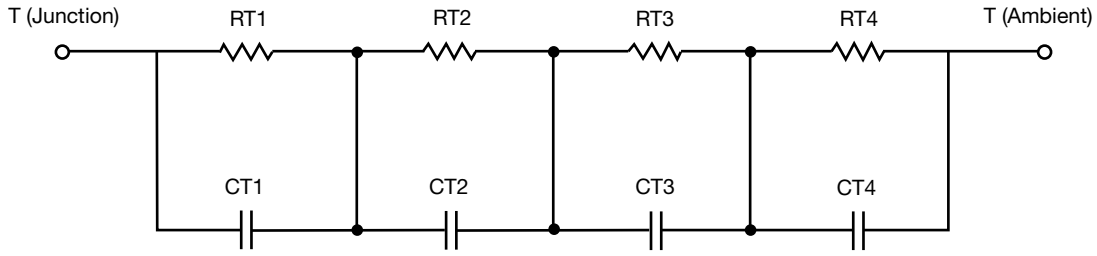
R-C Thermal Model Parameters

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



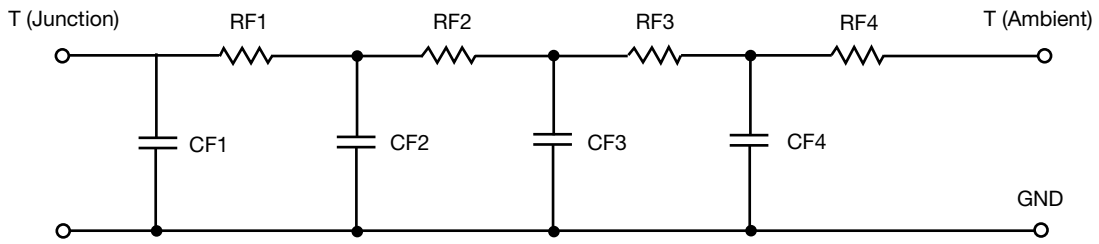
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	13.1174	342.1165m	N/A
RT2	4.8051	1.2661	N/A
RT3	10.4040	512.7769m	N/A
RT4	56.3139	972.7092m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	231.9471m	53.6330m	N/A
CT2	4.0411m	8.2445m	N/A
CT3	25.5895m	1.4931m	N/A
CT4	1.3188	13.6284m	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	4.6947	706.9061m	N/A
RF2	14.9779	1.6173	N/A
RF3	17.0487	754.8991m	N/A
RF4	48.0392	14.0138m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.4283m	953.4192u	N/A
CF2	19.2484m	3.4377m	N/A
CF3	311.0537m	4.9362m	N/A
CF4	1.2225	5.5220u	N/A

Note

- n/a indicates not applicable