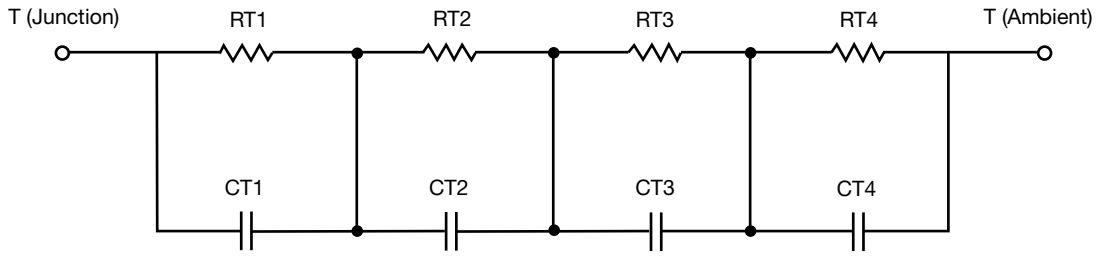
R-C Thermal Model Parameters

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



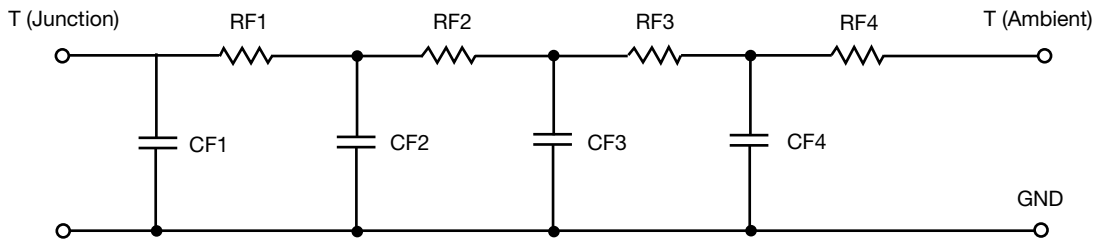
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	20.0863	254.4267m	n/a
RT2	10.8636	604.6526m	n/a
RT3	4.2288	143.0574m	n/a
RT4	29.8213	397.8633m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.1424	234.7655u	n/a
CT2	97.7736m	3.8474m	n/a
CT3	5.1566m	31.9861u	n/a
CT4	4.1905	1.5653m	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	4.4887	168.4176m	n/a
RF2	12.3836	147.7898m	n/a
RF3	30.9686	401.1119m	n/a
RF4	17.1592	682.6807m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	4.6123m	35.6461u	n/a
CF2	78.5369m	76.5565u	n/a
CF3	841.9219m	328.7823u	n/a
CF4	7.2152	2.1138m	n/a

Note

- n/a indicates not applicable