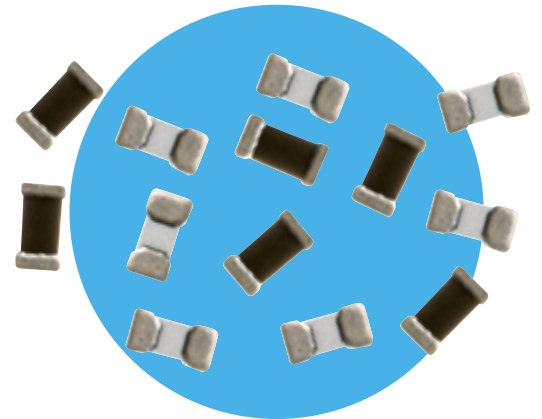


## Metal Foil on Ceramic Chip Resistors



### MFC Series

- Small size down to 0603
- TCR down to  $\pm 30 \text{ ppm}/^\circ\text{C}$
- Current sensing for power electronics
- High power density
- 2817 & 4320 AEC-Q200 Qualified

All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

### Electrical Data

		0603	2817	4320
Power rating @70°C	W	0.5	5	5
Overload rating 5s	W	2.5	25	25
Resistance range	mΩ	5 to 20	3 to 150	2 to 50
Standard values	mΩ	5, 7, 9, 10, 20	E24 preferred, other values on request	2, 4, 5, 6, 8, 9, 10, 15, 20, 30, 33, 40, 50
Tolerance	%	$\pm 1, 5$	$\pm 1$	
TCR (+25°C to +125°C)	ppm/°C	$\pm 50$	$\pm 30$	
Operating temperature	°C	-55 to +155		

### Physical Data

Dimensions in mm and nominal weight in mg						
Size	L $\pm 0.30$	W $\pm 0.25$	H $\pm 0.20$	A max	B	Wt. nom
0603	1.6	0.8	0.6	0.6	0.4 $\pm$ 0.2	3.3
2817	7.1	4.2	0.7	1.0	1.3 $\pm$ 0.5	80 to 140
4320	11.0	5.0	0.65	1.0	2.5 $\pm$ 0.3	140 to 180

### Construction

Metal foil resistor material is bonded onto a 96% alumina substrate and protected. Wrap-around terminations have an electroplated nickel barrier and solder coating. 0603 size parts have the foil on the upper surface whilst 2817 & 4320 size parts have the foil on the lower surface.

### Marking

0603 size parts are not marked. 2817 & 4320 size parts are marked with ohmic value only. Reels are marked with type, value, tolerance, date code and quantity.

### Solvent Resistance

The body protection is resistant to all normal industrial cleaning solvents suitable for printed circuits.

### Recommended Pad Dimensions

All dimensions in mm				
Size	Resistance mΩ	A	L	B
0603	5 & 20	1.0	2.8	0.6
	Others			0.85
2817	All	4.6	8.0	4.6
4320	All	5.8	13.1	5.2

### 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.

MFC Series

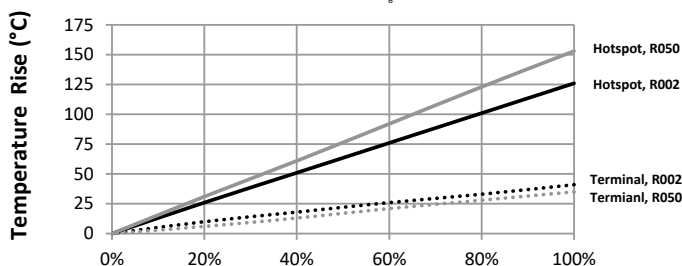
Performance Data

Parameter		Maximum (+0.001Ω)		
		0603	2817	4320
Load at rated power: 1000 hours at 70°C, cyclic load	±ΔR%	1	5	
Overload: 5 x rated power for 5 seconds	±ΔR%	1	5	
Moisture: No load, 1000 hours 85°C, 85% RH	±ΔR%	1		
Temperature rapid change: 100 cycles, -55°C & 155°C	±ΔR%	1	0.5	
High temperature exposure: 1000 hours at 155°C	±ΔR%	1		
Low temperature exposure: 1000 hours at -55°C	±ΔR%	1		
Bend strength: 2mm deflection	±ΔR%	0.5	1	
Resistance to solder heat: 260±5°C for 10s	±ΔR%	0.5		
Solderability: 245±5°C for 2s		≥95% coverage		
Insulation resistance: 100V DC for 1min	ohms	>100M		

Thermal Data

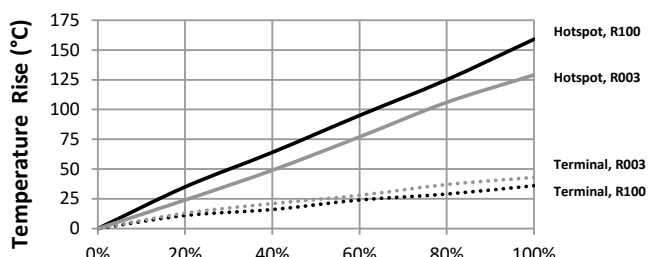
4320 Typical Temperature Rise

(mounted on high T<sub>g</sub> FR4 board)

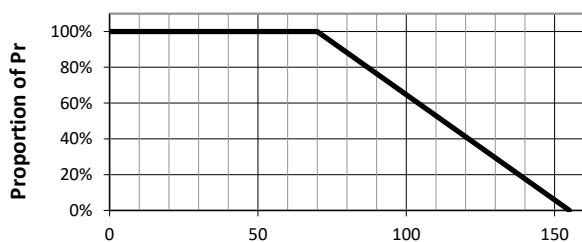


2817 Typical Temperature Rise

(mounted on high T<sub>g</sub> FR4 board)



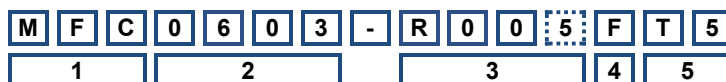
Proportion of Rated Power  
Temperature Derating



0603 Ambient Temperature (°C)  
2817 & 4320 Terminal Temperature (°C)

Ordering Procedure

Example: MFC0603-R005FT5 (MFC0603, 5 milliohms ±1%, Pb-free)



1	2	3	4	5	
Series	Size	Value	Tolerance	Packing	
MFC	0603	3/4 characters	F = ±1%	T5	0603 5000/reel
	2817	R = ohms	J = ±5%	T1	2817 1000/reel
	4320			T1	4320 1000/reel

Packaging

0603 size resistors are supplied on 8mm paper carrier tape and 2817 size resistors are supplied on 12mm embossed carrier tape, all on 7 inch reels as per IEC 286-3.

4320 size resistors are supplied on 24mm carrier tape, all on 13 inch reels as per IEC 286-3.

General Note

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