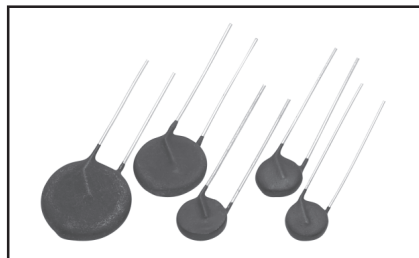
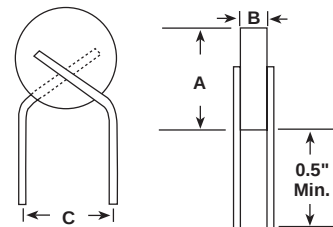


## PTC Switching Thermistors



### TYPICAL APPLICATIONS

- Self-regulating heaters.
- Single phase motor starting.
- Over temperature protection.
- Air flow/liquid level sensing.
- Time delay.
- Degaussing.
- Arc suppression.
- Solid state fusing.



DIMENSIONAL CONFIGURATIONS

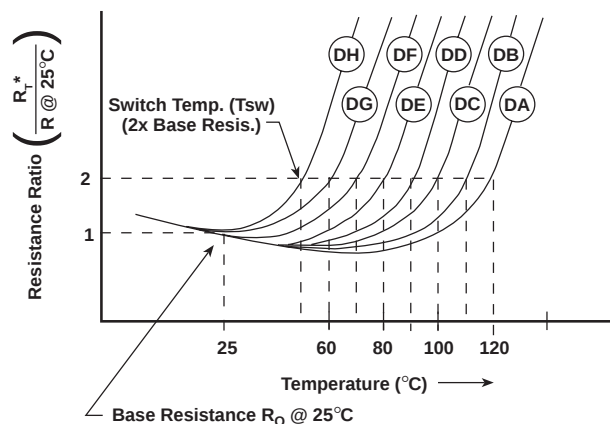
### STANDARD ELECTRICAL SPECIFICATIONS

| PART NUMBER  | BASE RESISTANCE<br>$R_0 @ 25^\circ\text{C}$<br>( $\Omega$ ) $\pm 30\%$ | SWITCH TEMP.<br>$T_{SW} \pm 5^\circ\text{C}$<br>(Curve) | MAXIMUM OPERATING VOLTAGE<br>$V_{max}$ | TIME CONSTANT<br>$T_c$ (Sec) | DISSIPATION CONSTANT<br>$D_c$ (mW/ $^\circ\text{C}$ ) | REFERENCE DIMENSIONS<br>(inches) |      |      |           |
|--------------|------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------|------------------------------|-------------------------------------------------------|----------------------------------|------|------|-----------|
|              |                                                                        |                                                         |                                        |                              |                                                       | A                                | B    | C    | Lead Dia. |
| DP5504DA1R0N | 1.0                                                                    | 120<br>(DA)                                             | 15                                     | 65                           | 15                                                    | 0.55                             | 0.04 | 0.30 | 0.032     |
| DP5004DA1R5N | 1.5                                                                    |                                                         | 20                                     | 55                           | 14                                                    | 0.50                             | 0.04 | 0.30 | 0.032     |
| DP5004DA2R0N | 2.0                                                                    |                                                         | 25                                     | 55                           | 14                                                    | 0.50                             | 0.04 | 0.30 | 0.032     |
| DP5004DA2R2N | 2.2                                                                    |                                                         | 25                                     | 50                           | 12                                                    | 0.50                             | 0.04 | 0.30 | 0.025     |
| DP4504DA3R3N | 3.3                                                                    |                                                         | 25                                     | 45                           | 11                                                    | 0.45                             | 0.04 | 0.30 | 0.025     |
| DP4005DA4R7N | 4.7                                                                    |                                                         | 35                                     | 45                           | 10                                                    | 0.40                             | 0.05 | 0.30 | 0.025     |
| DP4005DA5R0N | 5.0                                                                    |                                                         | 35                                     | 45                           | 10                                                    | 0.40                             | 0.05 | 0.30 | 0.025     |
| DP3505DA7R5N | 7.5                                                                    |                                                         | 50                                     | 40                           | 9                                                     | 0.35                             | 0.05 | 0.25 | 0.020     |
| DP3005DA100N | 10.0                                                                   |                                                         | 50                                     | 35                           | 8                                                     | 0.30                             | 0.05 | 0.25 | 0.020     |
| DP5010DA100N | 10.0                                                                   |                                                         | 132                                    | 75                           | 15                                                    | 0.50                             | 0.10 | 0.30 | 0.025     |
| DP3005DA200N | 20.0                                                                   |                                                         | 50                                     | 35                           | 8                                                     | 0.30                             | 0.05 | 0.20 | 0.020     |
| DP5010DA200N | 20.0                                                                   |                                                         | 132                                    | 85                           | 16                                                    | 0.50                             | 0.10 | 0.30 | 0.032     |
| DP2505DA250N | 25.0                                                                   |                                                         | 50                                     | 30                           | 7                                                     | 0.25                             | 0.05 | 0.25 | 0.020     |
| DP2505DA330N | 33.0                                                                   |                                                         | 50                                     | 30                           | 7                                                     | 0.25                             | 0.05 | 0.20 | 0.020     |
| DP3006DA500N | 50.0                                                                   |                                                         | 50                                     | 35                           | 8                                                     | 0.30                             | 0.06 | 0.25 | 0.020     |
| DP4510DA500N | 50.0                                                                   |                                                         | 132                                    | 55                           | 12                                                    | 0.45                             | 0.10 | 0.30 | 0.025     |
