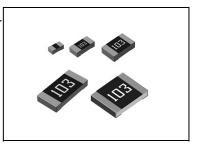


Sulfur tolerant chip resistors

SFR series Datasheet

Features

- 1) Special construction prevents sulfur gas penetration, significantly increasing reliability.
- 2) ROHM resistors have obtained ISO9001 / ISO / TS16949 certification.



Products list

Part No.	Size		Rated power (70°c)	Limiting element voltage	Temperature coefficient	Resistance tolerance	Resistar	nce range	Operating temperature range	Automotive grade
	(mm)	(inch)	(W)	(V)	(ppm/°C)		(!	Ω)	(°C)	available
					±100	F(±1%)	10 ≦R≦2.2M	(E24/96 series)		
SFR01	1005	0402	0.063	50	+500 / -250	J(±5%)	1.0≦R<10	(E24 series)	-55 ~ +155	Yes
SHOT	1003	0402			±200	J(±5%)	10 ≦R≦10M	(E24 series)	-55 ~ +155	res
					Jumper type) Rn	nax = 50mΩ M	AX. / Imax = 1A			
					±100	F(±1%)	10 ≦R≦10M	(E24/96 series)		Yes
SFR03	1608	0603	0.10).10 50	±400	J(±5%)	1 ≦R<10	(E24 series)	-55 ~ +155	
31103	1000				±200	J(±5%)	10 ≦R≦10M	(E24 series)		
				Jumper type) Rmax = 50 mΩ MAX. / Imax = 1 A						
					±100	F(±1%)	10 ≦R≦2.2M	(E24/96 series)		
SFR10	2012	0805	0.125	150	±400	J(±5%)	1 ≦R<10	(E24 series)	-55 ~ +155	Yes
Silkio	2012	0000			±200	J(±5%)	10 ≦R≦10M	(E24 series)	-55 ~ +155	165
				Jumper type) Rmax = $50m\Omega$ MAX. / Imax = $2A$						
					±100	F(±1%)	10 ≦R≦2.2M	(E24/96 series)		
SFR18	3216	1206	0.25	200	±400	J(±5%)	1 ≦R<10	(E24 series)	-55 ~ +155	Yes
J GINIO	3210	1200			±200	J(±5%)	10 ≦R≦10M	(E24 series)	-50 ** 1100	163
					Jumper type) Rn	$max = 50m\Omega M$	AX. / Imax = 2A			
			0.5	200	±100	F(±1%)	10≦R≦1M	(E24/96 series)		
SFR25	3225	1210	0.5	200	±200	J(±5%)	1≦R≦1M	(E24 series)	-55 ~ +155	Yes
					Jumper type) Rn	$max = 50m\Omega M$	AX. / Imax = 2A			

^{*} Design and specifications are subject to change without notice.

Carefully check the specification sheet supplied with the product before using or ordering it.

Part Number Description



(Sulfur tolerant

chip resistors)

SFR





0





Packaging specifications code							
Part No.	Code	Packaging specifications	Quantity / Reel				
SFR01	SFR01 MZP Paper ta (2mmPit		10,000				
SFR03	EZP	Paper tape (4mm Pitch)	5,000				
SFR10	EZP	Paper tape (4mm Pitch)	5,000				
SFR18	EZP	Paper tape (4mm Pitch)	5,000				
SFR25	JZP	Embossed tape (4mm Pitch)	4,000				



Resistance tolerance F(±1%) J (±5%)

1 0 5

X	Nominal resistance					
Re	Resistance code, 3 or 4 digits.					
000 denotes jumper type.						
	Docietanos	Docietanos				

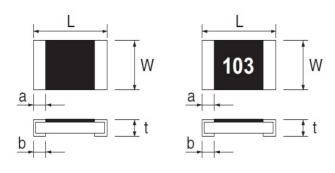
	tole a ice		code	
	F	:	4 digits	
	J	:	3 digits	
₽	()			
	$1\Omega = 1R0$	(=	<u>⊦</u> 5%)	
	$9.1\Omega = 9R1$	(±	:5%)	
	$10\Omega = 10R0$	<u>t</u>)(:1%)	
	100	(=	<u>+</u> 5%)	

^{*} E24 : Standard products, E96 : Custom products.

