Revision: 11-Mar-2025

1 For technical questions, contact: ww2bresistors@vishay.com

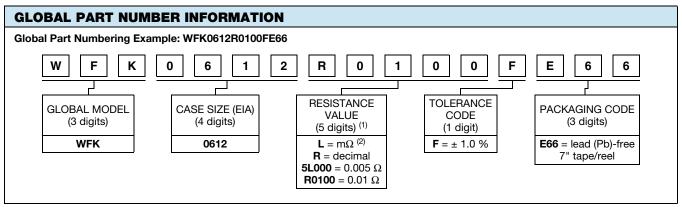
Metal Foil Current Sense Resistors, 4-Terminal Low Value (Down to 0.001 Ω)

- Ultra low sensing resistance
- Sulfur resistant according to EIA-977 test method A
- AEC-Q200 gualified
- · Material categorization: for definitions of (5-2008) compliance please see www.vishay.com/doc?99912

APPLICATIONS

- Switching power supply
- Voltage regulation module
- DC/DC converter, adaptor, battery pack, charger
- · Pad and cell phone
- Power management

STANDARD ELECTRICAL SPECIFICATIONS										
GLOBAL SIZE POWER RATING W		TOLERANCE %	RESISTANCE VALUES AVAILABLE mΩ	WEIGHT (typical) g/1000 pieces						
WFK0612	0612	1	± 1	0.5, 1, 2, 3, 4, 5, 10	7.40					



Notes

⁽¹⁾ Resistance values are available per E12 and E24 decades; <u>www.vishay.com/doc?28372</u>

 $^{(2)}$ Use "L" for resistance values < 0.01 Ω





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RoHS COMPLIANT HALOGEN FREE GREEN





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TECHNICAL SPECIFICATIONS							
PARAMETER	UNIT	RESISTOR CHARACTERISTICS					
		WFK0612					
Temperature coefficient	ppm/°C	\pm 200 for 0.5 m Ω					
remperature coemcient	ppin/ C	\pm 150 for 1 m Ω to 10 m Ω					
Operating temperature range	°C	-55 to +170					
Maximum working voltage	V	$(P \times R)^{1/2}$					
Maximum element temperature	°C	170					

DIMENSIONS in inches (millimeters)

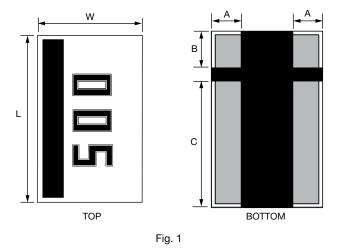




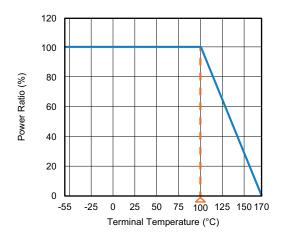
Fig. 2

	TYPE (INCH SIZE)	RESISTANCE RANGE (mΩ)	DIMENSIONS (in millimeters)							
			L	w	t	Α	В	С		
	WFK0612	0.5 to 10	3.1 ± 0.20	1.6 ± 0.20	0.5 ± 0.20	0.45 ± 0.20	0.45 ± 0.20	2.2 ± 0.20		