| DP2506DA750N | 75.0                                                                   |                                                         | 50                                     | 30                           | 7                                                     | 0.25                             | 0.06 | 0.20 | 0.020     |
| DP2005DA101N | 100.0                                                                  |                                                         | 50                                     | 30                           | 7                                                     | 0.20                             | 0.05 | 0.20 | 0.020     |
| DP2008DA251N | 250.0                                                                  |                                                         | 150                                    | 30                           | 6                                                     | 0.20                             | 0.08 | 0.20 | 0.020     |
| DP2010DA501N | 500.0                                                                  |                                                         | 250                                    | 30                           | 6                                                     | 0.20                             | 0.10 | 0.20 | 0.020     |
| DP5004DB2R2N | 2.2                                                                    | 110<br>(DB)                                             | 25                                     | 50                           | 12                                                    | 0.50                             | 0.04 | 0.30 | 0.025     |
| DP4504DB3R3N | 3.3                                                                    |                                                         | 25                                     | 45                           | 11                                                    | 0.45                             | 0.04 | 0.30 | 0.025     |
| DP4005DB5R0N | 5.0                                                                    |                                                         | 35                                     | 45                           | 10                                                    | 0.40                             | 0.05 | 0.30 | 0.025     |
| DP3505DB7R5N | 7.5                                                                    |                                                         | 50                                     | 40                           | 9                                                     | 0.35                             | 0.05 | 0.25 | 0.020     |
| DP3005DB100N | 10.0                                                                   |                                                         | 50                                     | 35                           | 8                                                     | 0.30                             | 0.05 | 0.25 | 0.020     |
| DP5010DB100N | 10.0                                                                   |                                                         | 132                                    | 75                           | 15                                                    | 0.50                             | 0.10 | 0.30 | 0.025     |
| DP3005DB200N | 20.0                                                                   |                                                         | 50                                     | 35                           | 8                                                     | 0.30                             | 0.05 | 0.20 | 0.020     |
| DP5010DB200N | 20.0                                                                   |                                                         | 132                                    | 85                           | 16                                                    | 0.50                             | 0.10 | 0.30 | 0.032     |
| DP3510DB350N | 35.0                                                                   |                                                         | 132                                    | 40                           | 9                                                     | 0.35                             | 0.10 | 0.25 | 0.025     |
| DP4510DB500N | 50.0                                                                   |                                                         | 132                                    | 55                           | 12                                                    | 0.45                             | 0.10 | 0.30 | 0.025     |
| DP2005DB101N | 100.0                                                                  |                                                         | 50                                     | 30                           | 7                                                     | 0.20                             | 0.05 | 0.20 | 0.020     |
| DP5010DB101N | 100.0                                                                  |                                                         | 265                                    | 75                           | 15                                                    | 0.50                             | 0.10 | 0.30 | 0.025     |
| DP2008DB251N | 250.0                                                                  |                                                         | 150                                    | 30                           | 6                                                     | 0.20                             | 0.08 | 0.20 | 0.020     |
| DP2010DB501N | 500.0                                                                  |                                                         | 250                                    | 30                           | 6                                                     | 0.20                             | 0.10 | 0.20 | 0.020     |
| DP2010DB152N | 1500.0                                                                 |                                                         | 350                                    | 30                           | 6                                                     | 0.20                             | 0.10 | 0.20 | 0.020     |



