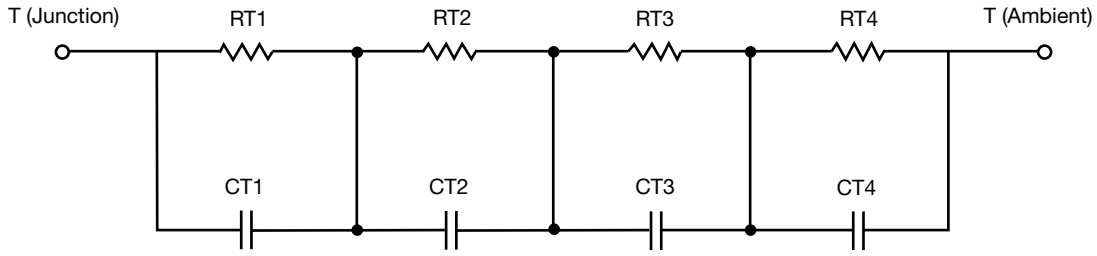
R-C Thermal Model Parameters

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



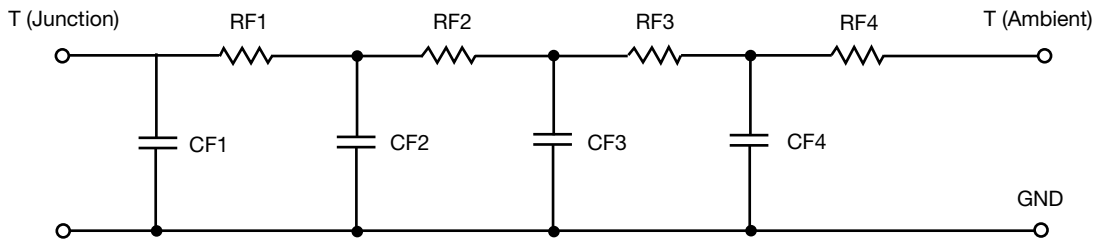
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	8.0109	629.6287m	N/A
RT2	24.6796	4.6907	N/A
RT3	19.7496	3.6922	N/A
RT4	35.9320	1.9545	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	211.7681u	4.1946m	N/A
CT2	6.4049m	847.8820u	N/A
CT3	118.7870m	145.6307u	N/A
CT4	2.0563	4.3021m	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	10.0396	5.5756	N/A
RF2	29.7192	2.0548	N/A
RF3	19.5609	2.2525	N/A
RF4	29.4547	1.0952	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	275.0931u	122.2676u	N/A
CF2	7.7462m	439.0882u	N/A
CF3	255.4690m	1.0736m	N/A
CF4	2.6200	499.5983u	N/A

Note

- n/a indicates not applicable