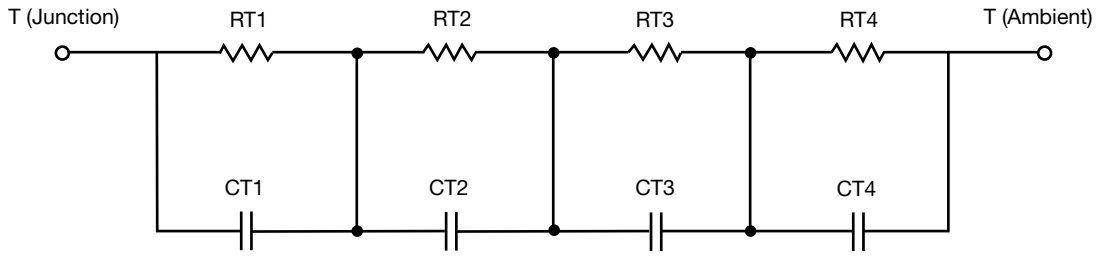
R-C Thermal Model Parameters

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



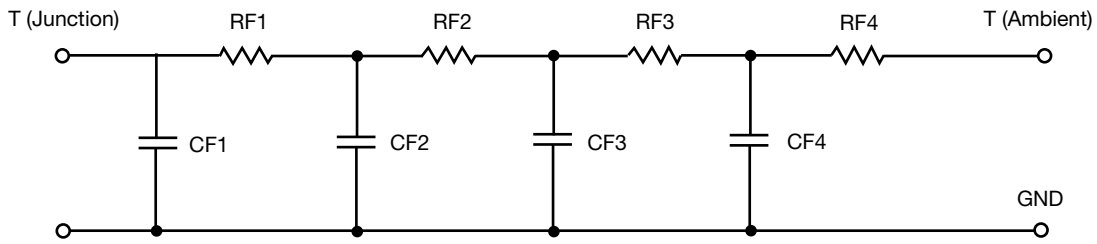
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.3070	51.7216m	n/a
RT2	374.3529m	21.2757m	n/a
RT3	689.3029m	170.2194m	n/a
RT4	36.4069	158.2044m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.2928	240.6420m	n/a
CT2	112.0617m	747.6786m	n/a
CT3	71.2929m	19.0924m	n/a
CT4	2.5309	3.7784m	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	884.7234m	224.3007m	n/a
RF2	6.5762	127.9877m	n/a
RF3	23.1425	42.7598m	n/a
RF4	9.4830	5.7859m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	24.3391m	3.0963m	n/a
CF2	882.6174m	17.6533m	n/a
CF3	1.7594	265.6211m	n/a
CF4	2.6137	41.0148m	n/a

Note

- n/a indicates not applicable