

**Carbon Film Fixed Resistors Series**

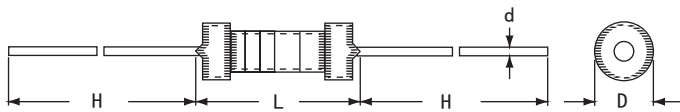
**KLS6-Carbon Film Fixed Resistors Series**

1.Features

- Temperature Range -55 °C ~ +155 °C
- ± 5% tolerance
- High quality performance at economical prices
- Compatible with automatic insertion equipment
- Flame retardant type available
- Weldable type with copper plated lead wire available
- Values below 1Ω or above 10MΩ are available by special request, please ask for details

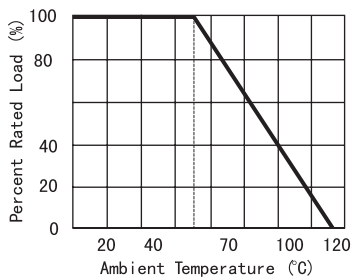


Dimension (Unit: mm)

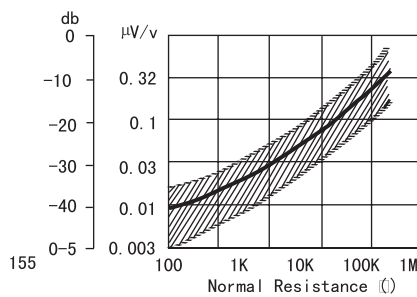


Code	power (70° C)	Dimension(mm)				Max. working voltage	Max. Permission voltage	Insulation dielectric strength	Resistance range
		D Max.	L Max.	d +0.02 -0.05	H±3				
Standard Size									
1/8W	1/8W	1.85	3.5	0.5	28	200V	400V	400V	1Ω~10MΩ
1/4W	1/4W	2.5	6.8	0.6	28	250V	500V	500V	1Ω~10MΩ
1/2W	1/2W	3.5	10	0.6	28	350V	700V	700V	1Ω~10MΩ
1W	1W	5	12	0.7	28	500V	1000V	1000V	1Ω~10MΩ
2W	2W	5.5	16	0.8	28	500V	1000V	1000V	1Ω~10MΩ
Small Size									
1/4WS	1/4W	1.85	3.5	0.5	28	200V	400V	400V	1Ω~10MΩ
1/2WS	1/2W	2.5	6.8	0.6	28	250V	500V	500V	1Ω~10MΩ
1WS	1W	3.5	10	0.6	28	500V	1000V	1000V	1Ω~10MΩ
2WS	2W	5	12	0.7	28	500V	1000V	1000V	1Ω~10MΩ
3WS	3W	5.5	16	0.8	28	500V	1000V	1000V	1Ω~10MΩ

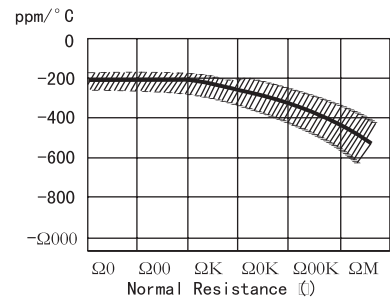
DERATING CURVE



CURRENT NOISE



TEMPERATURE COEFFICIENT



**ORDER INFORMATION**

Part Number KLS6-CF-1/8W- 10KR-J A Packing Type: A = Tape / Box R = Tape / Reel B = Bulk / Box  
 Carbon Film Fixed Resistors Tolerance: J = ± 5%  
 Power Code Standard Values



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■ CHARACTERISTICS

Characteristics	Limits		Test Methods ( JIS C 5201-1 )		
DC. Resistance	Must be within the specified tolerance.		5.1 The limit of error of measuring apparatus shall not exceed allowable range or 5% of resistance tolerance		
Temperature coefficient	Resist. Range	T.C.R. (PPM / °C)	5.2 Natural resistance change per temp. degree centigrade. R2-R1 ----- x106 (PPM/°C) R1(t2-t1) R1: Resistance value at room temperature (t1) R2: Resistance value at room temp.plus 100°C (t2)		
	< 10 Ω 11Ω ~ 99K 100K ~ 1M 1.1M ~ 10M	0 ~ ±350 0 ~ -450 0 ~ -700 0 ~ -1500			
Short time overload	Resistance change rate is ± (1 % + 0.05Ω) Max. with no evidence of mechanical damage		5.5 Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds.		
Insulation Resistance	Insulation resistance is 10,000 MΩ Min		5.6 Resistors shall be clamped in the trough of a 90° metallic V-block and shall be tested at DC potential respectively specified in the above list for 60 +10/ -0 seconds.		
Dielectric withstanding voltage	No evidence of flashover mechanical damage, arcing or insulation break down.		5.7 Resistors shall be clamped in the trough of a 90° metallic V-block and shall be tested at AC potential respectively specified in the table 1 for 60 + 10/0 seconds.		
Terminal strength	No evidence of mechanical damage.		6.1 <b>Direct load</b> Resistance to a 2.5 kgs direct load for 10 secs. in the direction of the longitudinal axis of the terminal leads. <b>Twist test :</b> Terminal leads shall be bent through 90° at a point of about 6mm from the body of the resistor and shall be rotated through 360° about the original axis of the bent terminal in alternating direction for a total of 3 rotations.		
Resistance to soldering heat	Resistance change rate is ± (1% + 0.05Ω) Max. with no evidence of mechanical damage.		6.4 Permanent resistance change when leads immersed to 3.2 to 4.8 mm from the body in 350 °C ± 10°C solder for 3 ± 0.5 seconds		
Solderability	95 % coverage Min.		6.5 The area covered with a new , smooth clean , shiny and continuous surface free from concentrated pinholes. Test temp. of solder : 245°C ± 3°C Dwell time in solder : 2 ~ 3 seconds		
Temperature cycling	Resistance change rate is ± (1% + 0.05Ω) Max. with no evidence of mechanical damage.		7.4 Resistance change after continuous 5 cycles for duty shown below:		
			<b>Step</b>	<b>Temperature</b>	<b>Time</b>
			1	-55°C ±3°C	30 mins
			2	Room temp.	10~15 mins
			3	+155°C ±2°C	30 mins
4	Room temp.	10~15 mins			
Load life in humidity	Resistance value		7.9 Resistance change after 1,000 hours operating at RCWV with duty cycle of (1.5 hours "on", 0.5 hour "off") in a humidity test chamber controlled at 40°C ± 2°C and 90 to 95 % relative humidity		
	Normal Type	< than 100KΩ >100KΩ		ΔR/R ± 3 % ± 5 %	
Load life	Resistance value		7.10 Permanent resistance change after 1,000 hours operating at RCWV with duty cycle of ( 1.5 hours "on", 0.5 hour "off" ) at 70°C ± 2°C ambient		
	Normal Type	< than 56KΩ > 56KΩ		ΔR/R ± 2 % ± 3 %	

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