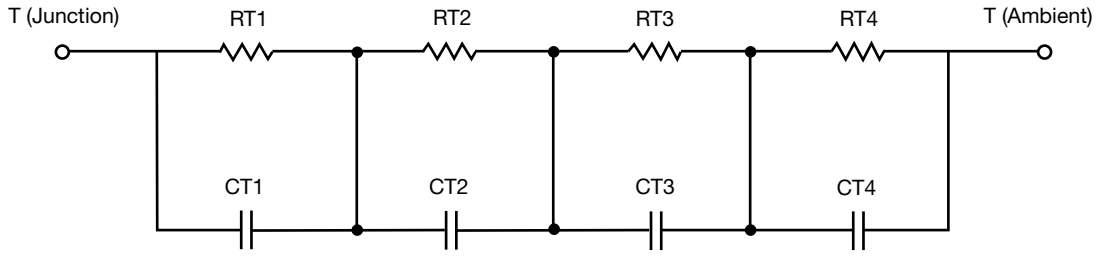
R-C Thermal Model Parameters

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 P-SPICE, 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 P-SPICE 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 P-SPICE Platform”.

R-C THERMAL MODEL FOR TANK CONFIGURATION



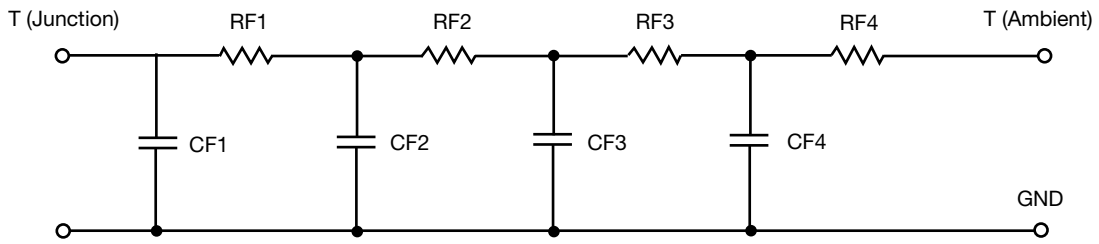
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	4.7220	440.2182m	N/A
RT2	17.2480	1.2349	N/A
RT3	11.1663	718.5933m	N/A
RT4	47.6882	9.5255m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	4.7931m	880.8687u	N/A
CT2	33.9797m	13.7411m	N/A
CT3	2.2843	8.3382m	N/A
CT4	1.6357	2.0930	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	6.4823	768.0125m	N/A
RF2	16.1115	1.0417	N/A
RF3	24.0740	268.9585m	N/A
RF4	34.0329	323.4917m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	4.7322m	975.9905u	N/A
CF2	29.8153m	6.2453m	N/A
CF3	764.1373m	2.6403m	N/A
CF4	977.0169m	17.1898m	N/A

Note

- n/a indicates not applicable