•Chip resistor dimensions and markings

■ SFR 01

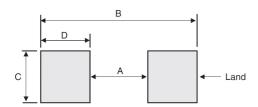
■ SFR 03/10/18/25



(Unit:mm)

Part No.	(mm)	(inch)	L	W	t	а	b	Marking existence *Including jumper type
SFR01	1005	0402	1.0±0.05	0.5±0.05	0.35±0.05	0.33±0.08	0.25 ^{+0.05} _{-0.10}	No
SFR03	1608	0603	1.6±0.1	0.8±0.1	0.45±0.1	0.4±0.2	0.3±0.2	Yes
SFR10	2012	0805	2.0±0.1	1.25±0.1	0.55±0.1	0.4±0.2	0.4±0.2	Yes
SFR18	3216	1206	3.2 ^{+0.15} _{-0.20}	1.6±0.15	0.55±0.1	0.55±0.25	0.5±0.25	Yes
SFR25	3225	1210	3.2 +0.15 -0.20	2.5±0.15	0.55±0.1	0.55±0.25	0.5±0.25	Yes

●Land pattern example



(Unit:mm)

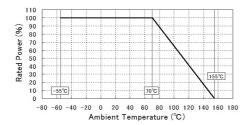
Dimensions Part No.	А	В	С	D
SFR01	0.5	1.3	0.5	0.4
SFR03	1.0	2.0	0.8	0.5
SFR10	1.2	2.6	1.15	0.7
SFR18	2.2	4.0	1.5	0.9
SFR25	2.2	4.0	2.3	0.9

SFR series Datasheet

Derating curve

When the ambient temperature exceeds 70°C, power dissipation must be adjusted according to the derating curves below.

■SFR 01/03/10/18/25



Characteristics

Test items	Guaran	teed value	Test conditions	
lestitems	Resistor type	Jumper type	lest coriditions	
Resistance	Se	e P.1	20°C	
Variation of resistance with temperature	Se	e P.1	Measurement: +25/+125°C	
Overload	±2.0%	MAX 50mΩ	Rated voltage(current)×2.5, , 2s Maximum overload voltage※	
Anew uniform coating of minimum of 95% of the surface being immersed and no soldering damage.			Rosin-ethanol solution(25% weight) Soldering condition: 245±5°C Duration of immersion: 2.0±0.5s	
Resistance to soldering heat	±1.0% No remarkable abnorm	MAX. 50mΩ nality on the appearance.	Soldering condition: 260±5°C Duration of immersion: 10±1s	
Rapid change of temperature	±1.0%	MAX 50mΩ	Test temp:-55°C∼+125°C 5cycle	
Damp heat, steady state	±3.0%	MAX 100mΩ	40°c, 93%(Relative humidity) Test time: 1,000h	
Endurance at 70°C	±3.0%	MAX 100mΩ	Rated voltage(current),70°C 1.5h:ON – 0.5h:OFF Test time: 1,000h	
Endurance	±3.0%	MAX 100mΩ	155°C Test time: 1,000h	
Resistance to solvent	±1.0%	MAX 50mΩ	23±5°c, Immersion cleaning, 5±0.5min Solvent: 2-propanol	
Bend strength of the end face plating	±1.0% MAX 50mΩ Without mechanical damage such as breaks.		-	
Resistance in Sulfur vapor	±1.0%	MAX. 50mΩ	Put specimen and sulfur powder 10g in the desiccator which is placed under 110°C environment after sealed. Test time:1,000h	

Compliance Standard(s): IEC60115-8

JISC 5201-8

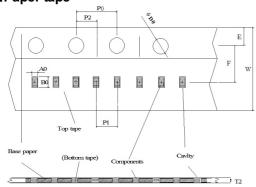
※Maximum overload voltage (Voltage of overload test)

