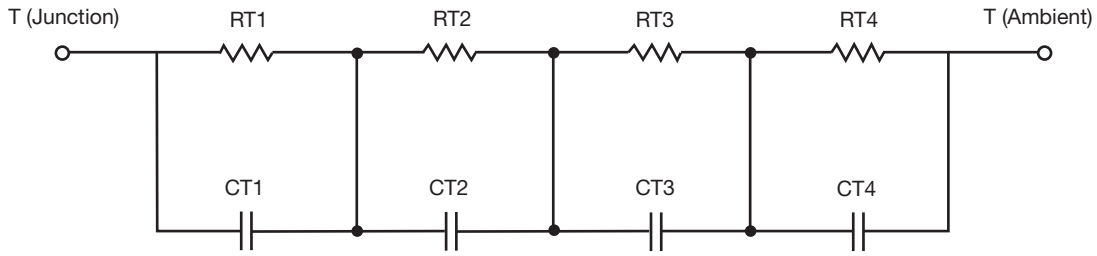
R-C Thermal Model Parameters

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



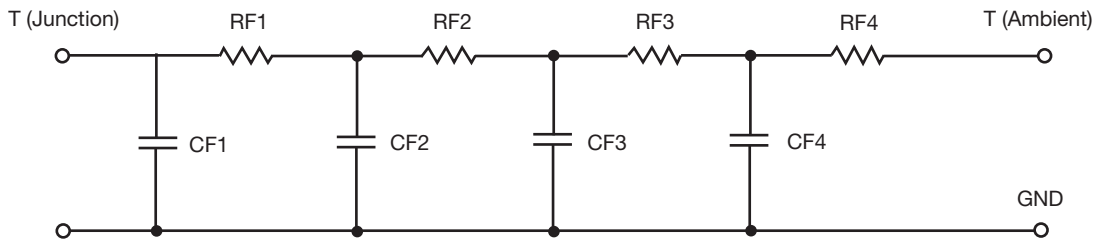
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	8.1310	345.8685m	n/a
RT2	28.9822	705.1618m	n/a
RT3	2.1280	836.1737m	n/a
RT4	10.7588	412.7960m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	84.4225m	1.5678m	n/a
CT2	2.5694	3.7956m	n/a
CT3	5.2106m	34.9754m	n/a
CT4	2.4929	1.5405	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	2.1385	926.5945m	n/a
RF2	7.9241	491.7408m	n/a
RF3	12.9090	433.4583m	n/a
RF4	27.0284	448.2064m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	4.3196m	1.2511m	n/a
CF2	63.1382m	18.6796m	n/a
CF3	761.7212m	1.0119m	n/a
CF4	1.4035	1.1673	n/a

Note

- n/a indicates not applicable