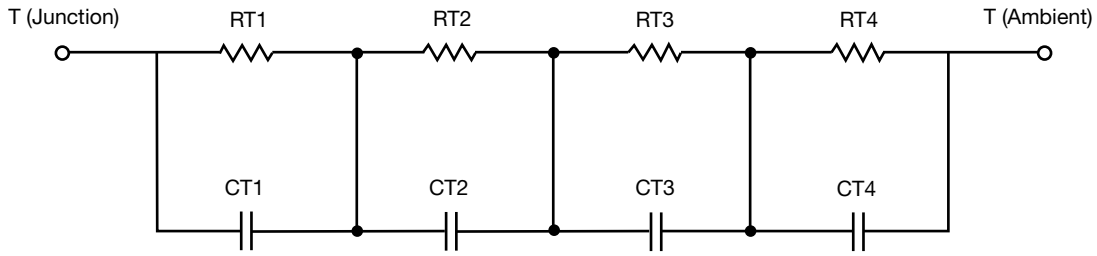
R-C Thermal Model Parameters

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



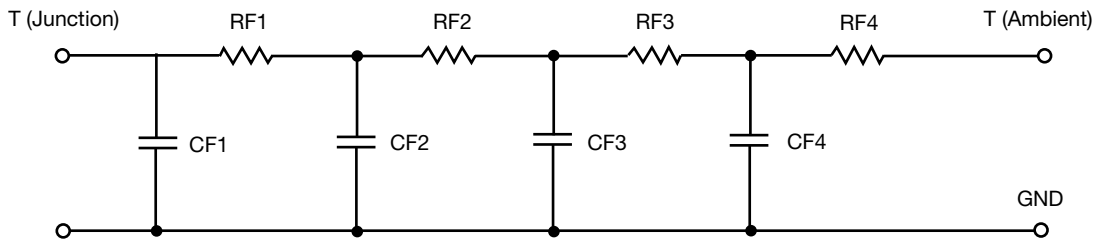
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	35.8641	392.9682m	n/a
RT2	1.4017	232.8697m	n/a
RT3	7.4243	178.0147m	n/a
RT4	5.3099	196.1474m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.0936	171.8180m	n/a
CT2	2.2115m	173.1809m	n/a
CT3	361.3951m	4.0325m	n/a
CT4	38.0918m	141.3151m	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	1.3999	167.5417m	n/a
RF2	7.0589	119.7595m	n/a
RF3	11.6542	498.7338m	n/a
RF4	29.8870	213.9650m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.4363m	3.8315m	n/a
CF2	31.5664m	13.3796m	n/a
CF3	278.1382m	54.9737m	n/a
CF4	976.7674m	152.4910u	n/a

Note

- n/a indicates not applicable