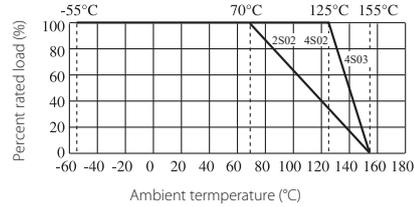


Feature

- Anti-Sulfidation
- Suitable for reflow & wave soldering
- Application car, power



Derating Curve



Dimension (mm) & Structure

Type	2S02	4S02	4S03
Size	0402×2	0402×4	0603×4
Dimension (mm)			
Equivalent Circuit Diagram	<p>R1=R2</p>	<p>R1=R2=R3=R4</p>	<p>R1=R2=R3=R4</p>

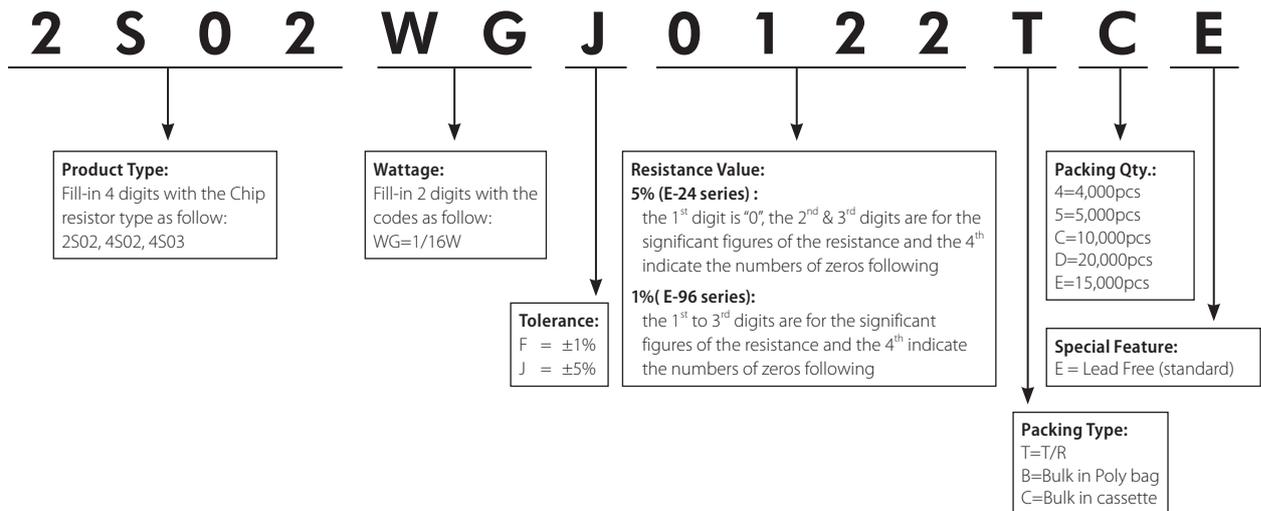
Characteristics

Type	Power Rating	Max. Working Voltage	Max. Overload Voltage	Resistance Range	Dielectric Withstanding Voltage	Tolerance	Operating Temperature	Resistance Value of Jumper	Rated Current of Jumper	T.C.R (PPM/°C)
2S02				10Ω~1MΩ	100					±200
4S02	1/16W	50V	100V	10Ω~1MΩ	100	±1%, ±5%	-55°C~+155°C	<50mΩ	1A	±200
4S03				1Ω~1MΩ	300					≥10Ω:±200 <10Ω:±400

