

【Annex】

Thermal Resistance Values



of the Nichia 121, 131, or 170 Series LEDs

Light Emitting Diode

Nichia 121 Series

| Part Number | Thermal Resistance $R_{\theta JMP}$ (°C/W) | Part Number | Thermal Resistance $R_{\theta JMP}$ (°C/W) |
|-------------|---|-------------|---|
| NC2W121D | 2.6 | NC2W121D-S1 | 2.6 |
| NC3W121D | 2.0 | NC3W121D-S1 | 2.0 |
| NC4W121D | 1.5 | NC4W121D-S1 | 1.5 |
| NC5W121D | 1.2 | NC5W121D-S1 | 1.2 |
| NC2W121F | 2.5 | NC3W121F | 1.9 |
| NC4W121F | 1.4 | NC5W121F | 1.2 |
| NC2W121G | 2.7 | NC2W121G-SC | 3.0 |

Nichia 131 Series

| Part Number | Thermal Resistance $R_{\theta JMP}$ (°C/W) | Part Number | Thermal Resistance $R_{\theta JMP}$ (°C/W) |
|--------------|---|-------------|---|
| NCSA131C | 7.0 | NCSW131C | 5.7 |
| NC2A131C | 4.2 | NC2W131C | 3.4 |
| NCSA131D | 7.0 | NCSW131D | 4.9 |
| NCSW131D-PCA | 5.2 | NC2A131D | 4.2 |
| NC2W131D | 2.6 | NCSA131F | 6.8 |
| NCSB131F | 7.0 | NCSE131F | 8.3 |
| NCSG131F | 8.4 | NCSR131F | 7.2 |
| NCSW131F | 4.8 | NCSW131F-SA | 5.1 |
| NCSY131F | 6.8 | NC2A131F | 4.0 |
| NC2W131F | 2.5 | NCSA131G | 7.2 |
| NCSW131G | 5.1 | NCSW131G-SA | 5.4 |
| NCSW131G-SB | 5.6 | | |

Nichia 170 Series

| Part Number | Thermal Resistance $R_{\theta JMP}$ (°C/W) | Part Number | Thermal Resistance $R_{\theta JMP}$ (°C/W) |
|-------------|---|--------------|---|
| NCSA170C | 7.0 | NCSW170C | 5.7 |
| NC2A170C | 4.2 | NC2W170C | 3.4 |
| NJSW170C | 8.6 | NCSA170D | 7.0 |
| NCSW170D | 4.9 | NCSW170D-PCA | 5.2 |
| NC2A170D | 4.2 | NC2W170D | 2.6 |
| NJSW170D | 7.7 | NCSA170F | 6.8 |
| NCSB170F | 7.0 | NCSE170F | 8.3 |
| NCSG170F | 8.4 | NCSR170F | 7.2 |
| NCSW170F | 4.8 | NCSW170F-SA | 5.1 |
| NCSY170F | 6.8 | NC2A170F | 4.0 |
| NC2W170F | 2.5 | NJSA170F | 9.6 |
| NJSW170F | 7.6 | NJSW170F-SA | 7.7 |
| NCSA170G | 7.2 | NCSW170G | 5.1 |
| NCSW170G-SA | 5.4 | NCSW170G-SB | 5.6 |
| NC2W170G | 2.7 | NJSA170G | 10.7 |
| NJSW170G | 7.9 | NJSW170G-SA | 8.0 |

- The $R_{\theta JMP}$ is the thermal resistance from the chip of the LED to the measurement point Nichia specifies (i.e. the T_{MP} measurement point).
(PCB used for the $R_{\theta JMP}$ measurement: Aluminum-core PCB with a thickness of 1.5mm, Copper layer thickness: 105 μ m)
- The estimated value of the junction temperature (T_J) of the LED can be calculated by measuring the T_{MP} (i.e. the temperature of the T_{MP} measurement point) of the LED mounted on a PCB and using the $R_{\theta JMP}$ value provided above. For details of how to calculate the T_J , refer to the application note: How to Calculate the Junction Temperature for the Nichia 121, 131, or 170 Series LEDs.
- $R_{\theta JMP}$ values are values measured under Nichia's measurement conditions. The $R_{\theta JMP}$ values provided above are the maximum values calculated from the measurement results; these values should be used for reference purposes only.
- For the LEDs that do not have the $R_{\theta JMP}$ values provided above, contact a local Nichia sales representative.

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