



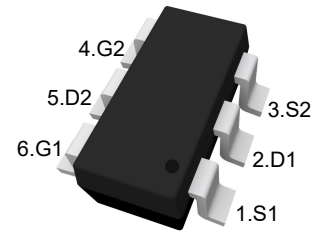
# PJM8205DNSG

## Dual N-Channel Enhancement Mode Power MOSFET

### Features

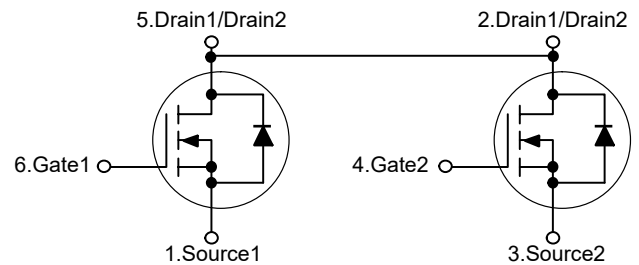
- Excellent  $R_{DS(on)}$  and low gate charge
- Advanced trench process technology
- High Power and Current handling capability
- $V_{DS} = 20V, I_D = 5A$   
 $R_{DS(on)} < 25m\Omega @ V_{GS} = 4.5V$

### SOT-23-6



Marking Code: 8205

### Schematic Diagram



### Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter                             | Symbol    | Value       | Unit |
|---------------------------------------|-----------|-------------|------|
| Drain-Source Voltage                  | $V_{DS}$  | 20          | V    |
| Gate-Source Voltage                   | $V_{GS}$  | $\pm 12$    | V    |
| Drain Current-Continuous              | $I_D$     | 5           | A    |
| Drain Current-Pulsed <sup>Note1</sup> | $I_{DM}$  | 25          | A    |
| Maximum Power Dissipation             | $P_D$     | 1.25        | W    |
| Junction Temperature                  | $T_J$     | 150         | °C   |
| Storage Temperature Range             | $T_{STG}$ | -55 to +150 | °C   |

### Thermal Characteristics

|  |                 |     |      |
|--|-----------------|-----|------|
| Thermal Resistance, Junction-to-Ambient <sup>Note2</sup> | $R_{\theta JA}$ | 100 | °C/W |
|--|-----------------|-----|------|



### Electrical Characteristics

(Ta=25°C unless otherwise specified)

| Parameter                                   | Symbol        | Test Condition  | Min. | Typ. | Max.      | Unit       |
|---|---------------|---|------|------|-----------|------------|
| <b>Static Characteristics</b>               |               |   |      |      |           |            |
| Drain-Source Breakdown Voltage              | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=250\mu A$                             | 20   | --   | --        | V          |
| Zero Gate Voltage Drain Current             | $I_{DSS}$     | $V_{DS}=20V, V_{GS}=0V$                               | --   | --   | 1         | $\mu A$    |
| Gate-Body Leakage Current                   | $I_{GSS}$     | $V_{GS}=\pm 12V, V_{DS}=0V$                           | --   | --   | $\pm 100$ | nA         |
| Gate Threshold Voltage <sup>Note3</sup>     | $V_{GS(th)}$  | $V_{DS}=V_{GS}, I_D=250\mu A$                         | 0.5  | 0.7  | 1.2       | V          |
| Drain-Source On-Resistance <sup>Note3</sup> | $R_{DS(on)}$  | $V_{GS}=4.5V, I_D=5A$                                 | --   | 20   | 25        | m $\Omega$ |
|   |               | $V_{GS}=2.5V, I_D=4A$                                 | --   | 25   | 32        | m $\Omega$ |
| Forward Transconductance <sup>Note3</sup>   | $g_{FS}$      | $V_{DS}=5V, I_D=5A$                                   | --   | 10   | --        | S          |
| <b>Dynamic Characteristics</b>              |               |   |      |      |           |            |
| Input Capacitance                           | $C_{iss}$     | $V_{DS}=10V, V_{GS}=0V, f=1MHz$                       | --   | 550  | --        | pF         |
| Output Capacitance                          | $C_{oss}$     |   | --   | 125  | --        | pF         |
| Reverse Transfer Capacitance                | $C_{rss}$     |   | --   | 64   | --        | pF         |
| <b>Switching Characteristics</b>            |               |   |      |      |           |            |
| Turn-on Delay Time                          | $t_{d(on)}$   | $V_{DD}=10V, I_D=5A$<br>$V_{GS}=4V, R_{GEN}=10\Omega$ | --   | 9    | --        | nS         |
| Turn-on Rise Time                           | $t_r$         |   | --   | 10   | --        | nS         |
| Turn-off Delay Time                         | $t_{d(off)}$  |   | --   | 32   | --        | nS         |
| Turn-off Fall Time                          | $t_f$         |   | --   | 24   | --        | nS         |
| Total Gate Charge                           | $Q_g$         | $V_{DS}=10V, I_D=5A, V_{GS}=4.5V$                     | --   | 9.5  | --        | nC         |
| Gate-Source Charge                          | $Q_{gs}$      |   | --   | 2.1  | --        | nC         |
| Gate-Drain Charge                           | $Q_{gd}$      |   | --   | 1.4  | --        | nC         |
| <b>Source-Drain Diode Characteristics</b>   |               |   |      |      |           |            |
| Diode Forward Voltage <sup>Note3</sup>      | $V_{SD}$      | $V_{GS}=0V, I_S=5A$                                   | --   | 0.8  | 1.2       | V          |
| Diode Forward Current <sup>Note2</sup>      | $I_S$         |   | --   | --   | 5         | A          |

