



ABSOLUTE MAXIMUM RATINGS

BIPOLAR, C-MOS, GaAs, OPTOELECTRONIC DEVICE

1. Definition of Absolute Maximum Rating

NJRC defines maximum ratings as the values of voltage, current, temperature, power dissipation etc., which should not be exceeded at any time, otherwise deterioration or destruction of the IC may take place. Maximum values and limits published should be taken into consideration at all times when using or "designing in" NJRC IC's.

1.1 Maximum Voltage Ratings

Specify the maximum limitation of supply and input voltages. Maximum values and limits published should be taken into consideration at all times when using or "designing in" NJRC IC's.

1.2 Maximum Current Ratings

Specify the maximum limitation of input and output current. Maximum values and limits published should be taken into consideration at all times when using or "designing in" NJRC IC's.

1.3 Maximum Temperature Ratings

Specify the maximum limitation of operating and storage temperature. Maximum values and published should be taken into consideration at all times when using or "designing in" NJRC IC's. The operating temperature range is the ambient temperature range that IC operates just normally.

The electrical characteristics of the ICs specified at 25°C are not guaranteed to apply at the extremes of the operating temperature range.

1.4 Maximum Power Dissipation Rating

Specify the maximum limitation of power dissipation. Maximum values and published should be taken into consideration at all times when using or "designing in" NJRC IC's.

The power dissipation is mentioned following formula.

$$P_D = (T_j - T_a) / \theta_{ja} \quad \text{Where} \quad \begin{array}{ll} P_D & : \text{Power Dissipation (W)} \\ T_j & : \text{Junction Temperature (}^\circ\text{C)} \\ T_a & : \text{Ambient Temperature (}^\circ\text{C)} \\ \theta_{ja} & : \text{Thermal Resistance (}^\circ\text{C/W)} \end{array}$$

As T_j is normally constant, the maximum power dissipation at a particular ambient temperature is determined by the thermal resistance of the package, which is in turn determined by its dimensions and materials used in its manufacture. As a rule the smaller the package, the lower its maximum power dissipation.

Note: Exceeding any of the maximum ratings, even briefly lead to deterioration in IC performance or even destruction.

STEPPER MOTOR CONTROLLER/DRIVER

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Where

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T_j	:	Junction Temperature	(°C)
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θ_{ja}	:	Thermal Resistance	(°C/W)

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