Performance Specification

Test Item	Reference standard	Test Methods	Evaluation Criteria
Temperature Coefficient of Resistance	MIL-STD-202 Method 304	Measure between -55°C ~+155°C	$1\Omega \leq R \leq 10\Omega: \pm 200\text{ppm}/^\circ\text{C}$ $10\Omega < R \leq 10\text{M}\Omega: \pm 100\text{ppm}/^\circ\text{C}$
Pre- and Post-Stress Electrical Test (Short time Overload)	AEC-Q200 TEST 1 IEC60115 4.13	2.5x Rated voltage or Max. Overload Voltage whichever is lower for 5 seconds, then check the resistance.	$\pm 1\%: \pm (1.0\%+0.05\Omega)$ $\pm 5\%: \pm (2.0\%+0.05\Omega)$
Biased Humidity	AEC-Q200 TEST 7 MIL-STD-202 Method 103	1000 hours 85°C/85%RH. Note: Specified conditions:10% of operating power.Measurement at 24 ± 4 hours after test conclusion.	$\pm 1\%: \pm (1.0\%+0.05\Omega)$ $\pm 5\%: \pm (3.0\%+0.05\Omega)$
Operational Life	AEC-Q200 TEST 8 MIL-STD-202 Method 108	Condition D Steady State $T_A=125^\circ\text{C}$ at rated power.Measurement at 24 ± 4 hours after test conclusion.	$\pm 1\%: \pm (1.0\%+0.1\Omega)$ $\pm 5\%: \pm (3.0\%+0.1\Omega)$
Resistance to Soldering Heat	AEC-Q200 TEST 15 MIL-STD-202 Method 210	Condition B No pre-heat of samples. Note: Single Wave Solder - Procedure 2 for SMD and Procedure 1 for Leaded with solder within 1.5mm of device body.	$\pm (1.0\%+0.05\Omega)$
Solderability	AEC-Q200 TEST 18 J-STD-002	For both Leaded & SMD. Electrical test not required.Magnification 50 X. Conditions:Leaded: Method A @ 235°C , category 3.SMD: a) Method B, 4 hrs @ 155°C dry heat @ 235°C b) Method B @ 215°C category 3. c) Method D category 3 @ 260°C .	Coverage must be over 95%.
Board Flex	AEC-Q200 TEST 21 AEC-Q200-005	60 sec minimum holding time.	$\pm (1.0\%+0.05\Omega)$
Sulfuration test		Soaked in industrial oil with sulfur substance 3.5% contained $105^\circ\text{C} \pm 3^\circ\text{C}$ 500h	$\Delta R \leq \pm (5\%+0.05\Omega)$

Ordering Procedure (Example: 2S02 1/16W $\pm 5\%$ 1.2K T/R-10000)



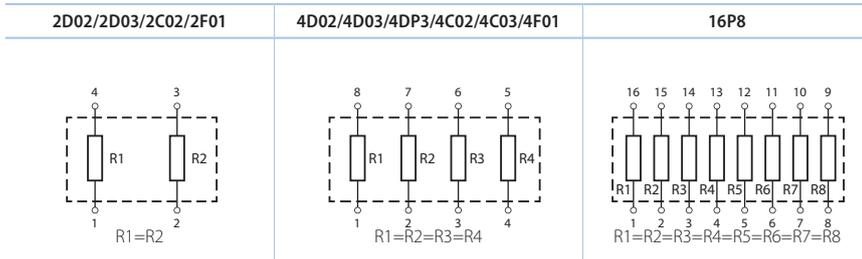
Remark: For more details, please check page 135, Part No. System

Feature (特性)

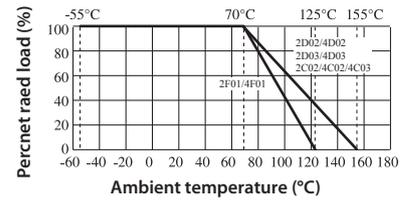
- High density, more than 1 resistors in one small case
- Improvement of placement efficiency
- Tape/Reel packaging is suitable for automatic placement machine
- Superior solderability
- Application: Master board, CD & DVD Rom, Hard Disk, RAM



Equivalent Circuit Diagram



Derating Curve



Dimensions in mm

Convex Terminal type			Concave Terminal		Flat Terminal	
2D02/2D03	4D02/4D03/4DP3	16P8	2C02	4C02/4C03	2F01	4F01

*The 16P8 series of Anti-sulfuration products are available in particular.

Type	Dimensions (mm)							
	L	W	T	A1	A2	B	P	G
2D02 0402*2	1.00±0.10	1.00±0.10	0.35±0.10	0.33±0.10	/	0.15±0.05	0.65±0.05	0.25±0.10
4D02 0402*4	2.00±0.10	1.00±0.10	0.45±0.10	0.40±0.05	0.30±0.05	0.20±0.15	0.50±0.05	0.30±0.15
2D03 0603*2	1.60±0.15	1.60±0.15	0.50±0.10	0.60±0.15	/	0.30±0.10	0.80±0.05	0.25±0.10
4D03/4DP3 0603*4	3.20±0.20	1.60±0.20	0.50±0.10	0.65±0.15	0.50±0.15	0.30±0.15	0.80±0.10	0.30±0.15
16P8	4.00±0.20	1.60±0.15	0.45±0.10	0.45±0.05	0.30±0.05	0.30±0.15	0.50±0.05	0.40±0.15
2C02 0402*2	1.00±0.10	1.00±0.10	0.35±0.10	/	/	0.15±0.10	/	0.30±0.10
4C02 0402*4	2.00±0.10	1.00±0.10	0.45±0.10	/	/	0.15±0.10	/	0.30±0.10
4C03 0603*4	3.20±0.20	1.60±0.20	0.60±0.10	/	/	0.30±0.20	/	0.40±0.10
2F01 0201*2	0.80±0.10	0.60±0.10	0.35±0.10	0.30±0.10	/	0.15±0.10	0.50±0.05	0.15±0.10
4F01 0201*4	1.40±0.10	0.60±0.10	0.35±0.10	0.20±0.10	/	0.15±0.10	0.40±0.05	0.15±0.10