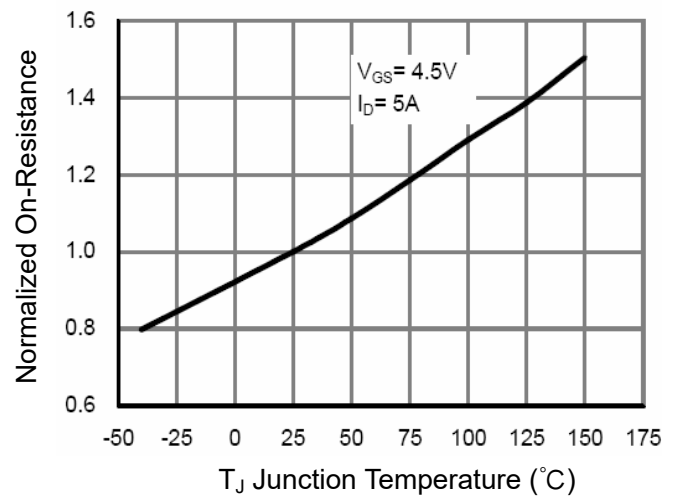
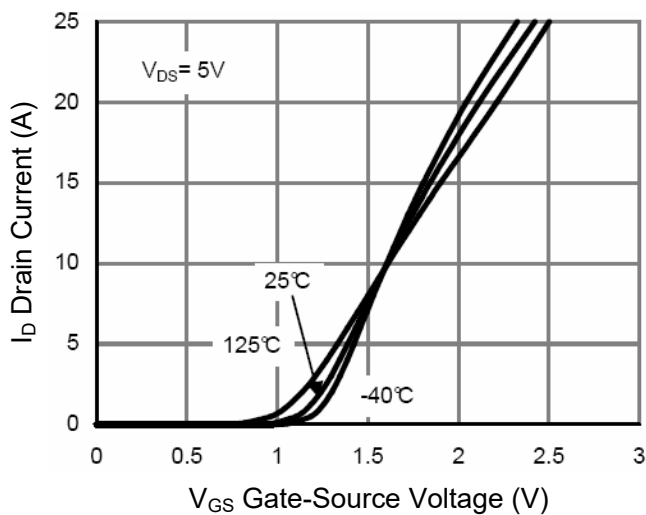
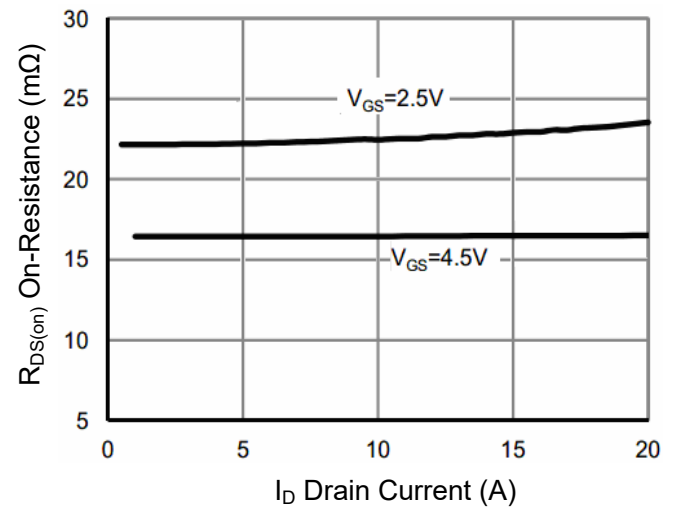
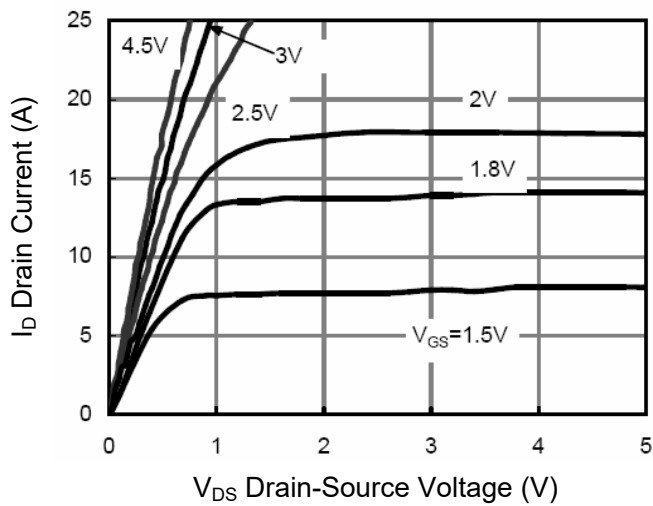