SFR01	SFR03	SFR10	SFR18	SFR25
100V	100V	200V	400V	400V



●Tape dimensions

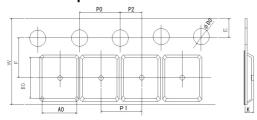
■Paper tape



					(Unit : mm)
Part No.	W	F	Е	A0	B0
SFR01	8.0±0.3	3.5±0.05	1.75±0.1	0.7±0.1	1.2±0.1
SFR03	8.0±0.3	3.5±0.05	1.75±0.1	1.1±0.1	1.9±0.1
SFR10	8.0±0.3	3.5±0.05	1.75±0.1	1.65 ^{+0.2} -0.1	2.4 ^{+0.2} -0.1
SFR18	8.0±0.3	3.5±0.05	1.75±0.1	1.95 ^{+0.1} -0.05	3.5 ^{+0.15} _{-0.05}

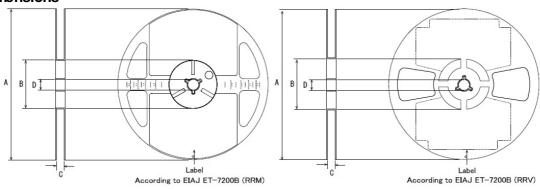
Part No.	D0	P0	P1	P2	T2
SFR01	Ф1.5 ^{+0.1}	4.0±0.1	2.0±0.05	2.0±0.05	MAX1.1
SFR03	Ф1.5 ^{+0.1}	4.0±0.1	4.0±0.1	2.0±0.05	MAX1.1
SFR10	Ф1.5 ^{+0.1}	4.0±0.1	4.0±0.1	2.0±0.05	MAX1.1
SFR18	Ф1.5 ^{+0.1}	4.0±0.1	4.0±0.1	2.0±0.05	MAX1.1

■Embossed tape



					(Unit : mm)
Part No.	W	F	Е	A0	B0
	8.0±0.3	3.5±0.05	1.75±0.1	3.0±0.1	3.5±0.1
SFR25	D0	P0	P1	P2	T2
	Ф1.5 ^{+0.1}	4.0±0.1	4.0±0.1	2.0±0.05	MAX1.1

Reel dimensions



=				(Unit:mm)
Part No.	А	В	С	D
SFR01				
SFR03				
SFR10	Ф180 ⁰ -1.5	Ф60 ^{+1.0}	9 ^{+1.0}	Ф13±0.2
SFR18				
SFR25				

Notice

Precaution on using ROHM Products

1. Our Products are designed and manufactured for application in ordinary electronic equipment (such as AV equipment, OA equipment, telecommunication equipment, home electronic appliances, amusement equipment, etc.). If you intend to use our Products in devices requiring extremely high reliability (such as medical equipment (Note 1), transport equipment, traffic equipment, aircraft/spacecraft, nuclear power controllers, fuel controllers, car equipment including car accessories, safety devices, etc.) and whose malfunction or failure may cause loss of human life, bodily injury or serious damage to property ("Specific Applications"), please consult with the ROHM sales representative in advance. Unless otherwise agreed in writing by ROHM in advance, ROHM shall not be in any way responsible or liable for any damages, expenses or losses incurred by you or third parties arising from the use of any ROHM's Products for Specific Applications.

