DATA SHEET

www.DataSheet4U.com

5063JD series (space miser)
0.25 to 0.40 W; 1% and 5%
Metal film resistors

Product specification
File under BCcomponents, BC08

2000 Aug 08

www.DataSheet4U.com
COMPONENTS

Metal film resistors

5063JD series (space miser) 0.25 to 0.40 W; 1% and 5%

DESCRIPTION

A homogeneous film of metal alloy is deposited on a high grade BALOX ceramic body. After a helical groove has been cut in the resistive layer, tinned connecting wires of electrolytic copper are welded to the end-caps. The resistors are coated with a blue lacquer which provides electrical, mechanical, and climatic protection. The encapsulation is resistant to all cleaning solvents in accordance with *"MIL-STD-202E, method 215"*, and *"IEC 60068-2-45"*.

QUICK REFERENCE DATA

DESCRIPTION	VALUE	
Resistance range	0.22 Ω to 10 MΩ; see Table 1	
Resistance tolerance and series	±5%, (E24); ±1%, (E24/E96)	
Temperature coefficient	$\pm 100 \times 10^{-6}$/K	
Operation mode	**normal**	**long term**
Climatic category (LCT/UCT/days)	55/155/56	55/125/56
Max. dissipation, P_{70}	0.40 W	0.25 W
Thermal resistance, R_{th}	200 °C/W	
Max. continuous operating voltage, U_{max}	200 V (DC or RMS)	
Noise R ≤ 1 MΩ	max. 0.1 V/V	
Surface temperature	155 °C	125 °C
Operating temperature range	−55 °C to +155 °C	−55 °C to +125 °C
Max. resistance change at P_{70} for resistance range, $\Delta R/R$ max., after:		
1000 h	0.50%	0.25%
8000 h	1.0%	0.50%
225000 h	–	1.5%
Permissible voltage against ambient:		
1 minute	300 V	
continuous	75 V	
Stability (ΔR/R max.) after:		
load (1000 hours)	±0.50% + 0.05 Ω	±0.25% + 0.05 Ω
climatic test	±1.0% + 0.05 Ω	
resistance to soldering heat	±0.25% + 0.05 Ω	
short time overload (400 V max.)	±0.25% + 0.05 Ω	

www.DataSheet4U.com

ORDERING INFORMATION

Table 1 Ordering code indicating resistor type and packaging

TYPE	TC ($\times 10^{-6}$/K)	TOL. (%)	RESISTANCE RANGE	PART NUMBER	SPQ (units)
5063JD	±100	–	jumper[1]	5063JD0R000J12AFS	5000; tape & reel
		–	jumper[1]	5063JD0R000J18AFS	5000; ammopack
		±5	0.22 to 0.91 Ω	5063JDxxxxxJ12AFS	5000; tape & reel
		±5	0.22 to 0.91 Ω	5063JDxxxxxJ18AFS	5000; ammopack
		±1	1 Ω to 10 MΩ	5063JDxxxxxF12AF5	5000; tape & reel
		±1	1 Ω to 10 MΩ	5063JDxxxxxF18AF5	5000; ammopack

Note

1. A 0 Ω jumper is available with a maximum resistance $R_{max} \leq 10$ mΩ at 3 A.

Composition of the clear text code (NAFTA P/N)

- The resistors have an ordering code starting with 50
- The subsequent digits indicate the resistor type, temperature coefficient, ohmic value, tolerance and packaging; see Table 1
- The ohmic value is represented by 5-digits; see Table 2
- For temperature coefficient and tolerance, see Table 3.

www.DataSheet4U.com

Table 2 Examples of the ohmic value

OHMIC VALUE	5-DIGIT VALUE
0.22 Ω	0R220
1 Ω	1R000
10 Ω	10R00
100 Ω	100R0
1 kΩ	1K000
10 kΩ	10K00
100 kΩ	100K0
1 MΩ	1M000

Table 3 Letter coding for temperature coefficient and tolerance

TC ($\times 10^{-6}$/K)	LETTER CODE	TOL. (%)	LETTER CODE
100	D	±5	J
–	–	±1	F

ORDERING EXAMPLE: CLEAR TEXT CODE

The ordering code of a 5063JD resistor, value 5600 Ω ±1%, taped on a bandolier of 5000 units in tape on reel is: 5063JD5K600F12AF5.

www.DataSheet4U.com

FUNCTIONAL DESCRIPTION

Product characterization

Standard values of nominal resistance are taken from the E24 or E96 series for resistors with a tolerance of ±5% or ±1%.
The values of the E24 series are in accordance with *"IEC publication 60063"*.