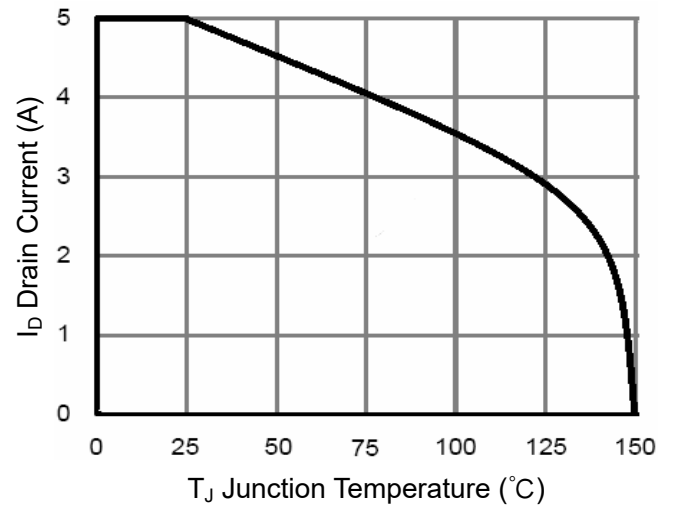
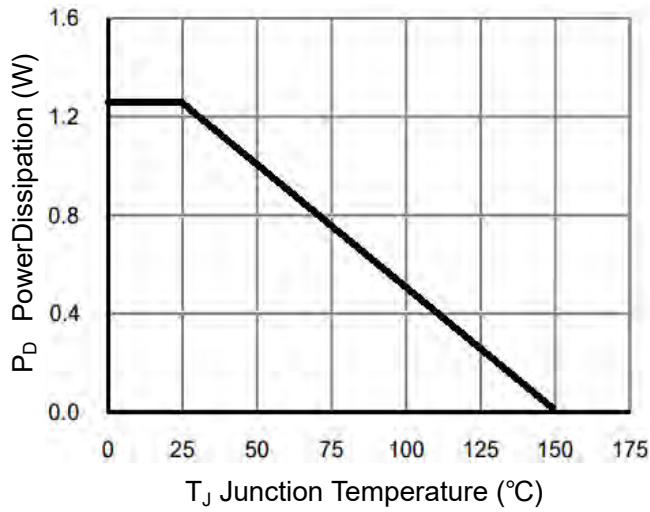
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board,  $t \leq 10$  sec.

