

Fusible Metal Film Resistor

.33 Watt

5%

5063F Series

(2322 205.....)

APPLICATION

These resistors have been designed to meet the safety requirements in audio and video applications, in circuits where protection against overloads is needed, e.g. in power supply circuits. The resistors will become open circuit within a certain range of overload, without the risk of fire (See Figs. 3 and 4).

DESCRIPTION

A homogeneous film of metal alloy is deposited on a high grade ceramic body. After a helical groove has been cut in the resistive layer; solder plated, copper leads are welded onto the end caps. The resistors are coated with a grey, flame retardant lacquer which provides electrical, mechanical, and climatic protection. The encapsulation is resistant to all cleaning solvents in accordance with MIL-STD-202E, Method 215 and IEC 68-2-45.

MASS: 25 g per 100 units

MOUNTING:

The resistors are suitable for processing on automatic insertion equipment in addition to cutting and bending machines. Since these resistors are used in applications where overloads can occur, it is not advisable to mount the resistors against other components or against printed circuit boards. For the temperature rise at the soldering point, see Fig. 6.

QUICK REFERENCE DATA

Resistance Range	1Ω to 15 KΩ; E24 Series
Resistance Tolerance	± 5% (E24)
Temperature Coefficient 1 Ω to 13 Ω 15Ω to 15 KΩ	< ± 200 ppm/°C ≤ ± 100 ppm/°C
Abs. Max. Dissipation at T _{amb} = 70°C	0.330 W
Thermal Resistance, R _{th}	240 °C/W
Max. Continuous Operating Voltage	250 V (DC or RMS)
Noise	max. 0.1 μV/V
Operating Temperature Range	-55°C to +155°C
Basic Specification	IEC 115-1 and 115-2
Stability (ΔR/R max) after: Load Climatic Tests Resistance to Soldering Heat	±1.0% +0.05 Ω ±1.0% +0.05 Ω ±0.25% +0.05 Ω

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MARKING

The nominal resistance and tolerance are marked on the resistors with a four band color code as described in "General Introduction—Leaded Resistors". In addition, a fifth, violet, color band is added to indicate the 5063F type resistor.

ELECTRICAL DATA

Standard values of nominal resistance are taken from the E24 series for 5% tolerance resistors. A decade chart is located inside the back cover.

The maximum continuous working voltage, or limiting voltage, (DC or RMS) is 250 V. This is the maximum voltage that may be continuously applied to the resistor element.

DISSIPATION

Maximum power dissipation as a function of ambient temperature is shown in Figure 2. The Hot-Spot Temperature Rise (ΔT) as a function of dissipated power is shown in Figure 5.

Mechanical Data

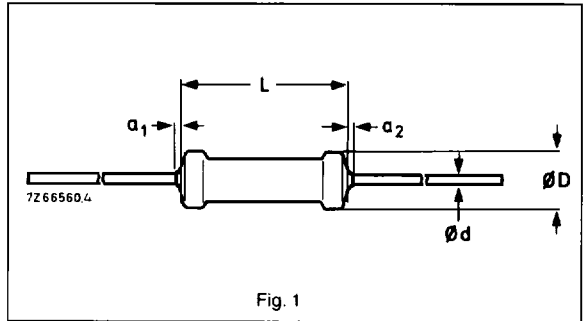


Fig. 1

Table I Component Dimensions

TYPE	D _{MAX} (mm)	L _{MAX} (mm)	d (mm)	a ₁ + a ₂
5063F	.098" (2.5)	.256" (6.5)	.024" ± .002" (0.6 ± .05)	≤ .039" (≤ 1)

