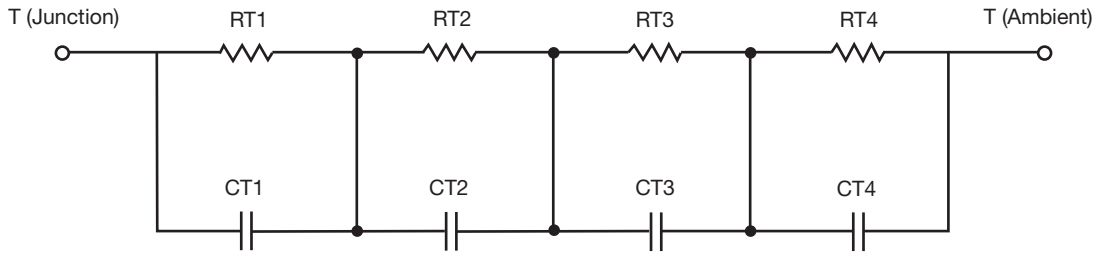
R-C Thermal Model Parameters

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



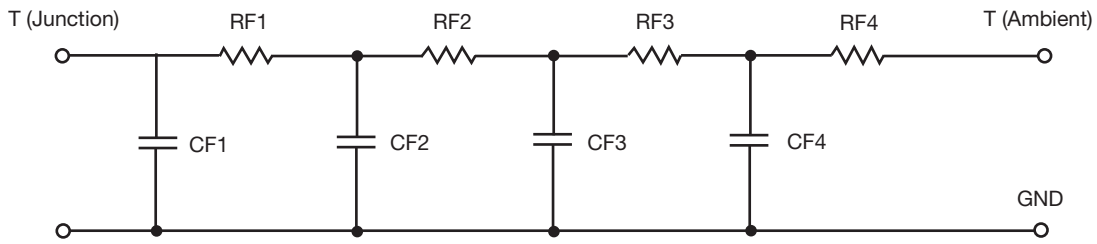
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.6671	460.5762m	n/a
RT2	29.3595	204.7966m	n/a
RT3	6.0060	67.7527m	n/a
RT4	16.9674	366.6859m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	6.2971m	604.1164u	n/a
CT2	3.7933	10.3898m	n/a
CT3	149.9277m	70.8215u	n/a
CT4	1.1072	2.0716m	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	2.6279	421.5611m	n/a
RF2	7.9638	477.6258m	n/a
RF3	26.9983	150.8254m	n/a
RF4	17.4100	47.6159m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	5.4441m	221.9687u	n/a
CF2	108.4108m	753.6753u	n/a
CF3	810.9346m	4.0060m	n/a
CF4	5.7997	573.6904u	n/a

Note

- n/a indicates not applicable