

Heatsink mounted MMIC: 1-port thermal element with a single averaged surface heating element

thermalmmic

Form:

thermalmmic:<instance name> n_1 n_2 (parameter list)

n_1 and n_2 are the element nodes.

Parameters:

Parameter	Type	Default value	Required?
ntimesteps: Number of time steps in transient simulation	INTEGER	0	no
dt: Length of timestep (s)	DOUBLE	0	no
tambient: Constant heatsink mount temperature (K)	DOUBLE	300	no
time_d: Flag, if true, calculate in the time domain.	BOOLEAN	false	no
l: Die x-dimension in meters	DOUBLE	0.0004	no
w: Die y-dimension in meters	DOUBLE	0.0004	no
d: Die z-dimension in meters	DOUBLE	0.0004	no
xl: x-coordinate of left edge of heating element	DOUBLE	0.00022	no
xr: x-coordinate of right edge of heating element	DOUBLE	0.00018	no
yu: y-coordinate of upper edge of heating element	DOUBLE	0.00022	no
yd: y-coordinate of lower edge of heating element	DOUBLE	0.00018	no
ks: Thermal conductivity (W/m.K)	DOUBLE	46	no
rho: Density (kg.m-3)	DOUBLE	5320	no
c: Specific heat (J/kg.K)	DOUBLE	350	no
nfingers: Number of power transistor fingers	INTEGER	1	no
b: Exponent in power law temperature dependence of thermal conductivity	DOUBLE	1.22	no

Example:

```
thermalmmic: test2 1000 1001 ntimesteps=nsteps dt=deltat tambient=temp time_d=1
l = 0.05 w = 0.05 d = 0.0016 xl = 0.04 xr = 0.01 yu = 0.04 yd = 0.01 ks = 0.294
rho = 1900 c = 1150 nfingers = 5
```

Notes:

There is no equivalent SPICE element.

Version:

2000.09.01

Credits:

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Links


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