.045 (1.15)



Derating CZA04S



Derating CZA06S

PERFORMANCE			
TEST	CONDITIONS OF TEST	TEST RESULTS (TYPICAL TEST LOTS)	
		0.5 dB to 5 dB	6 dB to 20 dB
Endurance test at 70 °C per EIA 575-3.14	1000 h at 70 °C, 1.5 h “ON”, 0.5 h “OFF”	± 0.2 dB	± 0.3 dB
Overload per EIA 575-3.6	Short time overload	± 0.2 dB	± 0.3 dB
Thermal shock	Per EIA 575-3.5	± 0.2 dB	± 0.3 dB
Moisture resistance	Per EIA 575-3.10	± 0.2 dB	± 0.3 dB
Resistance to soldering heat	10 s at 260 °C solder bath temperature EIA 575 3.8	± 0.2 dB	± 0.3 dB
High temperature exposure	Per EIA 575-3.7	± 0.2 dB	± 0.3 dB
Low temperature operations	Per EIA-575-3.6	± 0.2 dB	± 0.3 dB
Solderability and leaching	EIA 575-3.12	95 % coverage	

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.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

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.