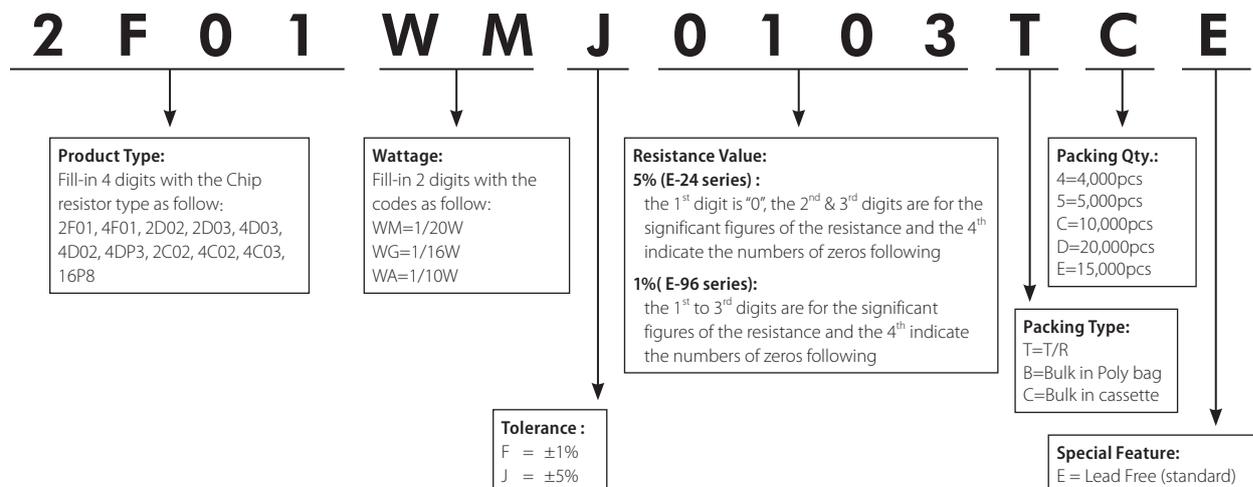
Ratings

Type	Rated power 70°C	Max Working Voltage	Max Overload Voltage	Dielectric Withstanding Voltage	Resistance Range ±5%, ±1%	Temperature Coefficient PPM/°C	Operating Temperature	Resistance Value of Jumper	Rated Current of Jumper
2D02	1/16W	50V	100V	100V	10Ω~1MΩ	±200			
4D02	1/16W	50V	100V	100V	10Ω~1MΩ	±200			
2D03	1/16W	50V	100V	100V	10Ω~1MΩ	±200			
4D03	1/16W	50V	100V	300V	1Ω~1MΩ	≥10Ω:±200 <10Ω:±400			
4DP3	1/10W	50V	100V	300V	1Ω~1MΩ	≥10Ω:±200 <10Ω:±400	-55°C~+155°C	<50mΩ	1A
16P8	1/16W	50V	100V	300V	1Ω~1MΩ	≥10Ω:±200 <10Ω:±400			
2C02	1/16W	50V	100V	100V	10Ω~1MΩ	±200			
4C02	1/16W	50V	100V	100V	10Ω~1MΩ	±200			
4C03	1/10W	50V	100V	300V	1Ω~1MΩ	≥10Ω:±200 <10Ω:±400			
2F01	1/20W	12.5V	25V	/	10Ω~1MΩ	±200	-55°C~+125°C	<50mΩ	1A
4F01	1/20W	12.5V	25V	/	10Ω~1MΩ	±200			

