

# Thick Film Chip Attenuator, Surface Mount, Balanced $\pi$ 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 CZB06S
- 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](http://www.vishay.com/doc?99912)



### 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 $P_{70\text{ }^\circ\text{C}}$ W	IMPEDANCE $\Omega$	ATTENUATION RANGE AND TOLERANCE	
			$\pm 0.3\text{ dB (L)}$	$\pm 0.5\text{ dB (H)}$
CZB06S	0.075	50/75	0 dB, 1 dB to 5 dB	6 dB to 10 dB

### Note

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

IMPEDANCE	50 $\Omega$	75 $\Omega$
Attenuation in dB <sup>(1)</sup>	1	1
	1.5	1.5
	2	2
	3	3
	4	4
	5	5
	6	6
	10	10

### Note

<sup>(1)</sup> Consult factory for other attenuations.

## CIRCUIT SCHEMATIC



## TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CZB06S
Rated dissipation at 70 $^\circ\text{C}$	W	0.075
VSWR		1.2 max.
Category temperature range	$^\circ\text{C}$	-55 to +150
Frequency range		DC to 3 GHz

## GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CZB06S04020050LRT (preferred part numbering format)



MODEL	PIN COUNT	ATTENUATION	IMPEDANCE	TOLERANCE	PACKAGING	SPECIAL
CZB06S	04 = 4 pin	010 = 1.0 dB 015 = 1.5 dB 020 = 2.0 dB 100 = 10.0 dB 000 = 0 dB	050 = 50 $\Omega$ 075 = 75 $\Omega$	H = $\pm 0.5\text{ dB}$ L = $\pm 0.3\text{ dB}$	EA = Lead (Pb)-free, T/R RT = Tin lead, T/R	(Dash number) Up to 1 digit Blank = Standard

### Note

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

**DIMENSIONS**

4-Terminal device

S - Version



GLOBAL MODEL	DIMENSIONS in inches (millimeters)						
	L	W	T	A	P	B	B*
CZB06S	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
CZB06S	0.031 (0.80)	0.122 (3.10)	0.014 (0.36)	0.025 (0.63)	0.045 (1.15)



PERFORMANCE			
TEST	CONDITIONS OF TEST	TEST RESULTS (TYPICAL TEST LOTS)	
		0.5 dB to 5 dB	6 dB to 10 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.

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.

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».



## JONHON

«**JONHON**» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«**FORSTAR**» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А