3. Pulse Test: Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .



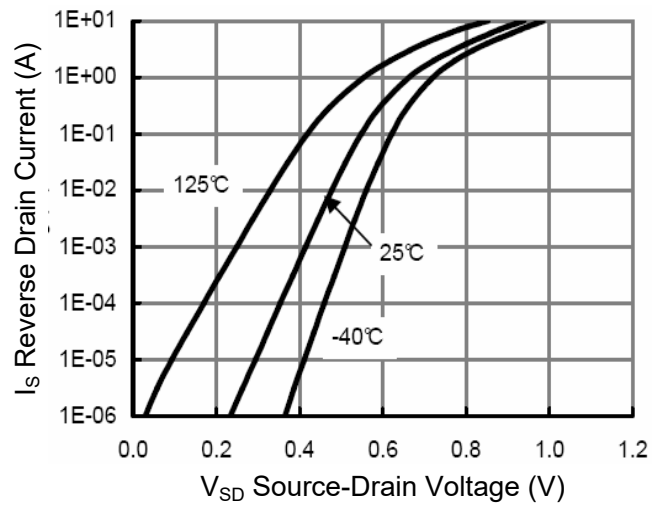
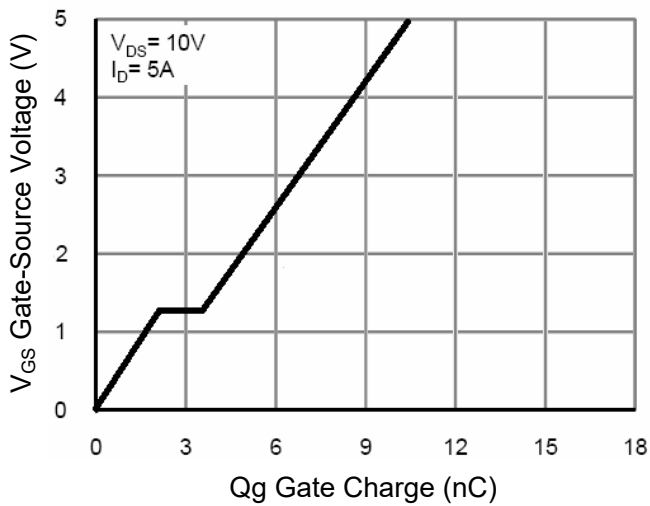
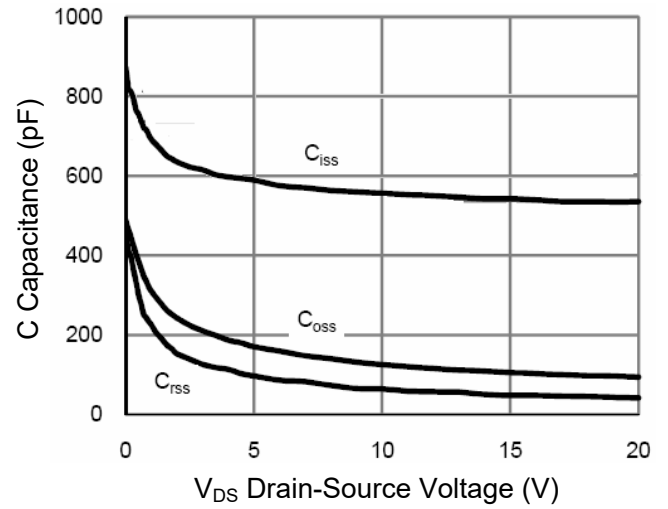
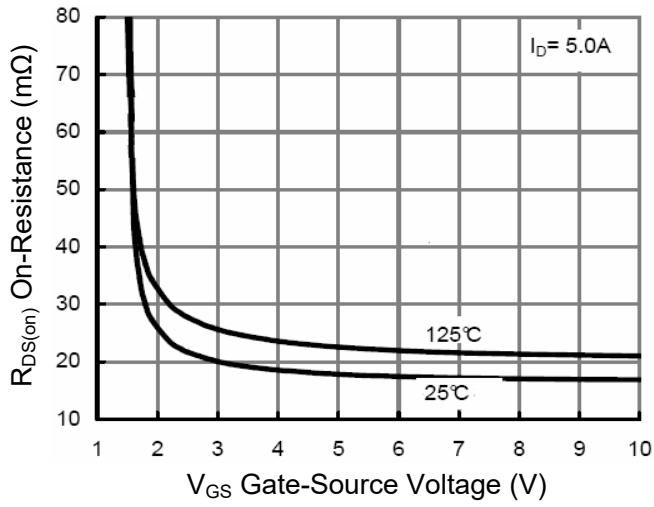
### Typical Characteristic Curves