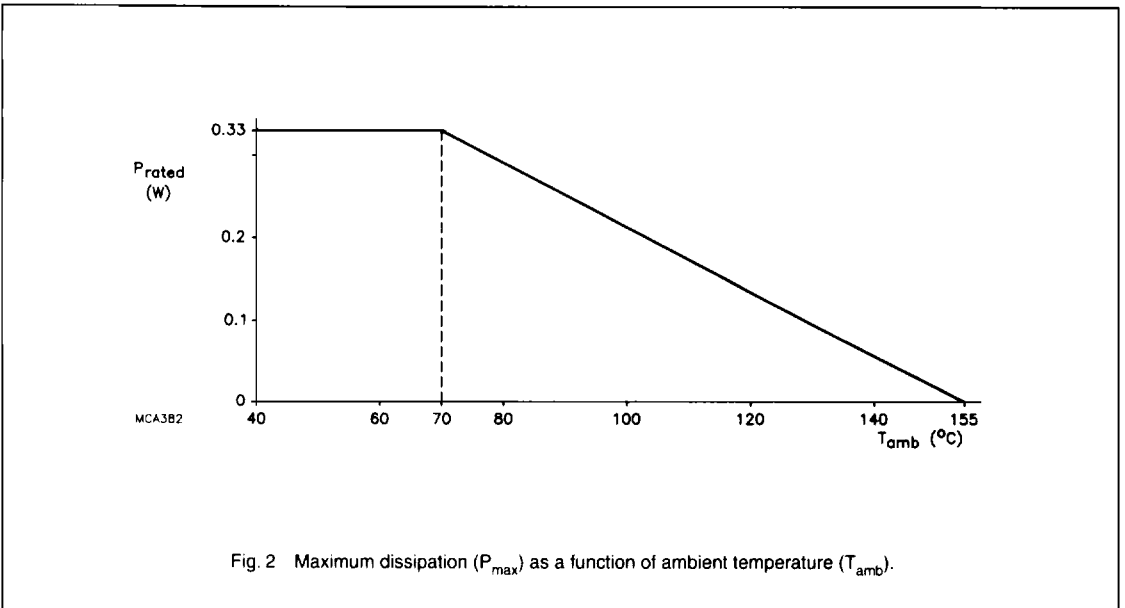


Fig. 2 Maximum dissipation (P_{max}) as a function of ambient temperature (T_{amb}).

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FUSING TIME

The "Time to Interruption" for the NFR25 Series is shown in Figs. 3 and 4. The term "Interruption" is defined as the nominal resistance has increased at least 1000 times. The graphs in Figs. 3 and 4 are based on measured data which may deviate according to the application.

PULSE LOAD BEHAVIOR

The Pulse Load Behavior is determined in accordance with the method outlined in the "General Section" for Leaded Resistors. The results are shown in Figs. 7, 8, and 9.

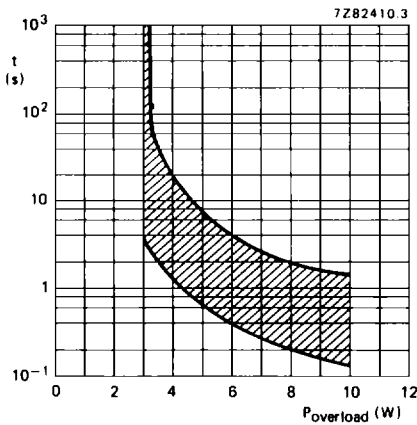


Fig. 3 R ≤ 15 Ω.

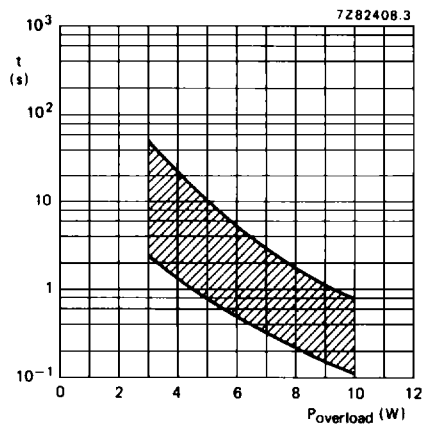


Fig. 4 15 Ω < R ≤ 15 kΩ.

These graphs are based on measured data which may deviate according to the application.

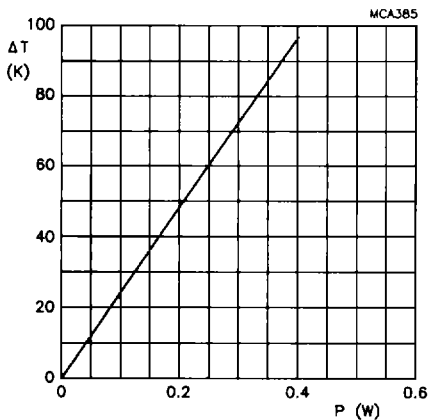


Fig. 5 Hot-spot temperature rise (ΔT) as a function of dissipated power.

