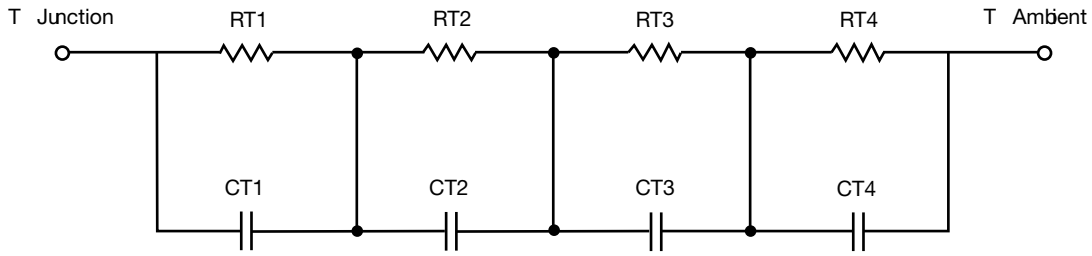
R-C Thermal Model Parameters

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 PSpice, 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 PSpice 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 PSpice Platform”.

R-C THERMAL MODEL FOR TANK CONFIGURATION



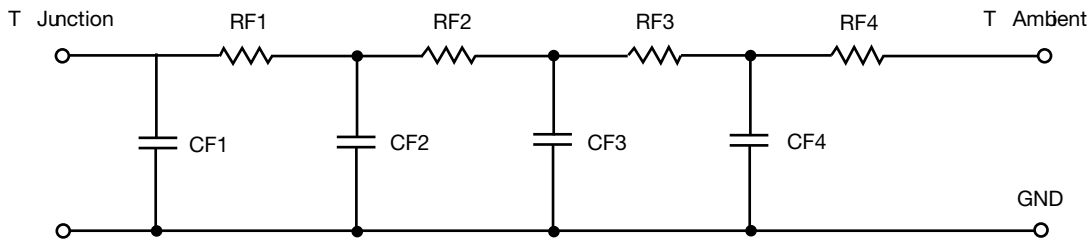
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	15.5976	770.1812m	n/a
RT2	14.1396	544.8752m	n/a
RT3	5.0589	213.8543m	n/a
RT4	35.2039	471.0893m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.7785	17.9039m	n/a
CT2	74.6566m	7.3548m	n/a
CT3	3.9937m	394.1875u	n/a
CT4	2.1824	2.9357m	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	7.1670	261.5783m	n/a
RF2	15.5743	910.5647m	n/a
RF3	21.7173	166.1766m	n/a
RF4	25.5414	661.6804m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	6.4829m	266.0387u	n/a
CF2	82.0330m	1.5379m	n/a
CF3	956.8283m	9.3519m	n/a
CF4	812.3341m	184.3011u	n/a

Note

- n/a indicates not applicable