Note

• 0402 has no marking; 0603, 0805, 1206 marking shows two digits for resistance

DERATING



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PERFORMANCES					
DESCRIPTION	AEC TEST NUMBER	TEST CONDITIONS	LIMIT		
High temperature exposure (storage)	3	MIL-STD-202, Method 108, 1000 h at T = 170 °C at 0 % power, measurements at 24 h \pm 4 h.	± (1.0 %)		
Temperature cycling	4	JESD22 Method JA-104; 1000 cycles (-55 °C to +155 °C), measurement at 24 h ± 4 h after test conclusion. 15 min. dwell time at each temperature extreme. 1 min. maximum transition time.	± (2.0 %)		
Moisture resistance 6 Note: Steps 7		MIL-STD-202, Method 106, t = 24 h/cycle. Note: Steps 7a and 7b not required, 0 % power, no polo, 65 °C, measurement at 24 h ± 2 h after test.	± (1.0 %)		
Biased humidity	7	MIL-STD-202, Method 103, 1000 h 85 °C/85 % RH. Note: specified conditions: 10 % of operating power. Measurement at 24 h ± 4 h after test.	± (1.0 %)		
Operational life 8 1.5 h "ON", 0.5 h "OFF"; terminal temperature +100 °C		MIL-STD-202 Method 108; 1000 h test; Condition D; 1.5 h "ON", 0.5 h "OFF"; terminal temperature +100 °C at rated power. Measurement 24 h ± 4 h after test conclusion.	± (1.0 %)		
Resistance to solvents	12	MIL-STD-202 Method 215; Note: add aqueous wash chemical - OKEM clean or equivalent.	Marking remains legible		
Mechanical shock	13	MIL-STD-202, Method 213, Condition C	± (1.0 %)		
Vibration	14	MIL-STD-202 Method 204; 5 g's for 20 min., 12 cycles each of 3 orientations. Test from 10 Hz to 2000 Hz. Verify transfer load using a laser vibrometer or other adequate measuring device.	± (1.0 %)		
Resistance to solder heat	15	MIL-STD-202, Method 210, Condition K	± (1.0 %)		
Solderability	18	J-STD-002; Method D; 4 h at +155 °C dry heat; +260 °C lead (Pb)-free; no electrical test; 50 x mag.	> 95 % coverage		
Electrical characterization	19	RTC at -55 °C and 170 °C tref. +25 °C	Refer to Technical Specifications table		
Flammability	20	UL 94	V-0		
Board flex	21	AEC-Q200-005; 2 mm min., 60 s hold time.	± (1.0 %)		
Terminal strength (SMD)	22	AEC-Q200-006 force of 1.8 kg for 60 s.	± (1.0 %)		
Short time overload		MIL-PRF-55342 paragraph 4.8.6: 5 x rated power for 5 s.	± (1.0 %)		
Low temperature storage		MIL-PRF-26 Paragraph 4.7.12	± (1.0 %)		

Note

• Full qualification data available upon request at <u>ww2bresistors@vishay.com</u>

TAPE PACKAGING SPECIFICATIONS							
MODEL		REEL					
MODEL	TAPE WIDTH	DIAMETER	PIECES/REEL				
WFK0612	Embossed paper tape	178 mm / 7"	5000				

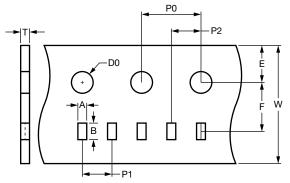
Note

• Embossed carrier tape per EIA (EIAJ)



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PAPER TAPE SPECIFICATIONS



ТҮРЕ	RESISTANCE	CARRIER DIMENSIONS (in millimeters)									
	RANGE	Α	В	Е	F	w	P0	P1	P2	D0	Т
WFK0612	0.5 m Ω to 10 m Ω	2.0 ± 0.05	3.6 ± 0.05	1.75 ± 0.1	3.5 ± 0.05	8.0 ± 0.2	4.0 ± 0.1	2.0 ± 0.1	2.0 ± 0.05	1.55 ± 0.05	0.75 ± 0.1

Notes

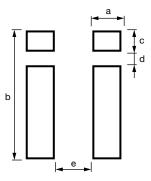
• Embossed carrier tape per EIA (EIAJ)

Additional packaging details at <u>www.vishay.com/doc?20051</u>

STORAGE CONDITIONS

Temperature: 5 °C to 35 °C, humidity: 40 % to 75 %

RECOMMENDED SOLDER PAD LAYOUT



ТҮРЕ	PAD LAYOUT DIMENSIONS (in millimeters)						
ITFE	а	b	с	d	е		
0612 (0.5 m Ω to 10 m Ω)	1.0	3.8	0.80	0.30	0.60		

Note

• Recommend to use the steel plate which thickness > 100 µm to avoid the insufficient solder height

SOLDERING RECOMMENDATIONS

- Peak reflow temperatures and durations:
 - IR reflow peak = 260 °C max. for 10 s
 - Wave solder = 260 °C max. for 10 s
- Compatible with lead and lead (Pb)-free solder reflow processes
- Recommended IR reflow profile for surface mount devices: <u>www.vishay.com/doc?31052</u>



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