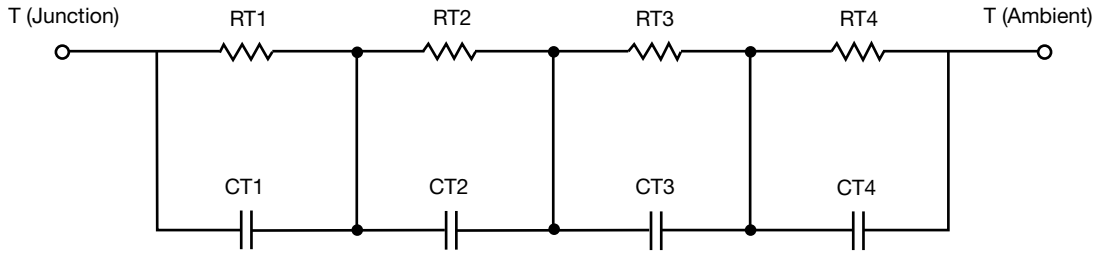
R-C Thermal Model Parameters

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



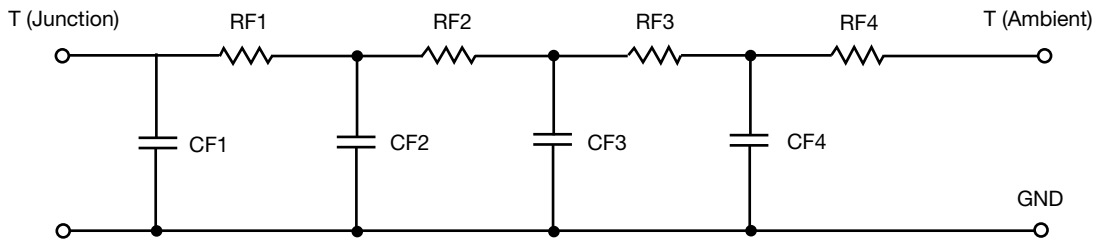
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	1.1094	110.7687m	N/A
RT2	55.2849	1.1026	N/A
RT3	13.0620	566.1737m	N/A
RT4	11.1923	771.8418m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.2703m	3.3972	N/A
CT2	1.2728	10.5769m	N/A
CT3	12.5076m	888.5114u	N/A
CT4	210.6263m	16.7575m	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	3.0322	820.9280m	N/A
RF2	16.6054	1.5562	N/A
RF3	16.8404	126.6812m	N/A
RF4	44.2545	25.4147m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.2331m	889.5526u	N/A
CF2	17.0265m	6.6703m	N/A
CF3	451.5908m	255.3840m	N/A
CF4	1.0968	19.1071	N/A

Note

- n/a indicates not applicable