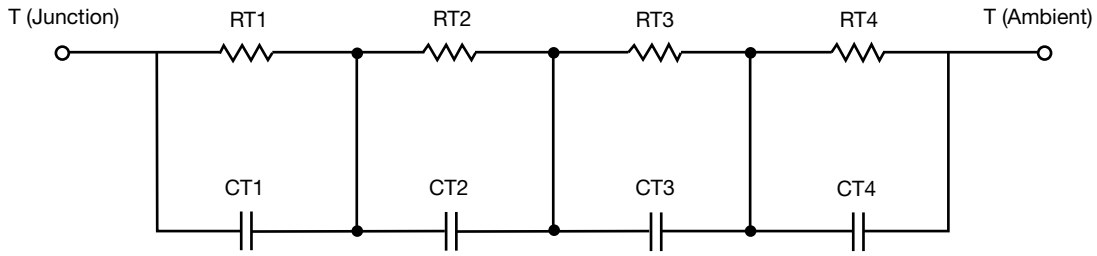
R-C Thermal Model Parameters

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



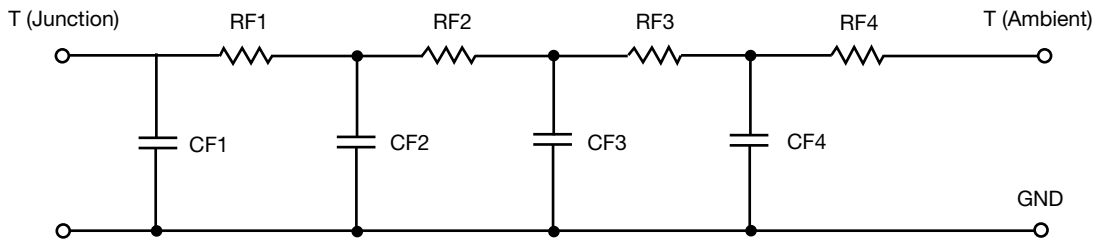
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	1.9592	121.6809m	n/a
RT2	9.4442	945.1222m	n/a
RT3	8.2145	890.9999m	n/a
RT4	50.3821	644.1858m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	6.7255m	361.8261u	n/a
CT2	556.4838m	17.3919m	n/a
CT3	63.2833m	6.1272m	n/a
CT4	1.3602	27.1845m	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	2.3880	122.3791m	n/a
RF2	11.6321	859.8518m	n/a
RF3	17.2997	869.3128m	n/a
RF4	38.6802	748.4563m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	6.3412m	229.4294u	n/a
CF2	57.3932m	3.2816m	n/a
CF3	439.1925m	550.6471u	n/a
CF4	1.2421	14.4676m	n/a

Note

- n/a indicates not applicable