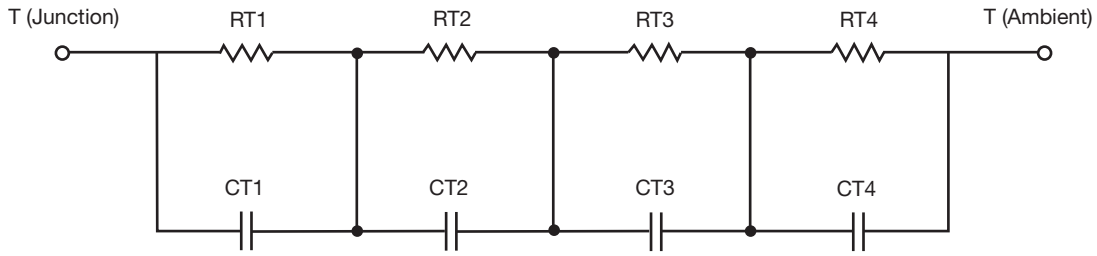
R-C Thermal Model Parameters

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



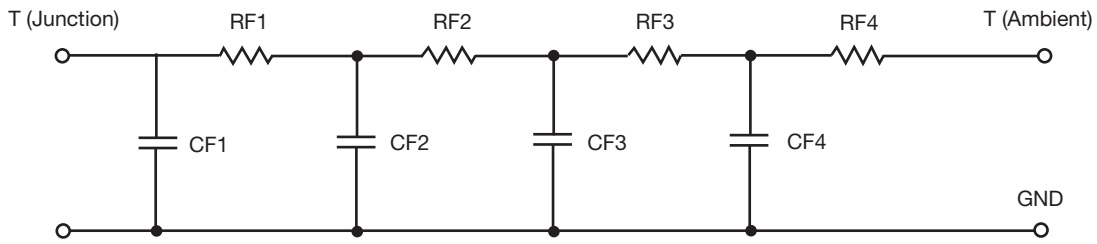
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	55.8725	991.8113m	n/a
RT2	13.5012	735.5294m	n/a
RT3	11.6723	889.2584m	n/a
RT4	3.7254	473.4028m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.3669	14.4249m	n/a
CT2	249.3409m	13.8797m	n/a
CT3	19.4187m	12.3773m	n/a
CT4	4.8129m	1.3755m	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	4.7887	803.6986m	n/a
RF2	12.6781	778.5210m	n/a
RF3	17.3628	787.6008m	n/a
RF4	50.3130	720.2784m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.8671m	1.1114m	n/a
CF2	15.6050m	3.1429m	n/a
CF3	223.8809m	1.7505m	n/a
CF4	1.2725	434.2891u	n/a

Note

- n/a indicates not applicable