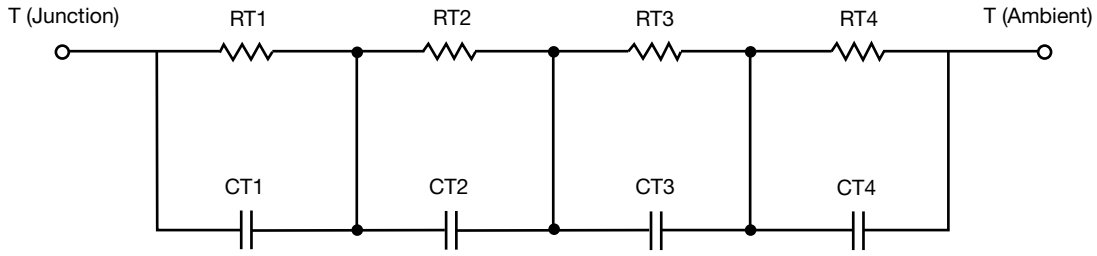
R-C Thermal Model Parameters

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



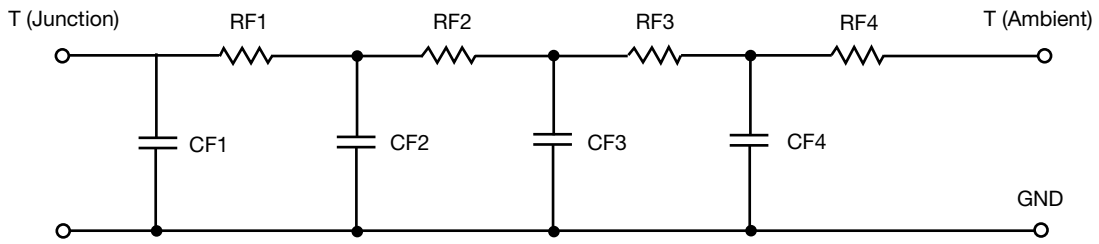
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.1022	558.0193m	N/A
RT2	10.1820	1.1376	N/A
RT3	11.8086	407.5246m	N/A
RT4	56.4179	300.1915m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	956.5170u	1.2074m	N/A
CT2	20.8563m	8.8701m	N/A
CT3	117.3755m	35.5726m	N/A
CT4	1.1966	90.5901m	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	1.8227	234.2098m	N/A
RF2	16.7805	819.6705m	N/A
RF3	13.0723	1.1941	N/A
RF4	48.9755	158.1721m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	779.2416u	532.2894u	N/A
CF2	15.4444m	1.2248m	N/A
CF3	321.1980m	9.5144m	N/A
CF4	1.0679	536.7592u	N/A

Note

- n/a indicates not applicable