# PJM8205DNSG

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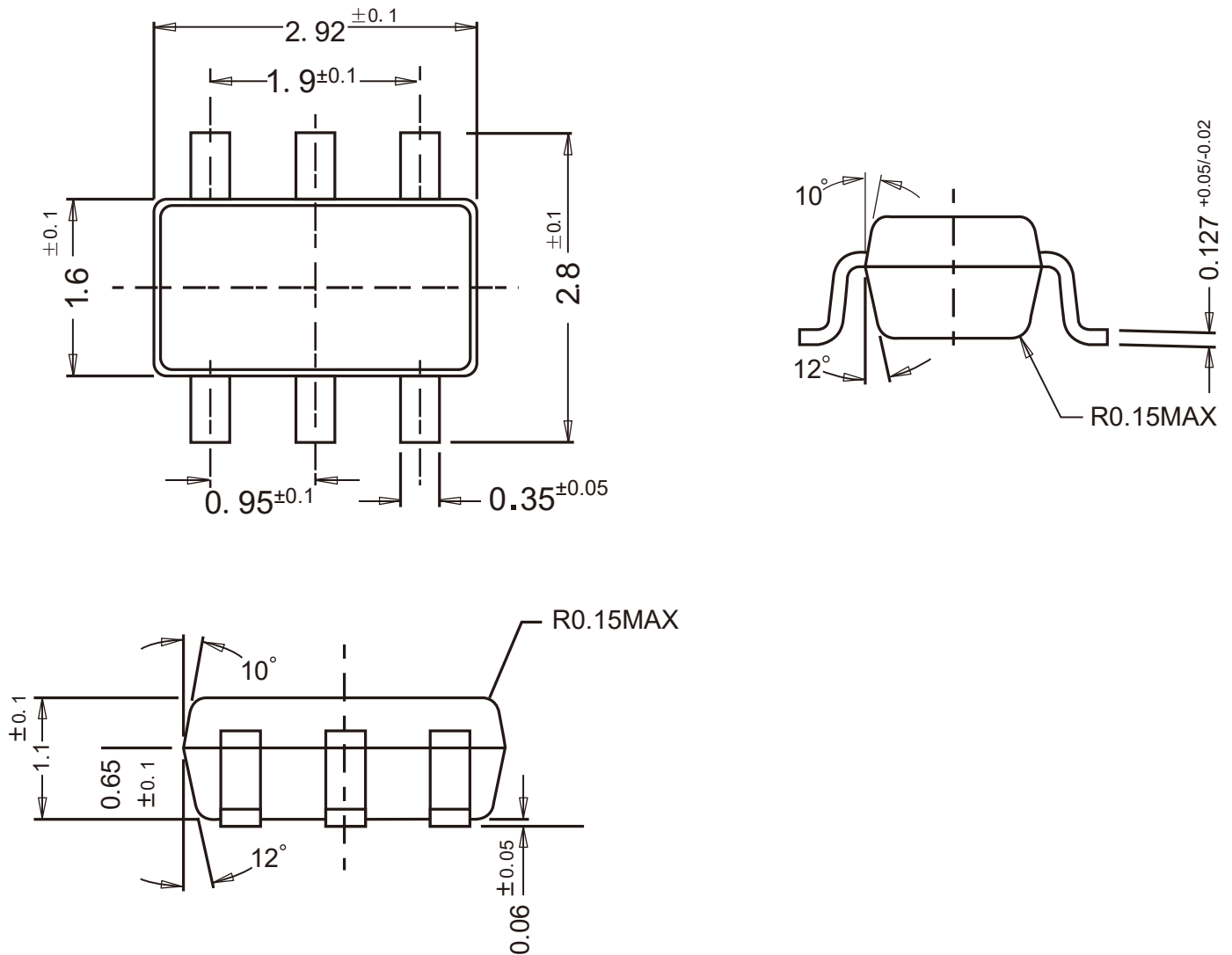
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### Package Outline

