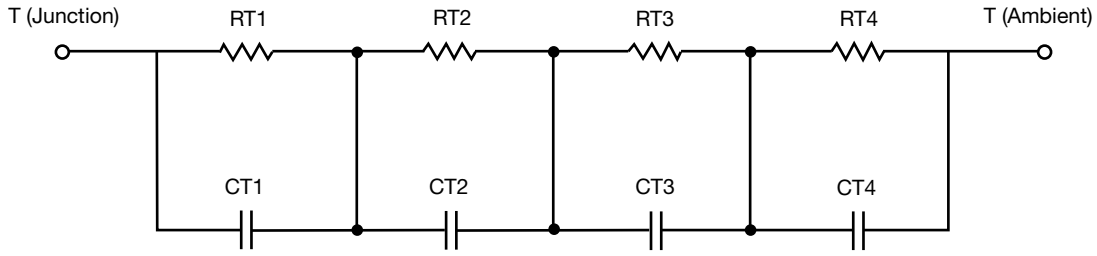
R-C Thermal Model Parameters

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 P-SPICE, 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 P-SPICE 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 P-SPICE Platform”.

R-C THERMAL MODEL FOR TANK CONFIGURATION



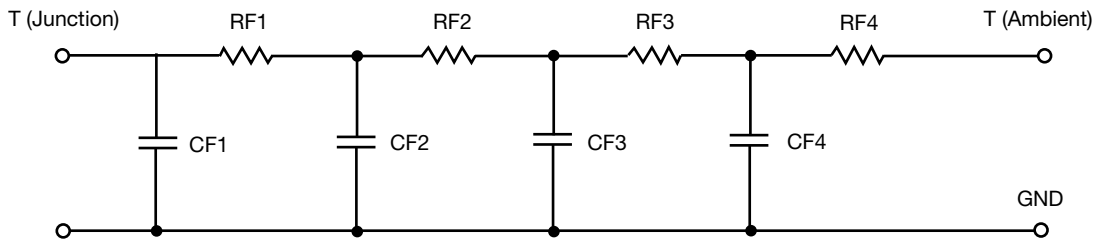
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	21.8851	83.9375m	N/A
RT2	3.3856	110.8059m	N/A
RT3	777.2462m	108.8390m	N/A
RT4	13.9006	98.3946m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	4.6123	17.5899m	N/A
CT2	1.0693	24.4862m	N/A
CT3	53.1968m	3.9317m	N/A
CT4	6.6023	136.7121m	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	1.3207	159.3798m	N/A
RF2	5.4727	127.1139m	N/A
RF3	26.7163	106.0680m	N/A
RF4	6.3731	6.9254m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	56.3746m	2.5906m	N/A
CF2	945.5625m	6.2526m	N/A
CF3	1.7131	58.2844m	N/A
CF4	234.6497m	125.7987m	N/A

Note

- n/a indicates not applicable