Limiting values

TYPE	LIMITING VOLTAGE(1) (V)	LIMITING POWER (W)
5063JD	200	0.40

Note

1. The maximum voltage that may be continuously applied to the resistor element, see "IEC publication 60115-1".

DERATING

The power that the resistor can dissipate depends on the operating temperature; see Figs 1 and 2.

www.DataSheet4U.com

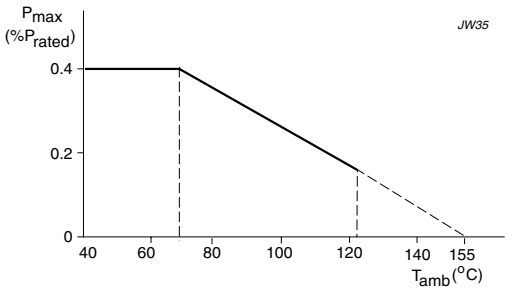


Fig.1 Derating curve, normal operation.

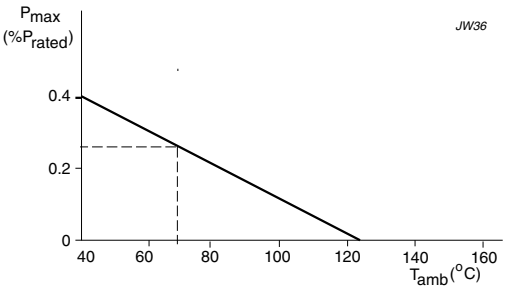


Fig.2 Derating curve, long term operation.

NOISE

The current noise is measured in accordance with *"DIN 44049 Part 1 and IEC 600195"*. Maximum values are for 99.8% of all resistors; see Fig 3.

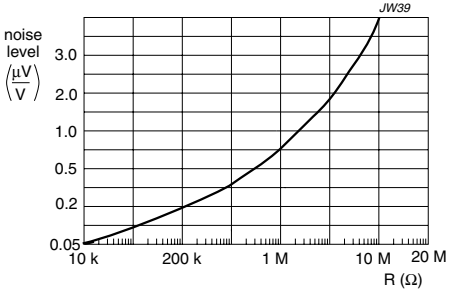


Fig.3 Current noise.

www.DataSheet4U.com

Pulse-load behaviour

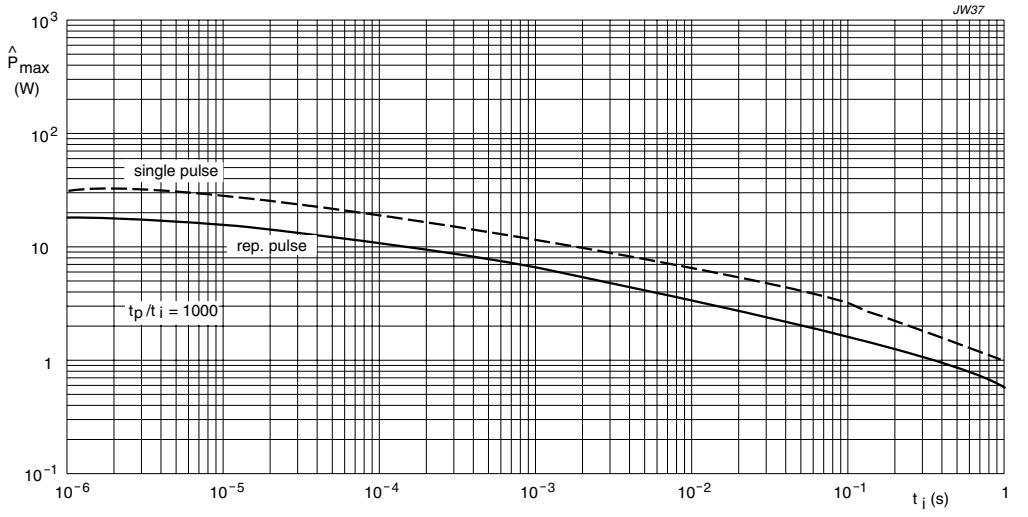


Fig.4 Pulse on a regular basis; maximum permissible peak pulse power ($\hat{P}_{max}$) as a function of pulse duration (t_i).

