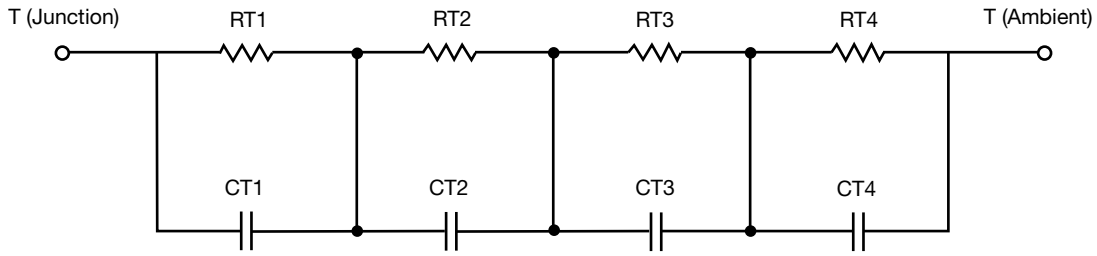
R-C Thermal Model Parameters

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



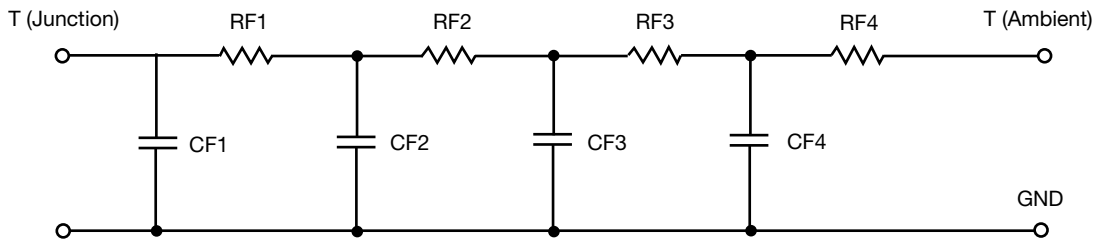
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	n/a	611.4475m	n/a
RT2	n/a	671.9779m	n/a
RT3	n/a	175.7386m	n/a
RT4	n/a	195.5260m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	n/a	2.9359m	n/a
CT2	n/a	74.1775m	n/a
CT3	n/a	3.5173	n/a
CT4	n/a	3.0000m	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	n/a	748.6012m	n/a
RF2	n/a	392.1024m	n/a
RF3	n/a	361.2616m	n/a
RF4	n/a	92.2428m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	n/a	1.5255m	n/a
CF2	n/a	28.3372m	n/a
CF3	n/a	169.3280m	n/a
CF4	n/a	1.6452m	n/a

Note

- n/a indicates not applicable