



### MRESIST ULTRA FILM RESISTOR

- Resistances from 0.01Ohm to 470hms
- Power Rating to 30Watt
- TCR to  $\pm 50$ ppm/K
- Load Stability to 0.1%
- TO-218 (TO-247) Housing

TABLE 1—SPECIFICATIONS					
TYPE		MREU30			
Resistance Range		0.01 to 47 Ohms			
Power Rating	Free air 65°C	3 W			
	With heatsink	30 W			
Tolerance		1%			
Thermal Resistance		2.5 K/W			
Temperature Coefficient (ppm/K) (20 to 60°C)		$R \leq 0R010$	$R \leq 0R050$	$R \leq 0R500$	$R > 0R500$
		$\pm 150$	$\pm 100$	$\pm 50$	$\pm 30$
Voltage Proof		300VDC / Option AC: 500 VAC			
Thermal EMF		$< 0.1 \mu\text{V/K}$			
Operating Temperature Range		$-40^\circ\text{C}$ to $130^\circ\text{C}$			
Resistor Material		CuNiMn-Foil			
Substrate		Copper			
Housing		PPS			
Connector Material		Cu / tinned			
Terminals		2			
Max. Torque		1 Nm			

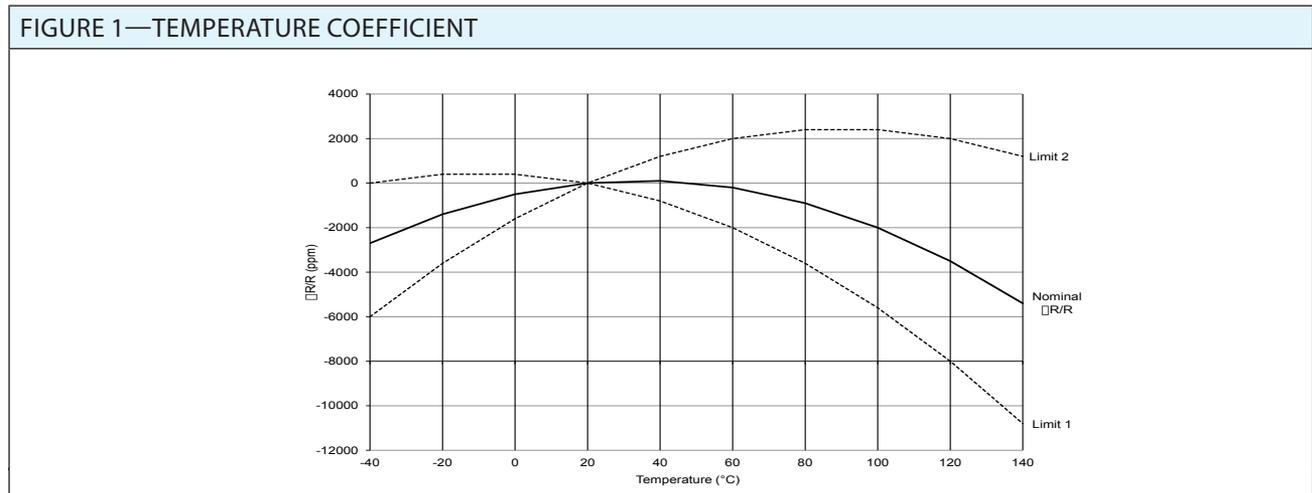
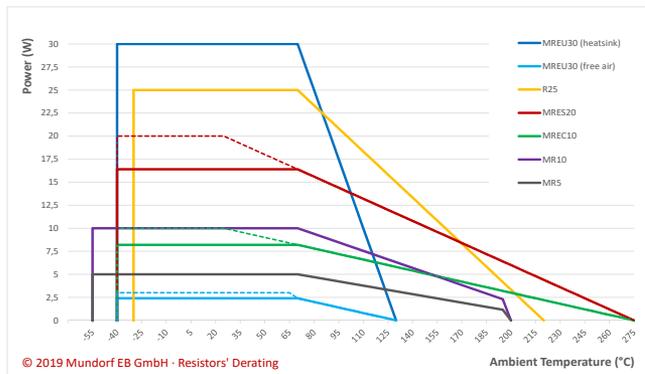
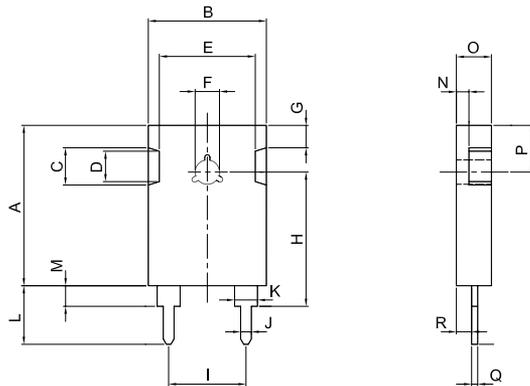


