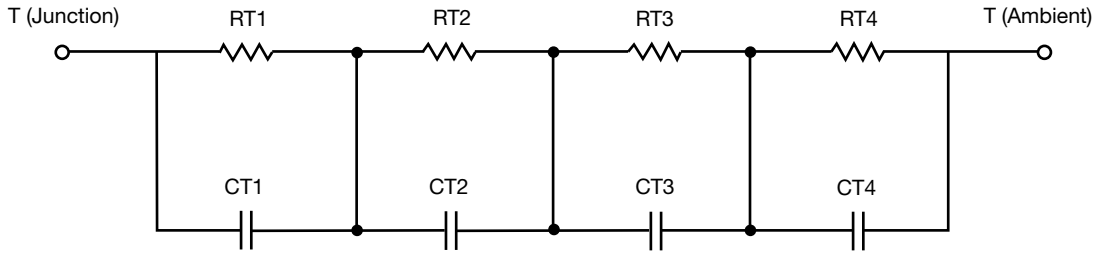
R-C Thermal Model Parameters

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

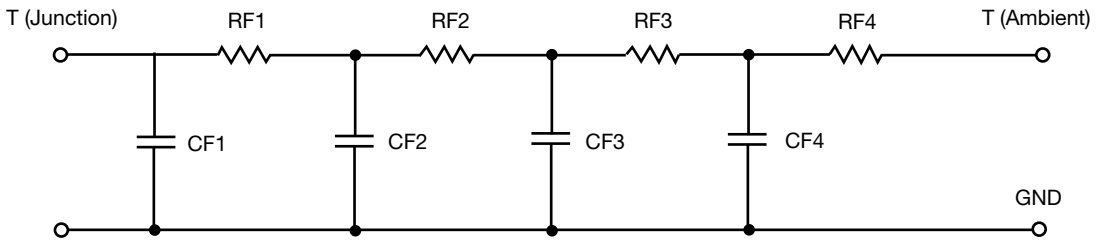


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	9.8199	33.6769m	N/A
RT2	7.6415	626.2238m	N/A
RT3	2.3581	183.8946m	N/A
RT4	30.2255	257.9702m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	2.3872	4.1570m	N/A
CT2	103.1174m	68.3268m	N/A
CT3	8.0352m	6.2663m	N/A
CT4	2.6552	297.1061m	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	6.1285	212.9988m	N/A
RF2	7.6917	328.4693m	N/A
RF3	25.1306	212.9390m	N/A
RF4	11.0063	347.7655m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	24.1002m	2.8039m	N/A
CF2	247.9114m	35.8679m	N/A
CF3	1.2666	38.5107m	N/A
CF4	3.1978	10.6946m	N/A

Note
N/A indicates not applicable