| STANDARD ELECTRICAL SPECIFICATIONS |                                                           |                                                        |                                        |                              |                                    |                                  |      |      |           |
|------------------------------------|-----------------------------------------------------------|--------------------------------------------------------|----------------------------------------|------------------------------|------------------------------------|----------------------------------|------|------|-----------|
| PART NUMBER                        | BASE RESISTANCE<br>$R_o$ @ 25°C<br>( $\Omega$ ) $\pm$ 30% | SWITCH TEMP<br>$T_{SW} \pm 5^\circ\text{C}$<br>(Curve) | MAXIMUM OPERATING VOLTAGE<br>$V_{max}$ | TIME CONSTANT<br>$T_c$ (Sec) | DISSIPATION CONSTANT Dc<br>(mW/°C) | REFERENCE DIMENSIONS<br>(inches) |      |      |           |
|                                    |                                                           |                                                        |                                        |                              |                                    | A                                | B    | C    | Lead Dia. |
| DP4005DC5R0N                       | 5.0                                                       | 100<br>(DC)                                            | 35                                     | 45                           | 10                                 | 0.40                             | 0.05 | 0.30 | 0.025     |
| DP3505DC7R5N                       | 7.5                                                       |                                                        | 50                                     | 40                           | 9                                  | 0.35                             | 0.05 | 0.25 | 0.020     |
| DP3005DC100N                       | 10.0                                                      |                                                        | 50                                     | 35                           | 8                                  | 0.30                             | 0.05 | 0.25 | 0.020     |
| DP5010DC100N                       | 10.0                                                      |                                                        | 132                                    | 75                           | 15                                 | 0.50                             | 0.10 | 0.30 | 0.025     |
| DP3005DC200N                       | 20.0                                                      |                                                        | 50                                     | 35                           | 8                                  | 0.30                             | 0.05 | 0.20 | 0.020     |
| DP5010DC200N                       | 20.0                                                      |                                                        | 132                                    | 85                           | 16                                 | 0.50                             | 0.10 | 0.30 | 0.032     |
| DP3510DC350N                       | 35.0                                                      |                                                        | 132                                    | 40                           | 9                                  | 0.35                             | 0.10 | 0.25 | 0.025     |
| DP3006DC500N                       | 50.0                                                      |                                                        | 50                                     | 35                           | 8                                  | 0.30                             | 0.06 | 0.25 | 0.020     |
| DP4510DC500N                       | 50.0                                                      |                                                        | 132                                    | 55                           | 12                                 | 0.45                             | 0.10 | 0.30 | 0.025     |
| DP2005DC101N                       | 100.0                                                     |                                                        | 50                                     | 30                           | 7                                  | 0.20                             | 0.05 | 0.20 | 0.020     |
| DP3005DD200N                       | 20.0                                                      | 90<br>(DD)                                             | 50                                     | 35                           | 8                                  | 0.30                             | 0.05 | 0.20 | 0.020     |
| DP3006DD500N                       | 50.0                                                      |                                                        | 50                                     | 35                           | 8                                  | 0.30                             | 0.06 | 0.25 | 0.020     |
| DP2005DD101N                       | 100.0                                                     |                                                        | 50                                     | 30                           | 7                                  | 0.20                             | 0.05 | 0.20 | 0.020     |
| DP3005DE100N                       | 10.0                                                      | 80<br>(DE)                                             | 50                                     | 35                           | 8                                  | 0.30                             | 0.05 | 0.25 | 0.020     |
| DP5010DE100N                       | 10.0                                                      |                                                        | 132                                    | 75                           | 15                                 | 0.50                             | 0.10 | 0.30 | 0.025     |
| DP3005DE200N                       | 20.0                                                      |                                                        | 50                                     | 35                           | 8                                  | 0.30                             | 0.05 | 0.20 | 0.020     |
| DP5010DE200N                       | 20.0                                                      |                                                        | 132                                    | 85                           | 16                                 | 0.50                             | 0.10 | 0.30 | 0.032     |
| DP3006DE500N                       | 50.0                                                      |                                                        | 50                                     | 35                           | 8                                  | 0.30                             | 0.06 | 0.25 | 0.020     |
