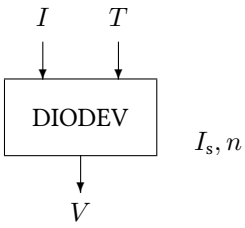
Block DIODEV

The DIODEV block calculates the voltage of a diode as a function of current and temperature.





Name	DIODEV
Function	se0021
Inputs	2
Outputs	1
Parameters	2
Strings	0
Group	S

Inputs

1	Current I / A
2	Temperature T / °C

Outputs

1	Voltage V / V

Parameters

1	Saturation current I_s / A
2	Emission coefficient n

Strings

None

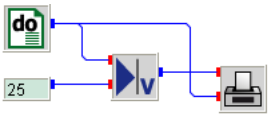
Description

The diode voltage is given by

$$V = \frac{nkT}{q} \ln\left(1 + \frac{I}{I_s}\right)$$

where k is the Boltzmann constant and q the elementary charge.

diodev.vseit



A DO block varies current from 0.01 to 10 A in steps of 0.01 A. A CONST block is used to set the diode temperature to 25 °C. For a diode saturation current of 10^{-12} A and an emission coefficient of 1 the PLOT block displays the diode's voltage-current characteristic.