FIGURE 2—DERATING



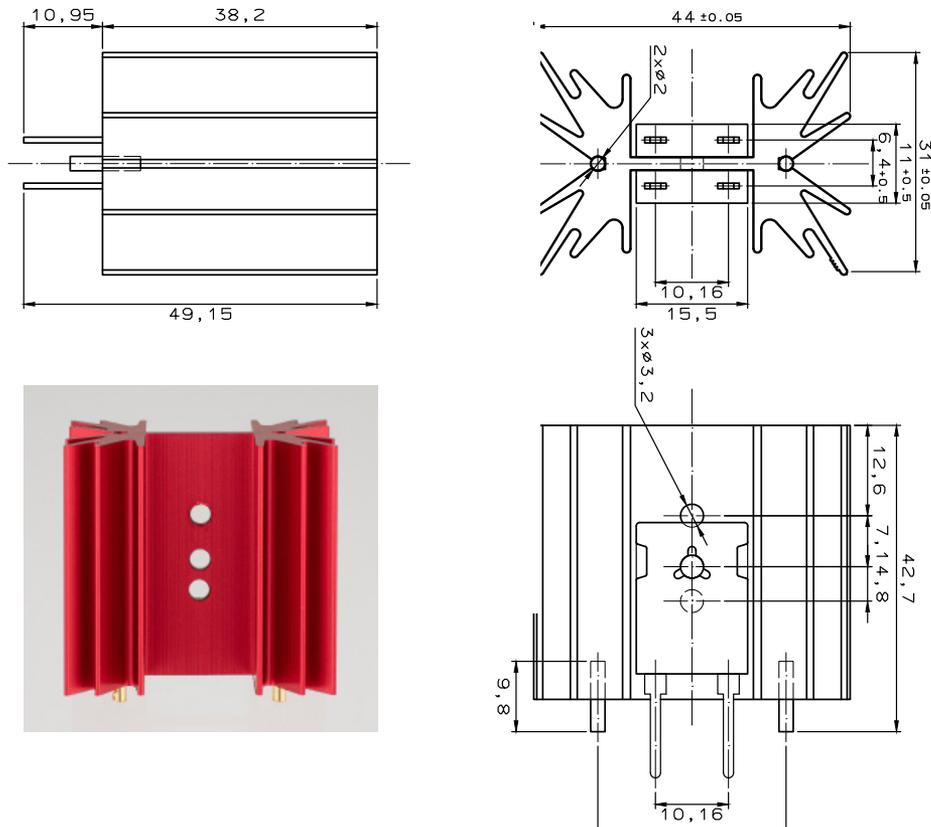
The adjacent diagram shows the temperature derating of our different resistor types from 70 ° C (dashed: additional manufacturer specifications) as well as the minimum application temperature.

FIGURE 3—DIMENSIONS in mm (inches)



Dimension	A-Contact	B-Contact	C-Contact
A ±0.2(±0.008)		21.10 (0.83)	
B ±0.2(±0.008)		15.50 (0.61)	
C ±0.1(±0.004)		4.90 (0.19)	
D ±0.1(±0.004)		4.00 (0.16)	
E ±0.2(±0.008)		12.60 (0.50)	
F ±0.1(±0.004)		∅3.2 (∅0.13)	
G ±0.1(±0.004)		2.95 (0.12)	
H ±0.2(±0.008)		17.75 (0.70)	
I ±0.2(±0.008)		10.16 (0.40)	
J ±0.1(±0.004)		1.40 (0.06)	
K ±0.1(±0.004)		3.00 (0.12)	
L ±0.2(±0.008)		14.50 (0.57)	
M ±0.1(±0.004)		2.80 (0.11)	
N ±0.1(±0.004)		1.65 (0.06)	
O ±0.1(±0.004)		4.60 (0.18)	
P ±0.2(±0.008)		6.15 (0.24)	
Q ±0.1(±0.004)		0.80 (0.03)	
R ±0.1(±0.004)		2.00 (0.08)	

FIGURE 4—HEATSINK / DIMENSIONS in mm



#### ACUSTICAL DESCRIPTION

The development of our MRes Ultra Resistor is based on the well-known good tonal properties of copper-manganin foil. Compared to all wound-wire resistors, this film provides an order of magnitude lower inductance. Copper is significantly softer than the metal-oxide used for MOX resistors. The natural resonances of the copper-manganin foil are therefore significantly less pronounced, which means that distortions caused by crystallurgy and electroacoustics are significantly reduced here. That is why resistors of this design have secured a top position among audio components in recent years: They lack many of the distortions inherent in other resistor designs.

In cooperation with a company specialized on high-quality laboratory resistances, the most acoustically balanced one was determined for the MRes Ultra among a large number of film and foil resistors as the basis for further development. In a further, very extensive development cycle, the micro-mechanical distortions generated by the feedback of electro-mechanical vibrations and microphony were minimized. For this purpose, the mechanical structure of the resistor was damped, among other things, by using heavier and more sluggish copper instead of aluminum as the carrier plate. A whole range of adhesives and insulation materials have been tested from a micro-acoustic point of view and optimized in their interaction, so that the total micro-electroacoustic distortion of the MResUltra is significantly below the level of other resistances available on the market.

As a result, fewer music details are lost in the electro-mechanical vibrations of the electrical signal, hence the very instrument's and human voices' properties as well as their life-like staging are present in an up-to-date unknown cleanliness.