(Note1) Medical Equipment Classification of the Specific Applications

JAPAN	USA	EU	CHINA
CLASSⅢ	CLASSⅢ	CLASS II b	CLASSIII
CLASSIV	CLASSIII	CLASSⅢ	

- 2. ROHM designs and manufactures its Products subject to strict quality control system. However, semiconductor products can fail or malfunction at a certain rate. Please be sure to implement, at your own responsibilities, adequate safety measures including but not limited to fail-safe design against the physical injury, damage to any property, which a failure or malfunction of our Products may cause. The following are examples of safety measures:
 - [a] Installation of protection circuits or other protective devices to improve system safety
 - [b] Installation of redundant circuits to reduce the impact of single or multiple circuit failure
- 3. Our Products are designed and manufactured for use under standard conditions and not under any special or extraordinary environments or conditions, as exemplified below. Accordingly, ROHM shall not be in any way responsible or liable for any damages, expenses or losses arising from the use of any ROHM's Products under any special or extraordinary environments or conditions. If you intend to use our Products under any special or extraordinary environments or conditions (as exemplified below), your independent verification and confirmation of product performance, reliability, etc, prior to use, must be necessary:
 - [a] Use of our Products in any types of liquid, including water, oils, chemicals, and organic solvents
 - [b] Use of our Products outdoors or in places where the Products are exposed to direct sunlight or dust
 - [c] Use of our Products in places where the Products are exposed to sea wind or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - [d] Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
 - [e] Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
 - [f] Sealing or coating our Products with resin or other coating materials
 - [g] Use of our Products without cleaning residue of flux (Exclude cases where no-clean type fluxes is used. However, recommend sufficiently about the residue.); or Washing our Products by using water or water-soluble cleaning agents for cleaning residue after soldering
 - [h] Use of the Products in places subject to dew condensation
- 4. The Products are not subject to radiation-proof design.
- 5. Please verify and confirm characteristics of the final or mounted products in using the Products.
- 6. In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse, is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.
- 7. De-rate Power Dissipation depending on ambient temperature. When used in sealed area, confirm that it is the use in the range that does not exceed the maximum junction temperature.
- 8. Confirm that operation temperature is within the specified range described in the product specification.
- 9. ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

Precaution for Mounting / Circuit board design

- 1. When a highly active halogenous (chlorine, bromine, etc.) flux is used, the residue of flux may negatively affect product performance and reliability.
- 2. In principle, the reflow soldering method must be used on a surface-mount products, the flow soldering method must be used on a through hole mount products. If the flow soldering method is preferred on a surface-mount products, please consult with the ROHM representative in advance.

For details, please refer to ROHM Mounting specification

Precautions Regarding Application Examples and External Circuits

- 1. If change is made to the constant of an external circuit, please allow a sufficient margin considering variations of the characteristics of the Products and external components, including transient characteristics, as well as static characteristics.
- You agree that application notes, reference designs, and associated data and information contained in this document are presented only as guidance for Products use. Therefore, in case you use such information, you are solely responsible for it and you must exercise your own independent verification and judgment in the use of such information contained in this document. ROHM shall not be in any way responsible or liable for any damages, expenses or losses incurred by you or third parties arising from the use of such information.

Precaution for Electrostatic

This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding the Products maximum rating will not be applied to Products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of lonizer, friction prevention and temperature / humidity control).

Precaution for Storage / Transportation

- 1. Product performance and soldered connections may deteriorate if the Products are stored in the places where:
 - [a] the Products are exposed to sea winds or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - [b] the temperature or humidity exceeds those recommended by ROHM
 - [c] the Products are exposed to direct sunshine or condensation
 - [d] the Products are exposed to high Electrostatic
- 2. Even under ROHM recommended storage condition, solderability of products out of recommended storage time period may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is exceeding the recommended storage time period.
- 3. Store / transport cartons in the correct direction, which is indicated on a carton with a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.
- 4. Use Products within the specified time after opening a humidity barrier bag. Baking is required before using Products of which storage time is exceeding the recommended storage time period.

Precaution for Product Label

A two-dimensional barcode printed on ROHM Products label is for ROHM's internal use only.

Precaution for Disposition

When disposing Products please dispose them properly using an authorized industry waste company.

Precaution for Foreign Exchange and Foreign Trade act

Since concerned goods might be fallen under listed items of export control prescribed by Foreign exchange and Foreign trade act, please consult with ROHM in case of export.

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SFR10EZPF - Web Page

Part Number	SFR10EZPF
Package	
Unit Quantity	5000
Minimum Package Quantity	5000
Packing Type	Taping
Constitution Materials List	inquiry
RoHS	Yes



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;
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- 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.);

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- 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.



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