

Heatsink mounted MMIC: Test of time-step decoupling with transformation. thermaltransf

Form:

`thermaltransf:(instance name) n1 n2 <parameter list>`

n₁ and *n₂* are the element nodes.

Parameters:

Parameter	Type	Default value	Required?
ntimesteps: Number of time steps in transient simulation	INTEGER	0	no
dt: Length of thermal 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:

```
thermaltransf: test1 1 10 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:

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Credits:

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