Performance Specification

Short-time overload	± (2.0%±0.1Ω) 2F01: 1%: ±1%+0.05Ω, 5%: ±2%+0.05Ω
Insulation Resistance	≥1000MΩ
Dielectric withstanding voltage	No evidence of flashover mechanical damage, arcing or insulation break down.
Terminal bending	± (1.0%±0.05Ω)
Soldering heat	ΔR/R ≤ ± (1.0%+0.05Ω)
Solderability	Coverage must be over 95%.
Rapid change of temperature	ΔR/R ≤ ± (1.0%+0.05Ω) 2F01: 1%: ±0.5%+0.05Ω, 5%: ±1%+0.05Ω
Load life in humidity	± (3.0%±0.1Ω) 2F01: 1%: ±2%+0.1Ω, 5%: 3.0%±0.1Ω
Load life	± (3.0%±0.1Ω) 2F01: 1%: ±2%+0.1Ω, 5%: 3.0%±0.1Ω

Ordering Procedure (Example: 2F01 1/20W ±5% 10K T/R-10000)

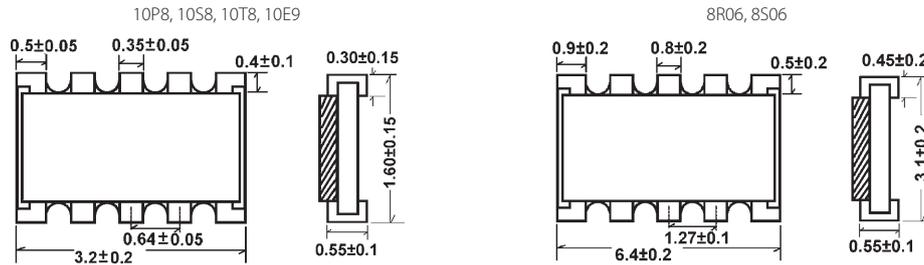


Remark: For more details, please check page 135, Part No. System

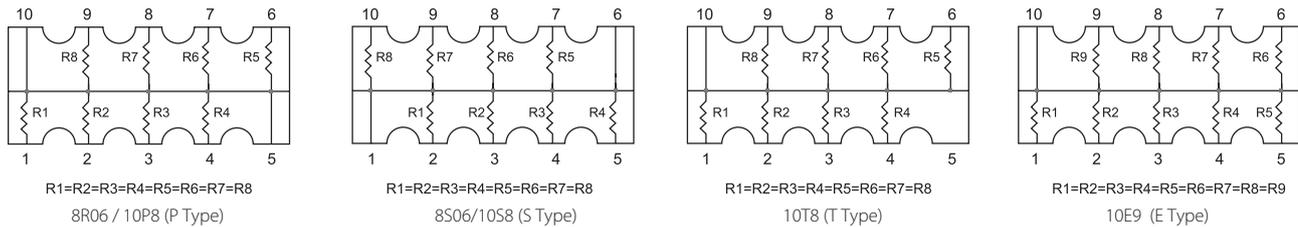
Feature

- High density, more than 1 resistors in one small case
- Improvement of placement efficiency
- Tape/Reel packaging is suitable for automatic placement machine
- Superior solderability

Dimension (mm)



Equivalent Circuit Diagram



Characteristics

	10P8, 10S8, 10T8, 10E9 1/32W (1/16W special provide)	8R06, 8S06 1/16W
Rated Power at 70°C	10P8, 10S8, 10T8, 10E9 1/32W (1/16W special provide)	8R06, 8S06 1/16W
Max. Working Voltage	25V	50V
Max. Overload Voltage	50V	100V
Dielectric withstanding Voltage	50V	100V
Operating temperature	-55°C ~ +155 °C	55°C ~ +155 °C
Resistance Range	10Ω~1MΩ	±1% :30Ω~1MΩ ±5% :10Ω~1MΩ
Resistance Value of Jumper	<50mΩ	/
Rated Current of Jumper	0.5A	/

Performance Specification

Temperature Coefficient	±200PPM/°C
Short-time overload	±(2.0% ±0.05Ω)
Insulation resistance	≥1,000MΩ
Dielectric withstanding voltage	No evidence of flashover, mechanical damage, arcing or insulation breakdown
Terminal bending	±(1.0% ±0.05Ω)
Soldering heat	$\Delta R/R \leq \pm(1.0\% \pm 0.05\Omega)$
Solderability	Coverage must be over 95%.
Load life in humidity	±(3.0% ±0.1Ω)
Load life	±(3.0% ±0.1Ω)

Remark: For more details, please check page 135, Part No. System