

### Features

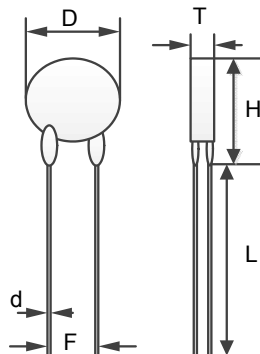
- Small size, high power
- Fast response times
- Great surge current capability
- Large material constant (B value), small residual resistance
- High reliability

### Application

- UPS and switching power supplies
- Electric heaters
- Energy saving lamps
- Electronic ballast
- Color display tube
- Lighting filament protection



### Structure



### Dimensions Table

| Dimensions Code | Type、Dimensions (mm) |     |         |         |      |        |        |      |
|-----------------|----------------------|-----|---------|---------|------|--------|--------|------|
|                 | D-5                  | D-7 | D-9     | D-11    | D-13 | D-15   | D-20   | D-25 |
| Dmax            | 7.0                  | 9.0 | 11.0    | 13.0    | 15.5 | 17.5   | 22.5   | 27.5 |
| Tmax            | 5.0                  | 5.0 | 5.5     | 5.5     | 6.0  | 6.0    | 7      | 8.0  |
| Lmin            | 25                   | 25  | 25      | 25      | 25   | 25     | 25     | 25   |
| d±0.05          | 0.6/0.45             | 0.6 | 0.8/0.6 | 0.8     | 0.8  | 0.8    | 1.0    | 1.0  |
| F±1             | 5.0/2.5              | 5.0 | 7.5/5.0 | 7.5/5.0 | 7.5  | 10/7.5 | 10/7.5 | 10   |

## Electrical Specifications

| Type        | Zero Power Resistance<br>( $\Omega$ ) $\pm 20\%$ | I <sub>max</sub> (A) | Approx.<br>R of<br>Max.<br>Current<br>( $\Omega$ ) | Thermal<br>Dissipation<br>Constant (mW/°C) | Thermal<br>Time<br>constant<br>$\tau$ (s) | Operation<br>Temperature(°C) |
|-------------|--------------------------------------------------|----------------------|----------------------------------------------------|--------------------------------------------|-------------------------------------------|------------------------------|
| MF72-5D5    | 5                                                | 1                    | 0.353                                              | 6                                          | 20                                        | -55~+200                     |
| MF72-10D5   | 10                                               | 0.7                  | 0.771                                              | 6                                          | 20                                        |                              |
| MF72-60D5   | 60                                               | 0.5                  | 1.878                                              | 6                                          | 18                                        |                              |
| MF72-200D5  | 200                                              | 0.1                  | 6.259                                              | 6                                          | 18                                        |                              |
| MF72-5D7    | 5                                                | 2                    | 0.283                                              | 10                                         | 30                                        |                              |
| MF72-8D7    | 8                                                | 1                    | 0.539                                              | 9                                          | 28                                        |                              |
| MF72-10D7   | 10                                               | 1                    | 0.616                                              | 9                                          | 27                                        |                              |
| MF72-12D7   | 12                                               | 1                    | 0.816                                              | 9                                          | 27                                        |                              |
| MF72-16D7   | 16                                               | 0.7                  | 1.003                                              | 9                                          | 27                                        |                              |
| MF72-22D7   | 22                                               | 0.6                  | 1.108                                              | 9                                          | 27                                        |                              |
| MF72-33D7   | 33                                               | 0.5                  | 1.485                                              | 10                                         | 28                                        |                              |
| MF72-200D7  | 200                                              | 0.2                  | 6.233                                              | 11                                         | 28                                        |                              |
| MF72-3D9    | 3                                                | 4                    | 0.12                                               | 11                                         | 35                                        |                              |
| MF72-4D9    | 4                                                | 3                    | 0.19                                               | 11                                         | 35                                        |                              |
| MF72-5D9    | 5                                                | 3                    | 0.21                                               | 11                                         | 34                                        |                              |
| MF72-6D9    | 6                                                | 2                    | 0.315                                              | 11                                         | 34                                        |                              |
| MF72-8D9    | 8                                                | 2                    | 0.4                                                | 11                                         | 32                                        |                              |
| MF72-10D9   | 10                                               | 2                    | 0.458                                              | 11                                         | 32                                        |                              |
| MF72-12D9   | 12                                               | 1                    | 0.652                                              | 11                                         | 32                                        |                              |
| MF72-16D9   | 16                                               | 1                    | 0.802                                              | 11                                         | 31                                        |                              |
| MF72-20D9   | 20                                               | 1                    | 0.864                                              | 11                                         | 30                                        |                              |
| MF72-22D9   | 22                                               | 1                    | 0.95                                               | 11                                         | 30                                        |                              |
| MF72-30D9   | 30                                               | 1                    | 1.022                                              | 11                                         | 30                                        |                              |
| MF72-33D9   | 33                                               | 1                    | 1.124                                              | 11                                         | 30                                        |                              |
| MF72-50D9   | 50                                               | 1                    | 1.252                                              | 11                                         | 30                                        |                              |
| MF72-60D9   | 60                                               | 0.8                  | 1.502                                              | 11                                         | 30                                        |                              |
| MF72-80D9   | 80                                               | 0.8                  | 2.01                                               | 11                                         | 30                                        |                              |
| MF72-120D9  | 120                                              | 0.8                  | 3.015                                              | 11                                         | 30                                        |                              |
| MF72-200D9  | 200                                              | 0.5                  | 5.007                                              | 11                                         | 32                                        |                              |
| MF72-400D9  | 400                                              | 0.2                  | 9.852                                              | 11                                         | 32                                        |                              |
| MF72-2.5D11 | 2.5                                              | 5                    | 0.095                                              | 13                                         | 43                                        |                              |
| MF72-3D11   | 3                                                | 5                    | 0.1                                                | 13                                         | 43                                        |                              |
| MF72-4D11   | 4                                                | 4                    | 0.15                                               | 13                                         | 44                                        |                              |
| MF72-5D11   | 5                                                | 4                    | 0.156                                              | 13                                         | 45                                        |                              |
| MF72-6D11   | 6                                                | 3                    | 0.24                                               | 13                                         | 45                                        |                              |
| MF72-8D11   | 8                                                | 3                    | 0.255                                              | 14                                         | 47                                        |                              |
| MF72-10D11  | 10                                               | 3                    | 0.275                                              | 14                                         | 47                                        |                              |
| MF72-12D11  | 12                                               | 2                    | 0.462                                              | 14                                         | 48                                        |                              |
| MF72-16D11  | 16                                               | 2                    | 0.47                                               | 14                                         | 50                                        |                              |
| MF72-20D11  | 20                                               | 2                    | 0.512                                              | 15                                         | 52                                        |                              |
| MF72-22D11  | 22                                               | 2                    | 0.563                                              | 15                                         | 52                                        |                              |
| MF72-30D11  | 30                                               | 1.5                  | 0.667                                              | 15                                         | 52                                        |                              |
| MF72-33D11  | 33                                               | 1.5                  | 0.734                                              | 15                                         | 52                                        |                              |