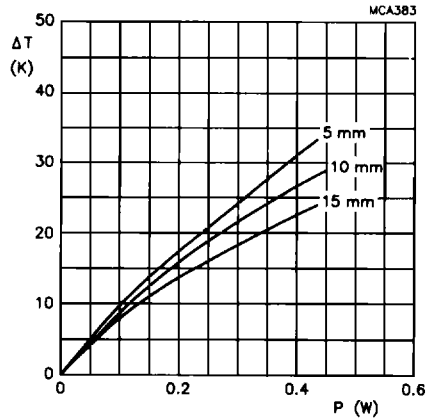
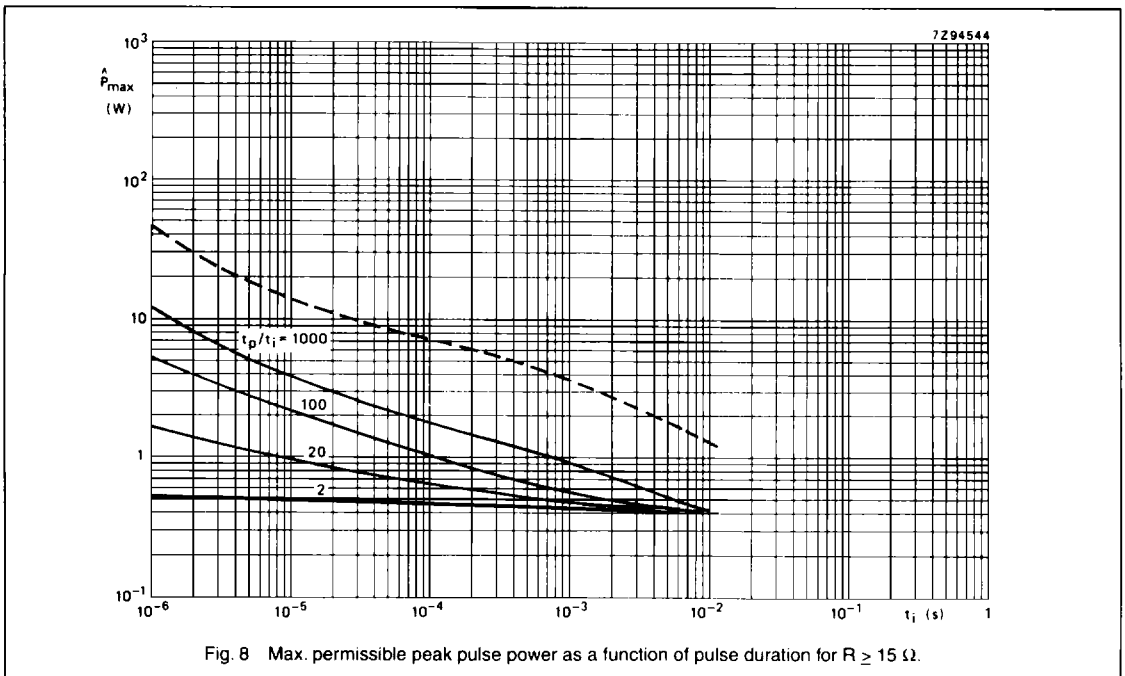
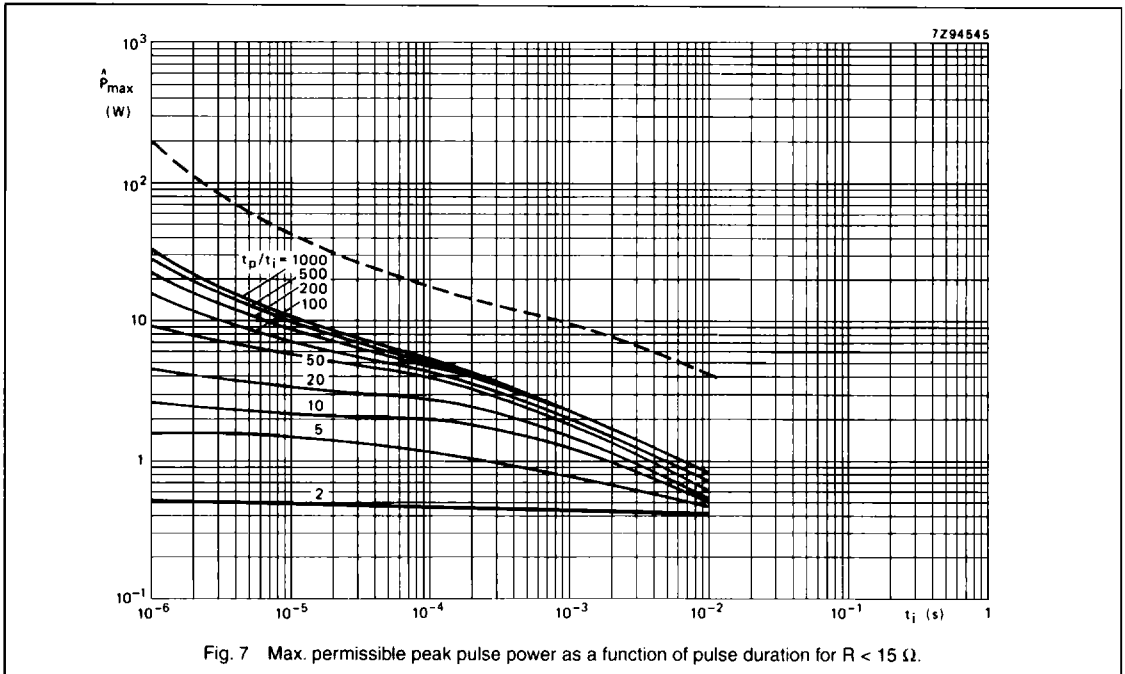


Fig. 6 Temperature rise (ΔT) at the end of the lead (soldering point) as a function of dissipated power at various lead lengths after mounting.

