

# Commercial Grade Metal Oxide Resistors

## CMO Series

- High purity ceramic core
- Non-inductive type available
- Superior flame retardant coating
- Power ratings from 1/4W to 9W
- Meets EIA-RC2655A requirements
- Stable performance in harsh environments



**NOT RECOMMENDED FOR NEW DESIGNS**

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

## Electrical Data

| IRC Type              | Power Rating at 70°C (W) | Resistance Range* (Ohms) | Tolerance (±%) | TCR (±ppm/°C) | Max. Working Voltage (V) | Max. Overload Voltage (V) | Dielectric Withstanding Voltage (V) |
|-----------------------|--------------------------|--------------------------|----------------|---------------|--------------------------|---------------------------|-------------------------------------|
| <b>Standard Size</b>  |                          |                          |                |               |                          |                           |                                     |
| CMO-1/4               | 0.25                     | 0.3 - 50K                | 2, 5, 10       | 350           | 250                      | 400                       | 250                                 |
| CMO-1/2               | 0.5                      | 0.3 - 50K                |                |               | 250                      | 400                       | 250                                 |
| CMO-1                 | 1                        | 0.3 - 50K                |                |               | 350                      | 600                       | 350                                 |
| CMO-2                 | 2                        | 0.3 - 50K                |                |               | 350                      | 600                       | 350                                 |
| CMO-3                 | 3                        | 5 - 100K                 |                |               | 500                      | 800                       | 500                                 |
| CMO-5                 | 5                        | 5 - 150K                 |                |               | 750                      | 1000                      | 750                                 |
| CMO-7                 | 7                        | 20 - 150K                |                |               | 750                      | 1000                      | 750                                 |
| CMO-8                 | 8                        | 30 - 200K                |                |               | 750                      | 1000                      | 750                                 |
| CMO-9                 | 9                        | 50 - 200K                |                |               | 750                      | 1000                      | 750                                 |
| <b>Miniature Size</b> |                          |                          |                |               |                          |                           |                                     |
| CMO-1/2S              | 0.5                      | 0.3 - 50K                | 2, 5, 10       | 350           | 250                      | 400                       | 250                                 |
| CMO-1S                | 1                        | 0.3 - 50K                |                |               | 350                      | 600                       | 350                                 |
| CMO-2S                | 2                        | 0.3 - 50K                |                |               | 350                      | 600                       | 350                                 |
| CMO-3S                | 3                        | 0.3 - 50K                |                |               | 350                      | 600                       | 350                                 |
| CMO-5SS               | 5                        | 5 - 100K                 |                |               | 500                      | 800                       | 500                                 |
| CMO-5S                | 5                        | 5 - 150K                 |                |               | 500                      | 800                       | 500                                 |

### 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.

## Environmental Data

|  |  |
|--|--|
| <b>Short-time overload</b>             | $\Delta R/R \leq (\pm 0.5\% + 0.05\Omega)$ , with no evidence of mechanical damage.                      |
| <b>Dielectric withstanding voltage</b> | No evidence of flashover, mechanical damage, arcing or insulation breakdown.                             |
| <b>Terminal strength</b>               | No evidence of mechanical damage.  |
| <b>Resistance to Soldering heat</b>    | $\Delta R/R \leq (\pm 1\% + 0.05\Omega)$ , with no evidence of mechanical damage.                        |
| <b>Pulse Overload</b>                  | $\Delta R/R \leq (\pm 1\% + 0.05\Omega)$ , with no evidence of mechanical damage.                        |
| <b>Solderability</b>                   | Minimum 95% coverage.  |
| <b>Resistance to solvent</b>           | No deterioration of protective coating and markings.   |
| <b>Temperature cycling</b>             | $\Delta R/R \leq (\pm 1\% + 0.05\Omega)$ , with no evidence of mechanical damage.                        |
| <b>Load life in humidity</b>           | Standard type: $\Delta R/R \pm 3\%$ for $< 100\text{K}\Omega$ , $\pm 5\%$ for $\geq 100\text{K}\Omega$ ; |
| <b>Load life</b>                       | Standard type: $\Delta R/R \pm 1.5\%$ Flame retardant type: $R/R \pm 5\%$                                |

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## Physical Data



Dimensions (mm)

|                       | IRC Type   | D (max.) | L (max.) | d ( $\pm 0.02$ ) | H ( $\pm 3$ ) |
|-----------------------|------------|----------|----------|------------------|---------------|
| <b>Standard Size</b>  | CMO-1/4    | 2.5      | 7.5      | 0.6              | 28            |
|                       | CMO - 1/2  | 4.0      | 10.0     | 0.6              | 28            |
|                       | CMO-1      | 5.0      | 12.0     | 0.7              | 28            |
|                       | CMO-2      | 5.5      | 16.0     | 0.8              | 28            |
|                       | CMO-3      | 6.5      | 17.5     | 0.8              | 28            |
|                       | CMO-5      | 8.5      | 26.0     | 0.8              | 38            |
|                       | CMO-7      | 8.5      | 32.0     | 0.8              | 38            |
|                       | CMO-8      | 8.5      | 41.0     | 0.8              | 38            |
|                       | CMO-9      | 8.5      | 54.0     | 0.8              | 38            |
| <b>Miniature Size</b> | CMO - 1/2S | 3.0      | 7.5      | 0.6              | 28            |
|                       | CMO-1S     | 4.5      | 10.0     | 0.7              | 28            |
|                       | CMO-2S     | 5.0      | 12.0     | 0.7              | 28            |
|                       | CMO-3S     | 5.5      | 16.0     | 0.8              | 28            |
|                       | CMO-5SS    | 6.5      | 17.5     | 0.8              | 28            |
|                       | CMO-5S     | 8.0      | 25.0     | 0.8              | 38            |

- Standard gray base color for standard size product; Blue color for miniature size product
- Standard non-flammable coating

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## Power Derating Curve



## Temperature Rise Chart



## Ordering Data

Specify type, resistance, tolerance, RoHS-Compliance and packaging.  
This example is for a Metal Oxide Resistor, 2-watt, 1000Ω resistor.



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