|             |     |     |       |    |     |
|-------------|-----|-----|-------|----|-----|
| MF72-50D11  | 50  | 1.5 | 1.021 | 15 | 52  |
| MF72-60D11  | 60  | 1.5 | 1.215 | 15 | 52  |
| MF72-80D11  | 80  | 1.2 | 1.656 | 15 | 52  |
| MF72-1.3D13 | 1.3 | 7   | 0.062 | 13 | 60  |
| MF72-1.5D13 | 1.5 | 7   | 0.073 | 13 | 60  |
| MF72-2.5D13 | 2.5 | 6   | 0.088 | 13 | 60  |
| MF72-3D13   | 3   | 6   | 0.092 | 14 | 60  |
| MF72-4D13   | 4   | 5   | 0.12  | 15 | 67  |
| MF72-5D13   | 5   | 5   | 0.125 | 15 | 68  |
| MF72-6D13   | 6   | 4   | 0.17  | 15 | 65  |
| MF72-7D13   | 7   | 4   | 0.188 | 15 | 65  |
| MF72-8D13   | 8   | 4   | 0.194 | 15 | 60  |
| MF72-10D13  | 10  | 4   | 0.206 | 15 | 65  |
| MF72-12D13  | 12  | 3   | 0.316 | 16 | 65  |
| MF72-15D13  | 15  | 3   | 0.335 | 16 | 60  |
| MF72-16D13  | 16  | 3   | 0.338 | 16 | 60  |
| MF72-20D13  | 20  | 3   | 0.372 | 16 | 65  |
| MF72-30D13  | 30  | 2.5 | 0.517 | 16 | 65  |
| MF72-47D13  | 47  | 2   | 0.81  | 17 | 65  |
| MF72-120D13 | 120 | 1.5 | 2.124 | 16 | 65  |
| MF72-1.3D15 | 1.3 | 8   | 0.048 | 18 | 68  |
| MF72-1.5D15 | 1.5 | 8   | 0.052 | 19 | 69  |
| MF72-3D15   | 3   | 7   | 0.075 | 18 | 76  |
| MF72-5D15   | 5   | 6   | 0.112 | 20 | 76  |
| MF72-6D15   | 6   | 5   | 0.155 | 20 | 80  |
| MF72-7D15   | 7   | 5   | 0.173 | 20 | 80  |
| MF72-8D15   | 9   | 5   | 0.178 | 20 | 80  |
| MF72-10D15  | 10  | 5   | 0.18  | 20 | 75  |
| MF72-12D15  | 12  | 4   | 0.25  | 20 | 75  |
| MF72-15D15  | 15  | 4   | 0.268 | 21 | 85  |
| MF72-16D15  | 16  | 4   | 0.276 | 21 | 70  |
| MF72-20D15  | 20  | 4   | 0.288 | 17 | 86  |
| MF72-30D15  | 30  | 3.5 | 0.438 | 18 | 75  |
| MF72-47D15  | 47  | 3   | 0.68  | 21 | 86  |
| MF72-120D15 | 120 | 2.5 | 1.652 | 22 | 87  |
| MF72-0.7D20 | 0.7 | 12  | 0.018 | 25 | 112 |
| MF72-1.3D20 | 1.3 | 9   | 0.037 | 24 | 113 |
| MF72-3D20   | 3   | 8   | 0.055 | 24 | 113 |
| MF72-5D20   | 5   | 7   | 0.087 | 23 | 112 |
| MF72-6D20   | 6   | 6   | 0.113 | 25 | 114 |
| MF72-8D20   | 8   | 6   | 0.142 | 25 | 115 |
| MF72-10D20  | 10  | 6   | 0.162 | 24 | 113 |
| MF72-12D20  | 12  | 5   | 0.195 | 24 | 114 |
| MF72-16D20  | 16  | 5   | 0.212 | 25 | 113 |
| MF72-0.7D25 | 0.7 | 13  | 0.014 | 30 | 151 |
| MF72-1.5D25 | 1.5 | 10  | 0.027 | 30 | 152 |
| MF72-3D25   | 3   | 9   | 0.044 | 32 | 150 |
| MF72-5D25   | 5   | 8   | 0.07  | 32 | 151 |
| MF72-8D25   | 8   | 7   | 0.114 | 33 | 151 |

