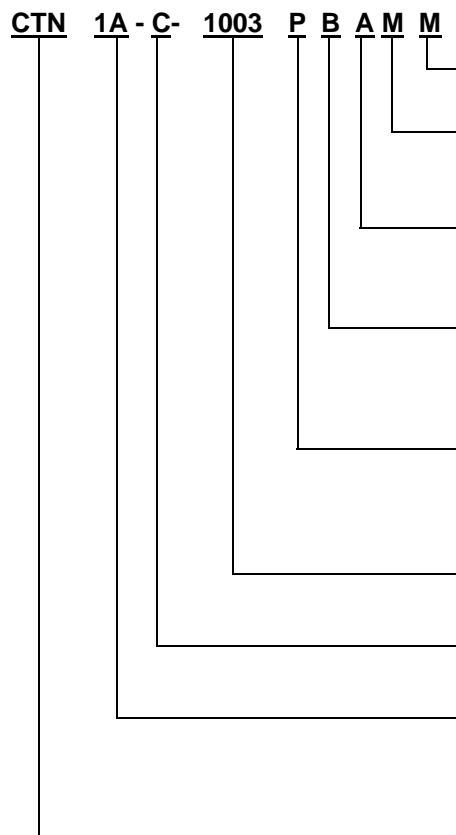


The content of this specification may change without notification 12/13/07

Custom solutions are available.

HOW TO ORDER



Packaging

M = Tape/Reel

Tracking TCR

L = 1 N = 3
M = 2 P = 5 Q = 10

Absolute TCR

P = ±5 X = ±25
Q = ±10

Ratio Tolerance

T = 0.01 B = 0.1
Q = 0.02 C = 0.25
A = 0.05 D = 0.5

Absolute Tolerance (%)

A = ±0.05 D = ±0.5
B = ±0.1 F = ±1
C = ±0.25

Resistance Value

3 sig. fig & 1 multiplier ±1%

Circuit Layout

Refer to Specification

Model (Refer to Spec)

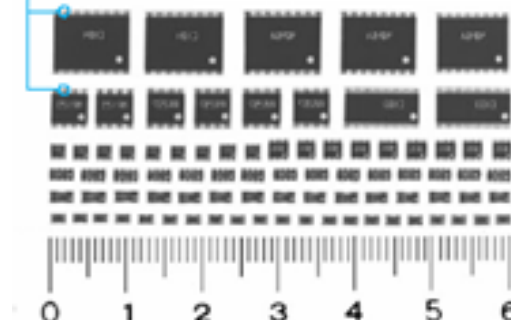
| | | |
|----|-----|------|
| 1A | 6D | S8D |
| 1D | S6D | M16D |
| 2D | 8D | 16D |

Series

High Precision Resistor Array & Networks



U-Shaped Product with Electrode Structure
Processed product with grooves



FEATURES

AAC thin film network resistors ensure stable high performance as indicated by the excellent ratio T.C.R as between elements 1pp/°C or less and absolute T.C.R as 5 pp/°C. The absolute tolerance as 0.5%.

- "U-type" electrodes offering excellent durability, ensuring superb durability for soldering flow, re-flow soldering, or dip soldering, and is also very beneficial for the durability of wire bonding
- A perfect solution to replace the network resistor of SOP, SIP or DIP types.
- Lead Free and RoHs Compliant
- Custom designed circuits are available upon special request

ELECTRICAL CHARACTERISTICS

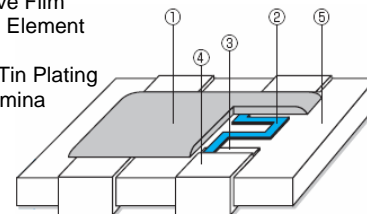
| Model | Total Rated Power | Resistance Range (Ω) by Circuit Configuration | | |
|---------|-------------------|---|--------------|-----------------|
| | | B | 2B | C |
| CTN1A | 0.125 W | 10 ~ 50K | | 10.0 ~ 100K |
| CTN1D | 0.125 W | 10 ~ 50K | | 10.0 ~ 100K |
| CTN2D | 0.100 W | 10 ~ 25K | | 10.0 ~ 50.0K |
| CTN6D | 0.250 W | | 10.0 ~ 100K | 10.0 ~ 100K |
| CTNS6D | 0.150 W | | 10.0 ~ 10.0K | 10.0 ~ 50.0K |
| CTN8D | 0.500 W | | | 10.0 ~ 200K |
| CTN8U | 0.500 W | | | (1.00M ~ Total) |
| CTNS8D | 0.125 W | | | 10.0 ~ 50.0K |
| CTNM16D | 1.00 W | | | 2.00M Total |
| CTNM16U | 1.00 W | | | 2.00M Total |
| CTN16D | 1.50 W | | | 10.0M Total |
| CTN16U | 1.50 W | | | 10.0M Total |