www.DataSheet4U.com

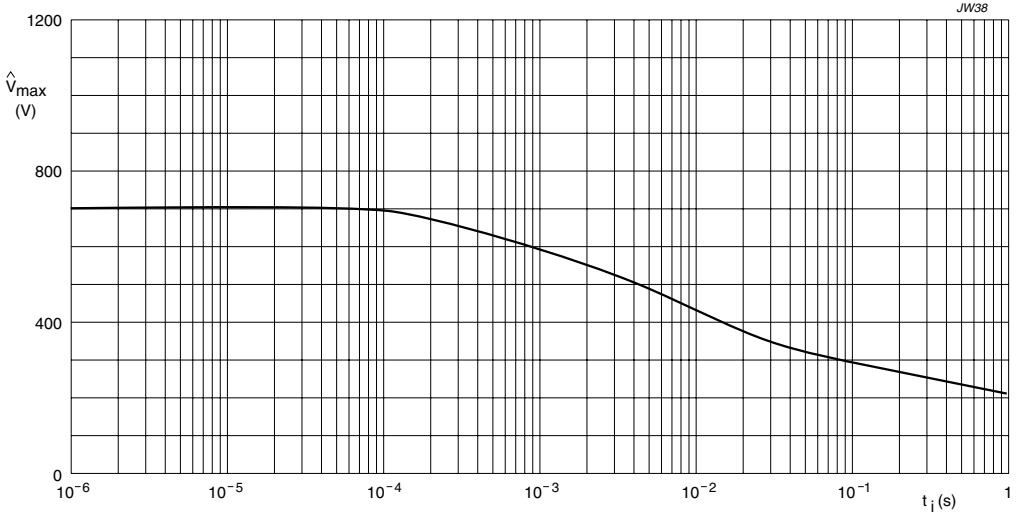


Fig.5 Pulse on a regular basis; maximum permissible peak pulse voltage ($\hat{V}_{max}$) as a function of pulse duration (t_i).

www.DataSheet4U.com

Definition of symbols (see Figs 4, 5, 6 and 7)

SYMBOL	DESCRIPTION
$\hat{P}$	applied peak pulse power
$\hat{P}_{max}$	maximum permissible peak pulse power; see Fig.4
$\hat{V}_i$	applied peak pulse voltage; see Fig 6
$\hat{V}_{max}$	maximum permissible peak pulse voltage; see Fig.5
V(t)	pulse voltage
R	nominal resistance value
P_U	rated dissipation at ambient temperature
R_{nom}	nominal resistance value
t_i	pulse duration (rectangular pulses)
t_p	pulse repetition time

Pulses

The permissible pulse-load is determined by the resistance change as given for the endurance test after 8000 hours.

PULSE VOLTAGE LIMIT

www.DataSheet4U.com

The maximum permissible impulse voltage $\hat{V}_{max}$ is the voltage pulse short overload depending on the impulse time t_i. High ohmic values are protected by the interdependence of voltage limit and impulse time. this function is given by the equation: $\hat{V}_{max} = \frac{2.5 \cdot V_{max}}{1 + t_i \cdot K} + V_{max}$

V_{max} = maximum permissible continuous voltage;
ti = pulse time;
K = 100 s^{-1}.

MAXIMUM PULSE-LOAD

The average load $\bar{P}$ must not exceed the rated dissipation. For resistance values above the critical resistance the rated dissipation is given by the resistance value and the limiting element voltage V_{max}: $\bar{P} = \frac{1}{t_p R}\int_{t1}^{t2} U^2(t)dt \leq P\upsilon$

CONTINUOUS AND SINGLE PULSE-LOAD

There is a difference between repetitive pulse-load $\left(\bar{P} = \frac{t_i}{t_p} \cdot \underline{P} \text{ with } \underline{P} = \text{power at the pulse time } t_i\right)$ or single pulse load (e.g. switching events $\bar{P} > 0$).

A higher pulse-load P_{max} is accepted in the latter case.

PULSE SHAPES

Figure 6 shows the maximum pulse-load for a rectangular pulse shape: $\bar{P} = \frac{t_i \cdot \hat{V}^2}{t_p \cdot R}$

Other pulses should be converted into rectangular pulse shapes (see Fig.7), having the same energy at a given peak voltage. The following equation shows the calculation for exponential pulses:

$\bar{P} = \frac{\tau_e}{2 \cdot t_p} \cdot \frac{\hat{V}^2}{R}$ with $\tau_e = R \cdot C$ or $\tau_e = \frac{L}{R}$

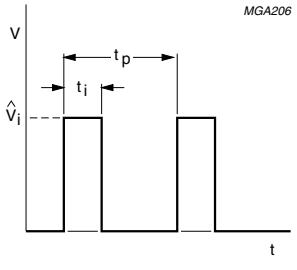


Fig.6 Rectangular pulses.

