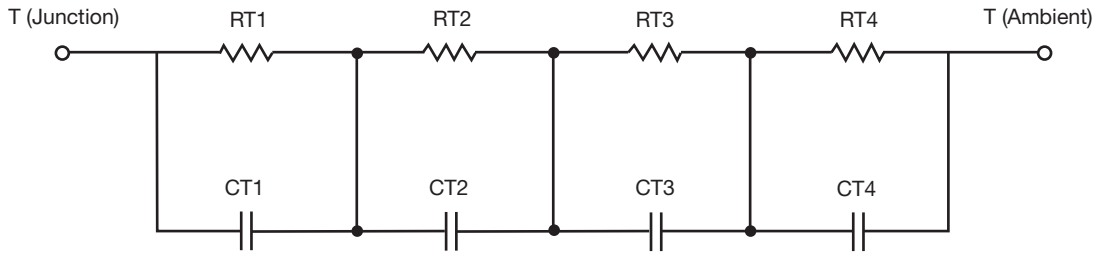
R-C Thermal Model Parameters

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



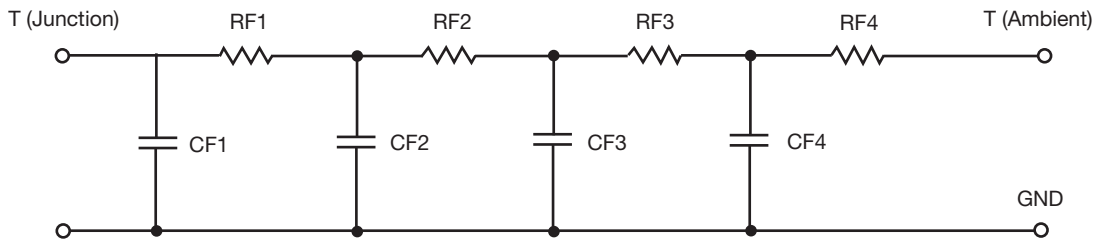
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	17.2838	410.5249m	n/a
RT2	8.6828	1.1426	n/a
RT3	2.8731	109.0687m	n/a
RT4	39.1603	537.8064m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	610.1773m	7.9107m	n/a
CT2	76.1806m	35.9300m	n/a
CT3	11.3596m	1.4429m	n/a
CT4	2.8868	87.7961m	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	3.6356	166.1535m	n/a
RF2	9.8590	622.8015m	n/a
RF3	24.8316	846.7807m	n/a
RF4	29.6738	564.0026m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	10.3808m	1.2536m	n/a
CF2	50.5146m	5.4891m	n/a
CF3	466.8606m	21.6672m	n/a
CF4	3.4322	272.6868u	n/a

Note

- n/a indicates not applicable