| DP4510DE500N                       | 50.0                                                      |                                                        | 132                                    | 55                           | 12                                 | 0.45                             | 0.10 | 0.30 | 0.025     |
| DP2005DE101N                       | 100.0                                                     |                                                        | 50                                     | 30                           | 7                                  | 0.20                             | 0.05 | 0.20 | 0.020     |
| DP3005DF100N                       | 10.0                                                      | 70<br>(DF)                                             | 50                                     | 35                           | 8                                  | 0.30                             | 0.05 | 0.25 | 0.020     |
| DP5010DF100N                       | 10.0                                                      |                                                        | 132                                    | 75                           | 15                                 | 0.50                             | 0.10 | 0.30 | 0.025     |
| DP3005DF200N                       | 20.0                                                      |                                                        | 50                                     | 35                           | 8                                  | 0.30                             | 0.05 | 0.20 | 0.020     |
| DP3510DF350N                       | 35.0                                                      |                                                        | 132                                    | 40                           | 9                                  | 0.35                             | 0.10 | 0.25 | 0.025     |
| DP3006DF500N                       | 50.0                                                      |                                                        | 50                                     | 35                           | 8                                  | 0.30                             | 0.06 | 0.25 | 0.020     |
| DP4510DF500N                       | 50.0                                                      |                                                        | 132                                    | 55                           | 12                                 | 0.45                             | 0.10 | 0.30 | 0.025     |
| DP5510DF500N                       | 50.0                                                      |                                                        | 265                                    | 85                           | 16                                 | 0.55                             | 0.10 | 0.30 | 0.032     |
| DP2005DF101N                       | 100.0                                                     |                                                        | 50                                     | 30                           | 7                                  | 0.20                             | 0.05 | 0.20 | 0.020     |
| DP5010DG100N                       | 10.0                                                      | 60<br>(DG)                                             | 132                                    | 75                           | 15                                 | 0.50                             | 0.10 | 0.30 | 0.025     |
| DP3005DG200N                       | 20.0                                                      |                                                        | 50                                     | 35                           | 8                                  | 0.30                             | 0.05 | 0.20 | 0.020     |
| DP5010DG200N                       | 20.0                                                      |                                                        | 132                                    | 85                           | 16                                 | 0.50                             | 0.10 | 0.30 | 0.032     |
| DP3510DG350N                       | 35.0                                                      |                                                        | 132                                    | 40                           | 9                                  | 0.35                             | 0.10 | 0.25 | 0.025     |
| DP3006DG500N                       | 50.0                                                      |                                                        | 50                                     | 35                           | 8                                  | 0.30                             | 0.06 | 0.25 | 0.020     |
| DP4510DG500N                       | 50.0                                                      |                                                        | 132                                    | 55                           | 12                                 | 0.45                             | 0.10 | 0.30 | 0.025     |
| DP5510DG500N                       | 50.0                                                      |                                                        | 265                                    | 90                           | 16                                 | 0.55                             | 0.10 | 0.30 | 0.032     |
| DP2005DG101N                       | 100.0                                                     |                                                        | 50                                     | 30                           | 7                                  | 0.20                             | 0.05 | 0.20 | 0.020     |
| DP3005DH200N                       | 20.0                                                      | 50<br>(DH)                                             | 50                                     | 35                           | 8                                  | 0.30                             | 0.05 | 0.20 | 0.020     |
| DP3006DH500N                       | 50.0                                                      |                                                        | 50                                     | 35                           | 8                                  | 0.30                             | 0.06 | 0.25 | 0.020     |
| DP2005DH101N                       | 100.0                                                     |                                                        | 50                                     | 30                           | 7                                  | 0.20                             | 0.05 | 0.20 | 0.020     |

