Nichrome Resistor Networks on Ceramic Substrates

Model 694, 698, 699 Series

- **Isolated, bussed and other circuits**
- **Thin film resistor network**
- **0.300" PDIP packages**
- **RoHS compliant**

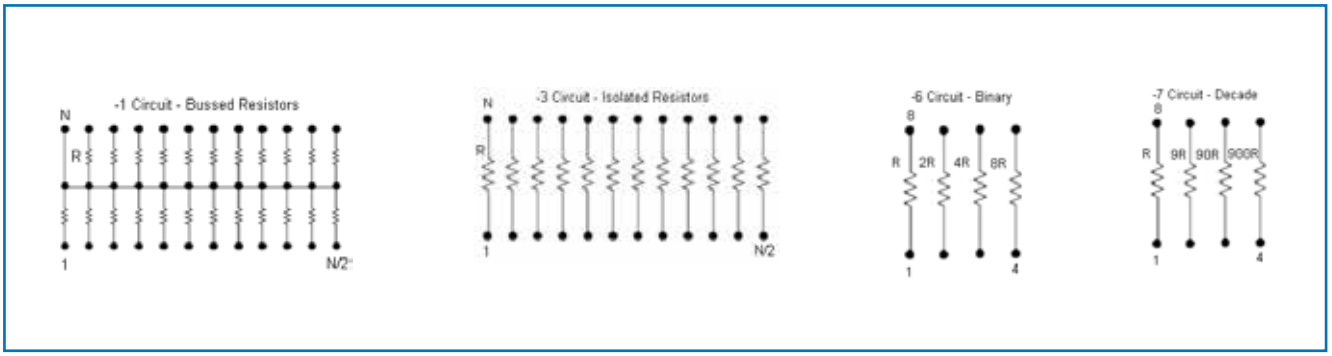
Not Recommended for New Designs

For alternative see http://www.irctt.com/file.aspx?product_id=225&file_type=datasheet

Features

Precision Nichrome Resistors on Ceramic	Passivation coating provides protection in humid environments Excellent frequency response Excellent long term resistance stability
Industry Standard Packaging	JEDEC 95, MS-001 (Plastic DIP 0.300 inch wide in 8, 14 and 16 lead pin counts)
Ratio Tolerances	< ± 0.05%
TCR Tracking Tolerances	< ± 5 ppm/°C

Schematics



Electrical[1]

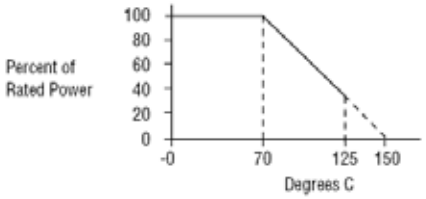
Standard Resistance Range[2]	1K ohms to 100K ohms (Isolated) 1K ohms to 45K ohms (Bussed)
TCR[3]	± 25 ppm/°C
TCR Tracking[3]	± 5 ppm/°C
Operating Temperature Range	-55°C to +125°C
Interlead Capacitance	< 2pF
Insulation Resistance	≥ 10,000 Megohms
Maximum Operating Voltage	100 Vdc or √ PR
Noise, Maximum (MIL-STD-202, Method 308)	-40 dB
Resistor Power Rating at 70°C	0.1 Watts

1 Specifications subject to change without notice.
2 E96 codes available.
3 Standard limits for all resistance codes.

General Note

TT electronics reserves the right to make changes in product specification without notice or liability.
All information is subject to TT electronics' own data and is considered accurate at time of going to print.

Package Power And Derating Curve



Model	Package Power @ 70°C(watts)[4]
694	0.4
698	0.6
699	0.6

Environmental (Mil-R-83401)

Thermal Shock plus Power Conditioning	ΔR 0.25%
Short Time Overload	ΔR 0.1%
Terminal Strength	ΔR 0.1%
Moisture Resistance	ΔR 0.2%
Mechanical Shock	ΔR 0.25%
Vibration	ΔR 0.25%
Low Temperature Operation	ΔR 0.1%
High Temperature Exposure	ΔR 0.1%
Load Life, 1,000 Hours	ΔR 0.1%
Resistance to Solder Heat	ΔR 0.1%
Dielectric Withstanding Voltage	200V for 1 minute
Marking Permanency	MIL-STD-202, Method 215
Lead Solderability	MIL-STD-202, Method 208
Flammability	UL-94V-0 Rated
Storage Temperature Range	-65°C to +125°C

Mechanical

Lead Plating	100 matte Tin (RoHS)
Lead Material	Copper Alloy
Lead Configuration	Thru hole
Substrate Material	Alumina
Resistor Material	Passivated Nichrome
Body Material	Molded Epoxy

4 Maximum power per resistor @ 70°C is 100 mW, not to exceed package power

Ordering Information[5]

69 4 -3- R10K A LF

Model Series:
69 = Passivated Nichrome
on Ceramic

Number of Leads:
4= 8 leads
9=14 leads
8=16 leads

Circuit Type:
1=Bussed
3=Isolated
6=Binary (Only available as 694 model with B tolerance)
7=Decade (Only available as 694 model with B tolerance)

Resistance Value

Tolerance Code

Lead Finish:
LF = Lead free (RoHS)

Resistance Code[5]

Standard values follow E96 table. Character “K” denotes a multiplier of 1000.

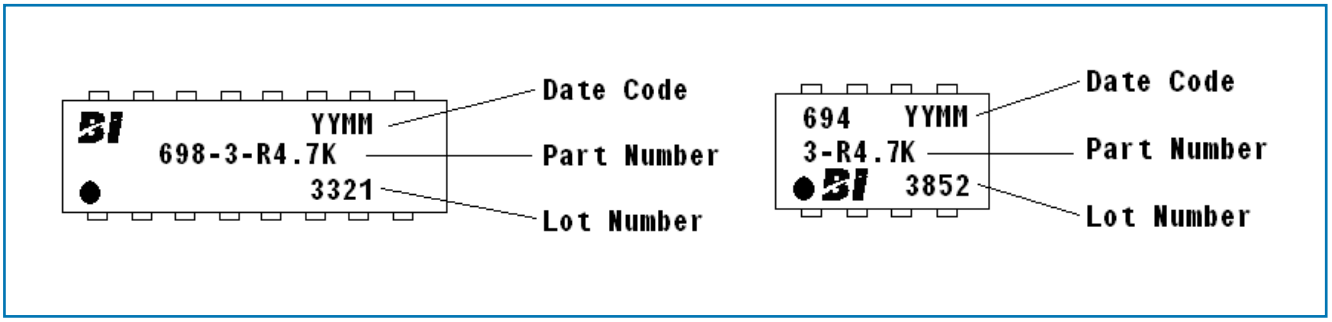
Resistance Tolerance Code

Accuracy Code at 25°C	A	B	D	F
Absolute Resistance Tolerances (%)	± 0.1	± 0.1	± 0.5	± 1.0
Ratio Tolerances (R1 Ref) (%)	± 0.05	± 0.1	± 0.1	± 0.5

Packaging Options (Unit Count/Tube)

Model + Pin count	
694	100
699	50
698	50

Typical Marking



5 Consult customer service for custom designs and features.