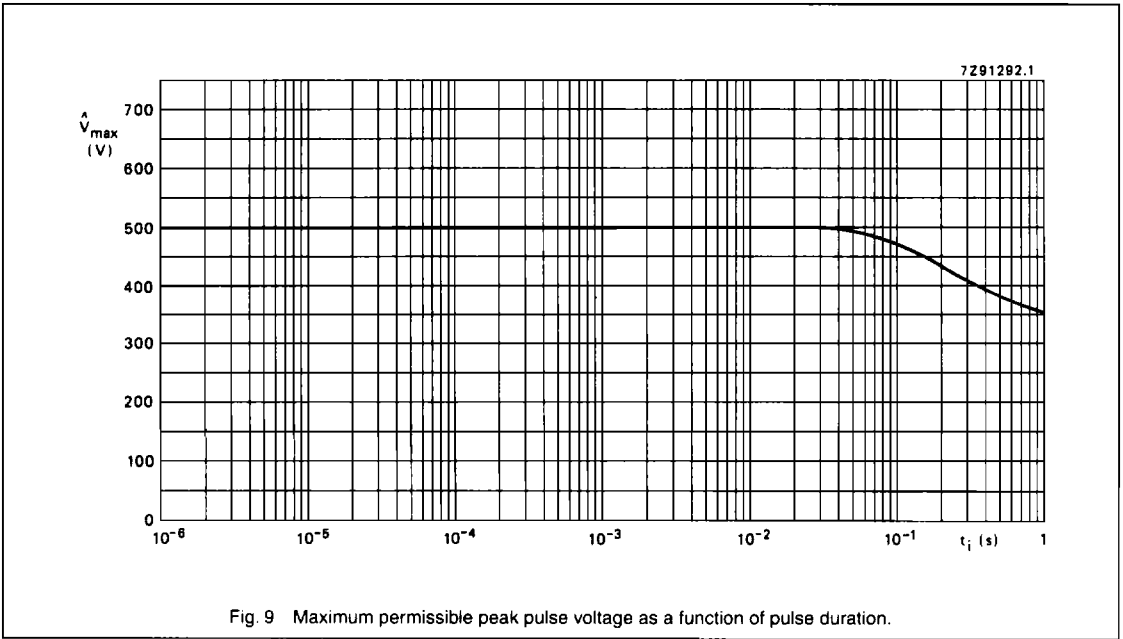
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ORDERING INFORMATION

North America, Part Number

Table II North American Part Number by Tolerance and Range

Resistance Range	Tol. ±%	Series	Part Number 5000 Reel
1Ω to 15Ω	5	E24	5063FM.....J

The "....." in the part number represents the value of the resistor. The format of the value is composed of five digits. Place the significant figures, separated by a "R", "K", or "M" as the decimal place, and finish out the remainder of the five digits with "0's" if required.

Examples:

100 Ω = 100R0

4,750 Ω = 4K750

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INTERNATIONAL PART NUMBER

Table III The resistor part numbers start with 2322 205.

Subsequent digits indicate packaging and resistance as listed in this table and Table IV.

Resistance Range	Tol. $\pm\%$	Series	5000 Reel
			2322 205 23...
1 Ω to 15 M Ω	5	E24	

Table IV To complete the part number, insert the first two digits of the resistance value in ohms followed by:

Nominal Resistance Value	Last Digit of Part Number
1 Ω to 9.1 Ω	8
10 Ω to 91 Ω	9
100 Ω to 910 Ω	1
1 K Ω to 91 K Ω	2
10 K Ω to 15 K Ω	3

Examples:

$$\begin{aligned} & \pm 5\% \\ 100 \Omega &= 101 \\ 4,700 \Omega &= 472 \end{aligned}$$

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PACKAGING

The 5063F Series is available in tape and reel standard as well as ammo and radial form on tape and reel as a special. For specials, contact the factory for dimensions, part number, and availability.

Table V Taping Dimensions, 5000 Reel and 1000 Ammo
 Values in inches (mm)

TYPE	a	A	$B_1 - B_2$ max.	S	T per 10 spacings
5063F	.236 ± 0.20 (6 ± 0.5)	2.067 + 0.059/-0 (52.5 + 1.5/-0)	± 0.047 (± 1.2)	.200 (5)	0.039 (1)

Table VI Reel Dimension, 5000 Reel
 Values in inches (mm)

TYPE	Q	R	V
5063F	12.00 (305)	3.39 (86)	2.95 (75)

Table VII Dimensions of Ammopack Box
 Values in inches (mm)

TYPE	M	N	P
5063F	3.23 (82)	1.10 (28)	10.3 (262)