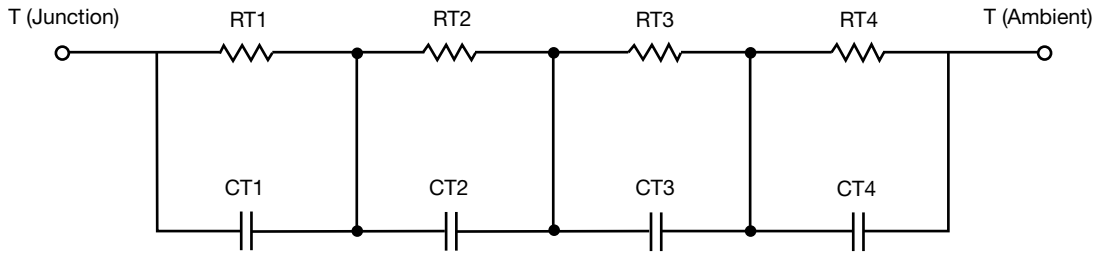
R-C Thermal Model Parameters

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



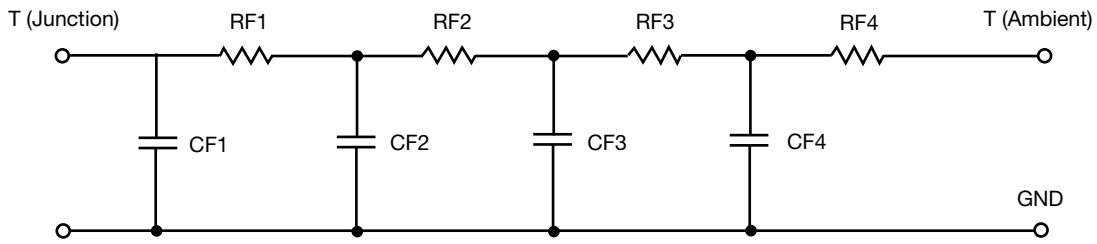
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	1.6824	1.0031	n/a
RT2	44.5059	634.3013m	n/a
RT3	8.7420	63.8415m	n/a
RT4	10.0697	598.7570m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	14.7506m	15.1105m	n/a
CT2	1.5760	27.3916m	n/a
CT3	50.8152m	5.4517u	n/a
CT4	666.6758m	2.5855m	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	4.9092	997.0830m	n/a
RF2	13.4309	551.8574m	n/a
RF3	35.4775	464.5381m	n/a
RF4	11.1824	286.5220m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	10.4321m	1.5701m	n/a
CF2	102.8276m	10.9595m	n/a
CF3	1.0966	656.9902u	n/a
CF4	2.7481	2.4339m	n/a

Note

- n/a indicates not applicable