## STANDARD RESISTANCE RATIO - TEMPERATURE CURVES (Reference only)

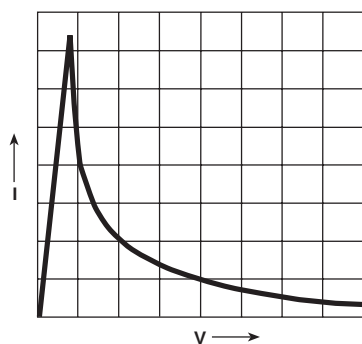


### RT CURVE-SWITCH TEMPERATURE (Tsw) RELATIONSHIP

| Curve | Switch Temperature ( $^\circ\text{C}$ ) |
|-------|-----------------------------------------|
| DH    | 50                                      |
| DG    | 60                                      |
| DF    | 70                                      |
| DE    | 80                                      |
| DD    | 90                                      |
| DC    | 100                                     |
| DB    | 110                                     |
| DA    | 120                                     |

\* $R_T$  = Resistance at Specified Temperature ( $^\circ\text{C}$ )

## STATIC VOLTAGE/CURRENT CURVE



## CONFIGURATIONS

### STANDARD



### OPTIONAL



No Leads



Inside Kink



Outside Kink

## PACKAGING

— Bulk

## HOW TO ORDER

**DP5004DB2R2N**  
MODEL

**- 06**  
MODIFICATION

- 01 No Leads
- 02 Inside Kink
- 03 Outside Kink
- 04 Epoxy Coating (150 $^\circ\text{C}$  Max. Temp.)
- 05 Silicone Coating (200 $^\circ\text{C}$  Max. Temp.)
- 06 Epoxy/Inside Kink
- 07 Epoxy/Outside Kink
- 08 Silicone/Inside Kink
- 09 Silicone/Outside Kink

**Example:** DP5004DB2R2N-06 (Standard part with epoxy coating and inside kink leads)

**NOTE:** If one of the modifications is required, add the dash number listed to the part number (see example). Other options are available including non-standard base resistance values and tolerances.



## PTC Thermistors

| TYPICAL APPLICATIONS                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Electronic Power Supply Protection</li><li>• Motor Protection at Start-up Compressors</li><li>• Over Current Protection of Motors</li><li>• Transformer Protection</li><li>• Telecommunication Line Protection</li><li>• Self-Regulating Heaters</li><li>• Constant Temperature Heating</li><li>• Single Phase Motor Starting</li></ul> | <ul style="list-style-type: none"><li>• Over Temperature Protection</li><li>• Air Flow/Liquid Level Sensing</li><li>• Time Delay</li><li>• Degaussing TVs</li><li>• Arc Suppression</li><li>• Solid State Fusing</li><li>• Fluorescent Light Start-up</li></ul> |