

R-C Thermal Model Parameters

DESCRIPTION

The parametric values in the R-C thermal model have been derived using curve-fitting techniques. R-C values for the electrical circuit in the Foster/tank and Cauer/filter configurations are included. When implemented in PSpice, these values have matching characteristic curves to the single-pulse transient thermal impedance curves for the MOSFET.

These RC values can be used in the PSpice simulation to evaluate the thermal behavior of the MOSFET junction temperature under a defined power profile. These techniques are described in application note AN609, "Thermal Simulation of Power MOSFETs on the PSpice Platform".

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	2.0964	18.1043u	n/a
RT2	9.0489	711.4848m	n/a
RT3	8.0177	1.3099	n/a
RT4	50.6167	1.1888	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	24.2346m	81.2329u	n/a
CT2	558.4598m	674.3100u	n/a
CT3	70.7118m	14.2244m	n/a
CT4	1.4427	6.7181m	n/a

Note

- n/a indicates not applicable

This document is intended as a SPICE modeling guideline and does not constitute a commercial product datasheet. Designers should refer to the appropriate datasheet of the same number for guaranteed specification limits.



R-C THERMAL MODEL FOR FILTER CONFIGURATION



R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RF1	6.2277	64.6207m	n/a
RF2	7.9322	842.6365m	n/a
RF3	7.6428	1.2521	n/a
RF4	47.9015	1.0208	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	16.9227m	211.8576u	n/a
CF2	156.4462m	396.2589u	n/a
CF3	2.8690m	4.9103m	n/a
CF4	1.2888	306.6355u	n/a

Note

- n/a indicates not applicable