SOT-23-6

Dimensions in mm



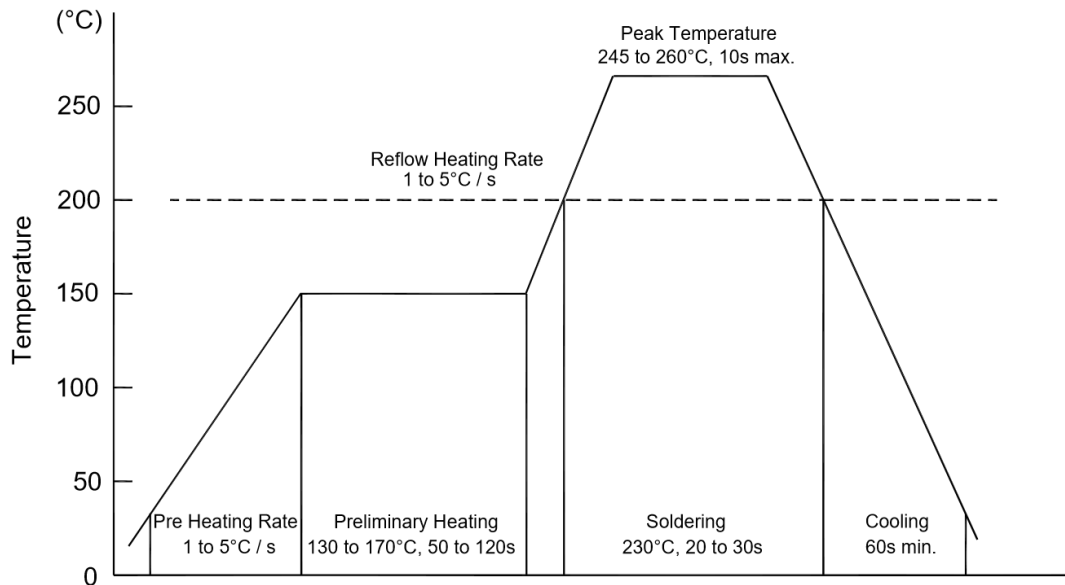
### Ordering Information

| Device      | Package  | Shipping              |
|-------------|----------|-----------------------|
| PJM8205DNSG | SOT-23-6 | 3,000PCS/Reel&7inches |



### Conditions of Soldering and Storage

#### ◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245 °C. If peak temperature is below 245 °C, you may adjust the following parameters:

- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

#### ◆ Conditions of hand soldering

- Temperature: 370 °C
- Time: 3s max.
- Times: one time

#### ◆ Storage conditions

- **Temperature**  
5 to 40 °C
- **Humidity**  
30 to 80% RH
- **Recommended period**  
One year after manufacturing

