



COMPONENT NEWS

EVALUATION ENGINEERING

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DERATING OF RESISTOR COMPONENTS

A significant increase in the life of a resistor, whether it be a wire-wound, metal film, or carbon, can be realized by operating the part at half its catalog rating. There is no standard formula that can be used to determine how much increase in life can be obtained, but here are a few examples:

1. In connection with the Darnell Report (a reliability study), it was determined that a precision wire-wound resistor would last 25 times longer if it were run at 50% of rated power.
2. Allen-Bradley publishes a nomogram that relates life to percentage of rated power and ambient temperature. By working out the life expectancy of 70° C for 100% and 50% of rated power, it is found that an increase of life very close to ten times can be obtained for a change of value equal to the initial tolerance of 5%.
3. Very little has been published on metal film resistors because of their fairly recent development. However, due to their similarity to precision wire-wound resistors (both using nichrome), it can be assumed they would be comparable. However, depending on the particular application, we will allow up to 80% of rated power to be dissipated in a metal film resistor. Generally the coating degrades, turns brown, before the resistor element begins to go.

Life expectancy of resistor components is based on 1,000 hours of operation at full rated power and rated temperature.

For further information, please call Ext 7268.

-Byron Witt

HIGH VALUE RESISTORS AVAILABLE

I have a small stock of resistors in several values 100M Ω and above in my area. Please contact me before asking purchasing to order small quantities of these resistors.

-Byron Witt