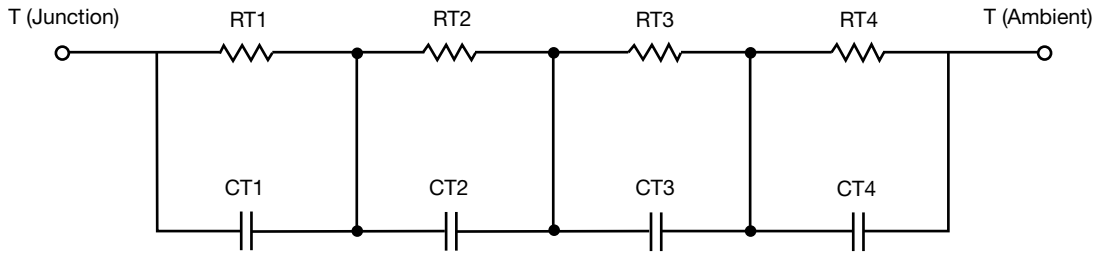
R-C Thermal Model Parameters

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



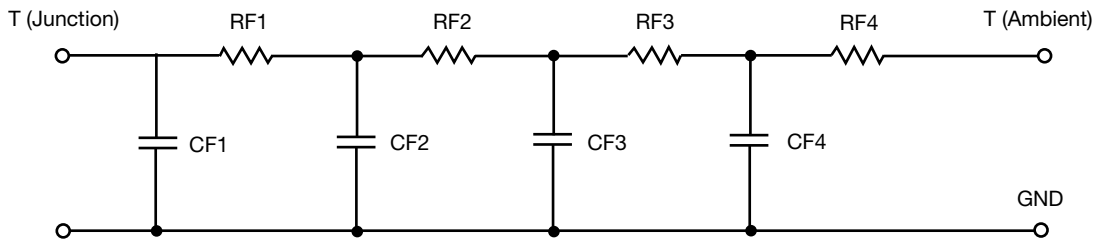
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	4.4411	68.8379m	n/a
RT2	11.1420	536.8679m	n/a
RT3	29.1009	429.0299m	n/a
RT4	20.3160	465.2643m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	31.6254m	173.8056u	n/a
CT2	158.3094m	30.1872m	n/a
CT3	3.1307	11.0860m	n/a
CT4	1.8823	33.6278m	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	4.3744	76.2825m	n/a
RF2	12.2096	822.7374m	n/a
RF3	28.7971	459.1820m	n/a
RF4	19.6189	141.7981m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	15.7494m	418.5886u	n/a
CF2	104.2619m	5.7449m	n/a
CF3	834.3949m	13.0723m	n/a
CF4	2.3536	15.2555m	n/a

Note

- n/a indicates not applicable