APPLICATIONS

- Medical Instrument
- Test Equipment For Semiconductor
- Precision Measuring Equipment
- Electric Components For Automotive

CONSTRUCTION

1. Epoxy Protective Film
2. Ni-Cr Resistive Element
3. Cu Electrode
4. Ni Plating and Tin Plating
5. High Purity Alumina Substrate



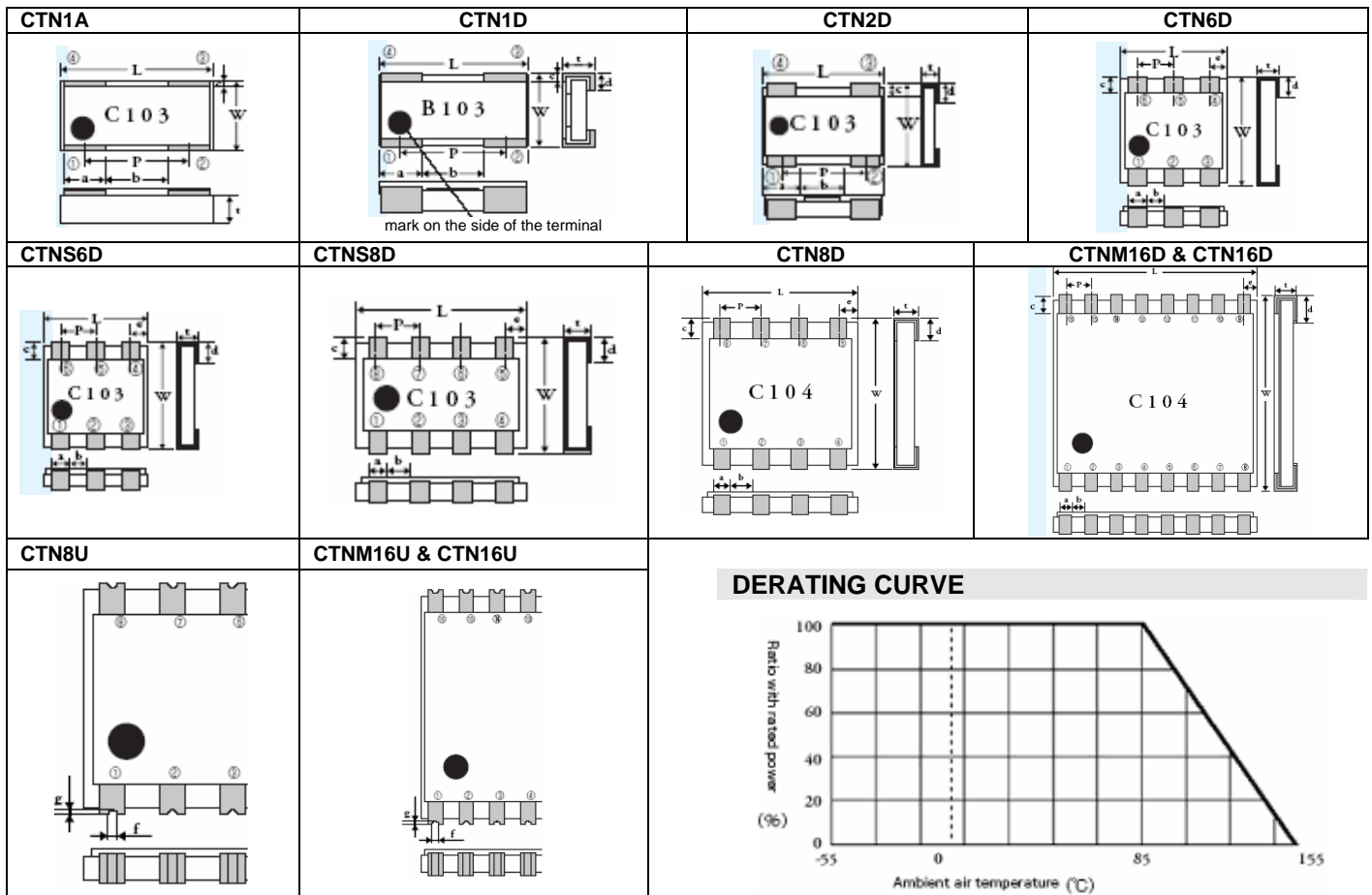
CIRCUIT LAYOUT

| CTN1A, CTN1D, CTN2D | | CTNS6D, CTN6D | | CTNS8D, CTN8D, CTN8U | CTNM16D, CTNM16U, CTN16D, CTN16U |
|---------------------|---|---------------|---|----------------------|----------------------------------|
| B | C | 2B | C | C | C |
| | | | | | |

