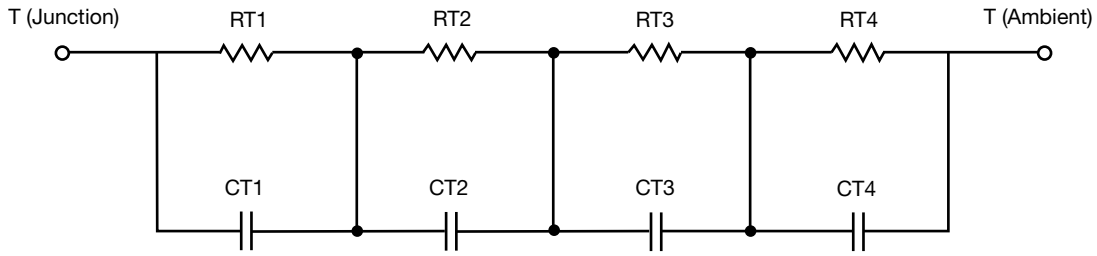
R-C Thermal Model Parameters

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



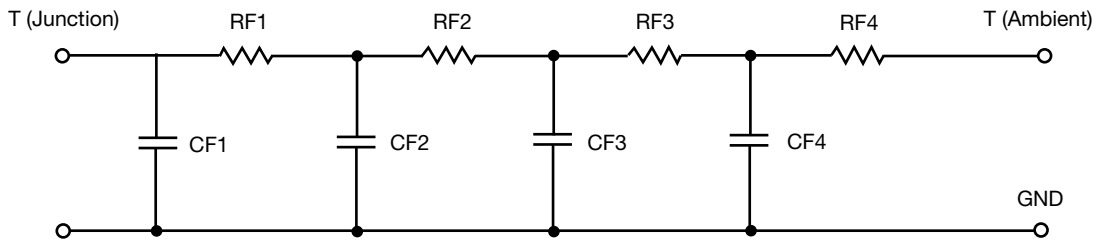
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	1.5087	292.4347m	n/a
RT2	47.4915	127.7896m	n/a
RT3	5.6913	434.4654m	n/a
RT4	15.3085	345.3103m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	4.9342m	5.3346m	n/a
CT2	1.3418	491.9221u	n/a
CT3	11.3763m	31.1053m	n/a
CT4	123.6319m	11.5578m	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	7.7797	160.9168m	n/a
RF2	15.5859	192.4823m	n/a
RF3	26.0256	558.5803m	n/a
RF4	20.6088	288.0206m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	5.2012m	656.2593u	n/a
CF2	97.8571m	1.2737m	n/a
CF3	1.0527	3.1001m	n/a
CF4	749.1231m	42.8499m	n/a

Note

- n/a indicates not applicable