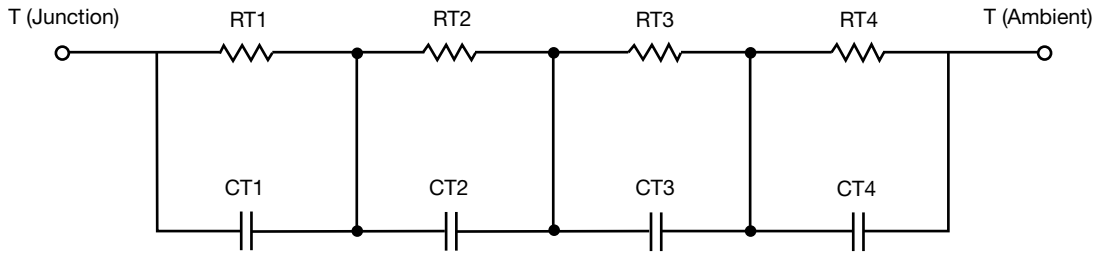
R-C Thermal Model Parameters

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



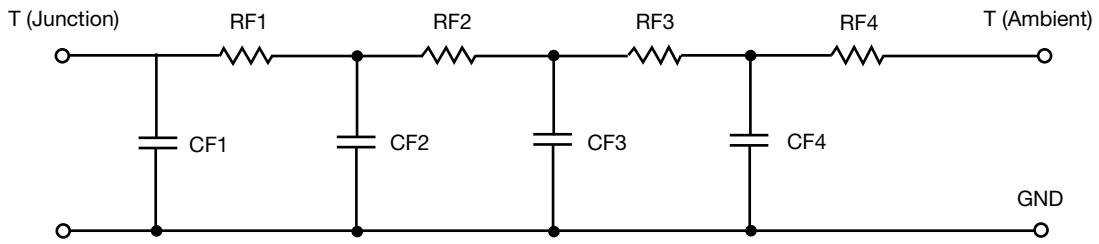
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	45.7249	312.3084m	n/a
RT2	10.1752	548.7609m	n/a
RT3	10.2983	911.7839m	n/a
RT4	3.8016	927.1468m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.4595	1.7050m	n/a
CT2	41.0176m	4.7454m	n/a
CT3	374.3050m	18.2889m	n/a
CT4	1.7206m	18.0321m	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	4.5391	944.7658m	n/a
RF2	12.7430	686.5192m	n/a
RF3	15.0025	551.6728m	n/a
RF4	37.7154	517.0422m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.0215m	1.2483m	n/a
CF2	37.9829m	6.4407m	n/a
CF3	355.9951m	1.2511m	n/a
CF4	1.3749	3.5399m	n/a

Note

- n/a indicates not applicable