

3.3- Modeling the Diode Forward Characteristic

A. Exact Solutions

HO: Transcendental Solutions of Junction Diode Circuits

B. Approximate Solutions

HO: The Ideal Diode Model

HO: The Constant Voltage Drop Model

HO: The Piecewise Linear Model

HO: Constructing the PWL Model

Example: Constructing a PWL Model

Example: Junction Diode Models

Example: Another Junction Diode Model Example

C. Small-Signal Analysis

HO: DC and Small-Signal Components

$$\text{e.g., } v_D(t) = 0.7V \quad \therefore V_D = 0.7 \text{ and } v_d(t) = 0.0$$

HO: Small-Signal Circuit Analysis

HO: Steps for Small-Signal Circuit Analysis

Example: Junction Diode Small-Signal Analysis