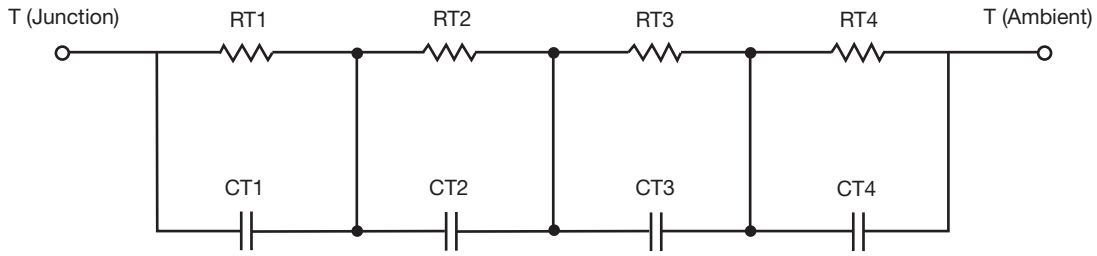
R-C Thermal Model Parameters

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



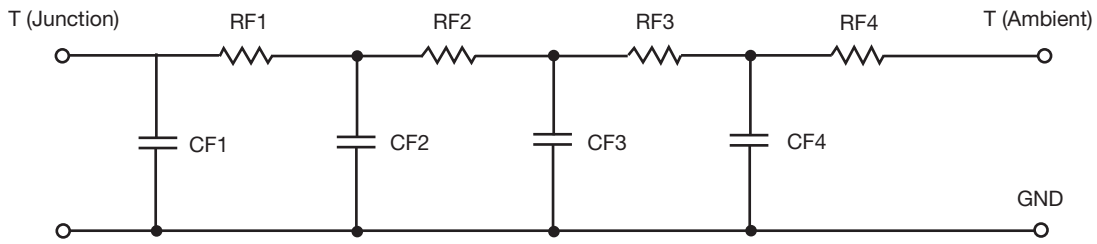
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	11.0312	291.4437m	n/a
RT2	5.5658	1.2286	n/a
RT3	51.5413	945.1563m	n/a
RT4	12.8617	1.3348	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	25.9898m	685.6087u	n/a
CT2	4.0428m	13.1580m	n/a
CT3	1.3655	1.5444m	n/a
CT4	142.7220m	12.0585m	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	5.6733	1.2543	n/a
RF2	19.5315	161.4187m	n/a
RF3	26.8464	1.2964	n/a
RF4	29.0421	1.0905	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.5711m	594.0507u	n/a
CF2	19.3352m	3.6611m	n/a
CF3	674.8142m	655.3712u	n/a
CF4	1.9254	4.2673m	n/a

Note

- n/a indicates not applicable