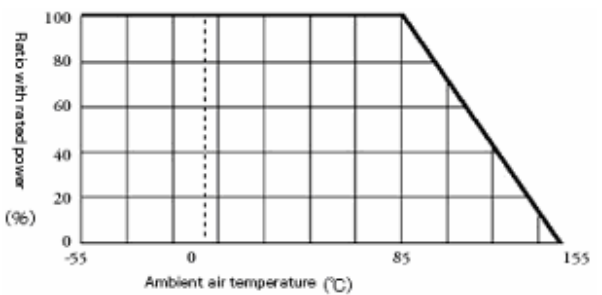
DIMENSIONS (mm)

| Model | L | W | P | a | b | c | d | e | f | g | t |
|---------|-------------|------------|------------|-------------|-------------|-------------|------------|-------------|-----|-----|----------|
| CTN1A | 3.2 ± 0.2 | 1.6 ± 0.2 | 2.0 ± 0.1 | 1.0 ± 0.1 | 1.0 ± 0.1 | 0.15 ± 0.05 | | | | | 0.55 max |
| CTN1D | | | | | | | 0.4 ± 0.1 | | | | |
| CTN2D | 2.0 ± 0.2 | 1.25 ± 0.2 | 1.3 ± 0.2 | 0.7 ± 0.2 | 0.6 ± 0.2 | 0.1 ± 0.05 | 0.25 ± 0.1 | | | | 0.55 max |
| CTN6D | 2.54 ± 0.1 | 2.54 ± 0.1 | 0.86 ± 0.1 | 0.43 ± 0.1 | 0.43 ± 0.2 | 0.41 ± 0.2 | 0.5 ± 0.2 | 0.41 ± 0.1 | | | 0.55 max |
| CTNS6D | 2.0 ± 0.1 | 2.0 ± 0.1 | 0.72 ± 0.1 | 0.36 ± 0.1 | 0.36 ± 0.1 | 0.28 ± 0.2 | 0.4 ± 0.2 | 0.28 ± 0.1 | | | 0.55 max |
| CTN8D | 5.08 ± 0.2 | 5.1 ± 0.2 | 1.27 ± 0.2 | 0.635 ± 0.1 | 0.635 ± 0.1 | 0.6 ± 0.2 | 0.8 ± 0.2 | 0.635 ± 0.1 | | | 0.9 max |
| CTN8U | | | | | | | | | 0.2 | 0.1 | |
| CTNS8D | 3.2 ± 0.2 | 1.6 ± 0.2 | 0.8 ± 0.1 | 0.4 ± 0.1 | 0.4 ± 0.1 | 0.3 ± 0.2 | 0.4 ± 0.2 | 0.3 ± 0.1 | | | 0.55 max |
| CTNM16D | 10.16 ± 0.2 | 5.1 ± 0.2 | 1.27 ± 0.2 | 0.635 ± 0.1 | 0.635 ± 0.1 | 0.6 ± 0.2 | 0.8 ± 0.2 | 0.635 ± 0.1 | | | 0.9 max |
| CTNM16U | | | | | | | | | 0.2 | 0.1 | |
| CTN16D | | | | | | | | | | | |
| CTN16U | | 0.2 | | | | | | | 0.1 | | |

SCHEMATIC



DERATING CURVE



PERFORMANCE

| Item | Test Condition | Specification |
|--|---|-------------------------------|
| Short Time Overload | Application of 2.5 times the rated voltage for 5 seconds | ± (0.1% + 0.05Ω) |
| Heat Resistance During Soldering | Dip in Solder at 260°C ± 5°C for 10 ± 1 seconds | ± (0.05% + 0.05Ω) |
| Temperature Cycles | 100 cycles between -55°C ~ +125°C | ± (0.1% + 0.05Ω) |
| Service Life Under Heavy Load | 1,000 hours at 85°C, rated voltage with intermittent load | ± (0.1% + 0.05Ω) |
| Longevity Under Heavy Humidity Load | 95% RH for 1000 hrs at 40°C, rated voltage with intermittent load | ± (0.1% + 0.05Ω) |
| Absolute Value indicating Secular Change | 1 year at ambient temperature, normal humidity without load | ±50ppm (within ±50ppm / year) |
| Relative Value Indicating Secular Change | 1 year at ambient temperature, normal humidity without load | ±10ppm (within ±10ppm / year) |