|            |    |   |       |    |     |  |
|------------|----|---|-------|----|-----|--|
| MF72-10D25 | 10 | 7 | 0.13  | 32 | 150 |  |
| MF72-12D25 | 12 | 6 | 0.156 | 32 | 150 |  |
| MF72-16D25 | 16 | 6 | 0.16  | 35 | 152 |  |

## Electrical Characteristics

| Characteristics                                              | Test Methods                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Zero Power Resistance at 25°C</b>                         | Resistance shall be measured at DC current applied when the self heat generation does not occur at room ambient ( $25.0 \pm 0.2^{\circ}\text{C}$ )                                                                                                                                                               |
| <b>B Value</b>                                               | After the resistance at $25^{\circ}\text{C}$ and $85^{\circ}\text{C}$ respectively are measured, the B Value is calculated by the following equation:<br>$B = \ln(R_{25}/R_{85}) / (1/298.15 - 1/358.15)$ R25= Resistance at $25.0 \pm 0.2^{\circ}\text{C}$<br>R85= Resistance at $85.0 \pm 0.2^{\circ}\text{C}$ |
| <b>Thermal Dissipation Constant</b>                          | Equivalent to the required power to rise temperature of the thermistor up to $1^{\circ}\text{C}$ in the air and without cooling of airflow. the unit of the constant is $\text{mw}/^{\circ}\text{C}$                                                                                                             |
| <b>Maximum allowable steady-state current</b>                | Maximum allowable steady-state DC current applied at the specified temperature without cooling of airflow                                                                                                                                                                                                        |
| <b>Thermal Time constant</b>                                 | The period of time when the temperature of the specimens is $(1-1/e)$ times the temperature difference shall be measured when the ambient temperature is changed. (e:2.71828)                                                                                                                                    |
| <b>Voltage withstanding (Between Terminals and coating)</b>  | An AC Voltage of 1000V shall be applied. Between the terminals and the insulating coating for one minute at room ambient.                                                                                                                                                                                        |
| <b>Insulation Resistance (Between Terminals and coating)</b> | Insulation resistance between terminals and the insulating coating shall be measured at 1000Vdc with one minute electrification, and at room ambient.                                                                                                                                                            |

## CONTACT INFORMATION

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