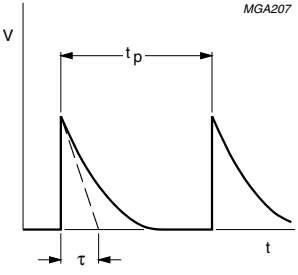


Fig.7 Exponential pulses.

www.DataSheet4U.com

MECHANICAL DATA

Mass per 100 units

13 g

Marking

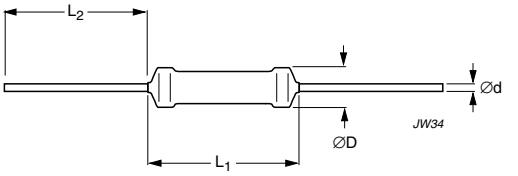
The nominal resistance and tolerance are marked on the resistor using four or five coloured bands in accordance with IEC publication 60062 *"Colour codes for fixed resistors"*.

Mounting

The resistors are suitable for processing on automatic insertion equipment in addition to cutting and bending machines.The minimum bending is 5 mm (.200 inch).

Outlines

The length of the body (L_1) is measured by inserting the leads into holes of two identical gauge plates and moving these plates parallel to each other until the resistor body is clamped without deformation *("IEC publication 60294")*.



For dimensions see Table 4.

Fig.8 Outline.

Table 4 Resistor type and physical dimensions; see Fig.8

TYPE	ØD MAX. (mm)	L_1 MAX. (mm)	L_2 MAX. (mm)	Ød (mm)
Dimensions in inches				
5063JD	0.063	.142	1.14	.020
Dimensions in millimetres				
5063JD	1.6	3.6	29	0.5

www.DataSheet4U.com

www.DataSheet4U.com

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Vishay:

5063JD 13 1%TR 5063JD 178K 1% 5063JD 20 1%TR 5063JD 22 1%TR 5063JD 249 1%TR 5063JD 3.9K 1%TR 5063JD 33 1% 5063JD 432 1%TR 5063JD 470K 1%TR 5063JD 51 1%TR 5063JD 60.4 1%TR 5063JD 619 1%TR 5063JD 69.8K 1% 5063JD 976K 1% 5063JD 143 1% 5063JD 1.74M 1% 5063JD 3.83K 1% 5063JD 237 1%TR 5063JD 820K 1%TR 5063JD 390K 1%TR 5063JD 7.15 1% 5063JD 11 1% 5063JD 22.6 1%TR 5063JD 1.65K 1% 5063JD 16 1%TR 5063JD 560K 1%TR 5063JD 806 1%TR 5063JD 324K 1%TR 5063JD 9.31 1% 5063JD80.6K1% 5063JD 2.8 1% 5063JD 2.43M 1% 5063JD 3.3 1%TR 5063JD 33.2 1% 5063JD 910K 1% 5063JD 4.53 1% 5063JD 665K 1% 5063JD 191 1% 5063JD 2.4K 1%TR 5063JD 51K 1%TR 5063JD 1.3M 1% 5063JD 215K 1% 5063JD 2.55K 1% 5063JD 2.94 1% 5063JD 8.87 1% 5063JD22K1%TR 5063JD 68 1%TR 5063JD 3.24K 1% 5063JD 162 1%TR 5063JD 232K 1% 5063JD 54.9K 1% 5063JD 243K 1%TR 5063JD 196 1% 5063JD 56.2 1%TR 5063JD 2.15K 1% 5063JD 9.76 1% 5063JD 39 1% 5063JD 357K 1%TR 5063JD 5.76K 1% 5063JD 7.68K 1% 5063JD 147 1% 5063JD 130 1%TR 5063JD 205K 1% 5063JD 1.2M 1% 5063JD 127 1%TR 5063JD12K1% 5063JD 866K 1%TR 5063JD 178 1%TR 5063JD121R0FT 5063JD 1.27M 1% 5063JD 232K 1%TR 5063JD 390 1% 5063JD 240 1%TR 5063JD 1.13K 1% 5063JD 523 1%TR 5063JD 2.87K 1% 5063JD 309 1%TR 5063JD2M1%TR 5063JD 249K 1%TR 5063JD 430K 1% 5063JD 9.53 1% 5063JD 261 1%TR 5063JD 976 1%TR 5063JD 5.9K 1% 5063JD 1.05K 1% 5063JD 160K 1%TR 5063JD 200 1%TR 5063JD 6.65 1% 5063JD 402K 1%TR 5063JD 34.8 1% 5063JD 66.5K 1% 5063JD 2.49 1% 5063JD 1.82 1% 5063JD 210K 1%TR 5063JD 143K 1% 5063JD 76.8K 1% 5063JD 2.05K 1% 5063JD 6.98 1% 5063JD 21K 1%TR 5063JD 1.91M 1%

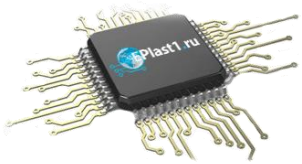
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)
Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.