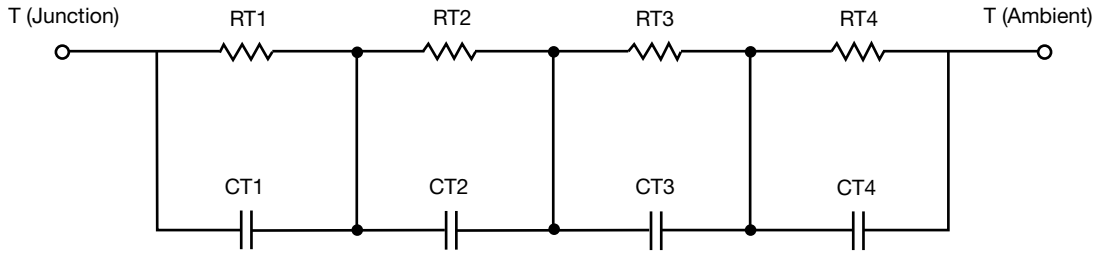
R-C Thermal Model Parameters

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



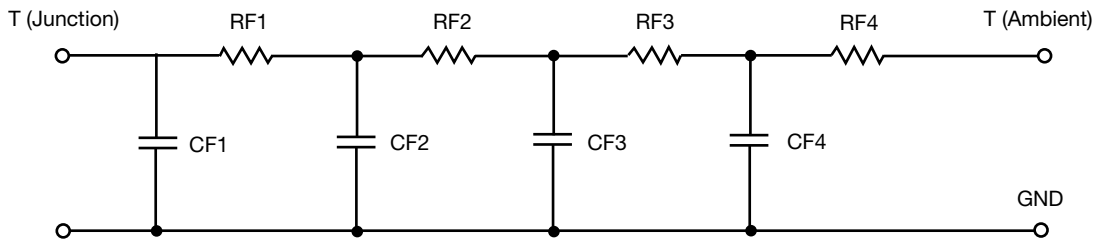
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	6.7496	824.3468m	N/A
RT2	3.6961	410.4117m	N/A
RT3	14.1555	382.8315m	N/A
RT4	55.9169	786.3516m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	417.8881m	18.4426m	N/A
CT2	4.0710m	6.5324m	N/A
CT3	27.1245m	910.5694u	N/A
CT4	1.2232	18.6767m	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	3.5510	234.2087m	N/A
RF2	15.7928	819.6689m	N/A
RF3	14.1854	1.1941	N/A
RF4	47.2233	158.1707m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.7152m	532.2747u	N/A
CF2	17.8838m	1.2248m	N/A
CF3	369.4960m	9.5144m	N/A
CF4	1.0953	536.7580u	N/A

Note

- n/a indicates not applicable