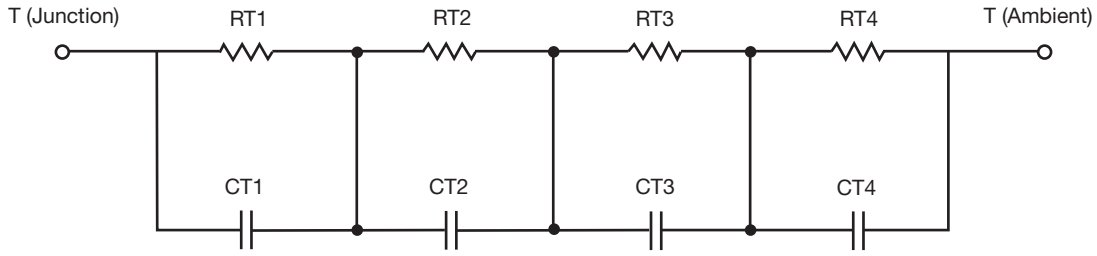
R-C Thermal Model Parameters

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



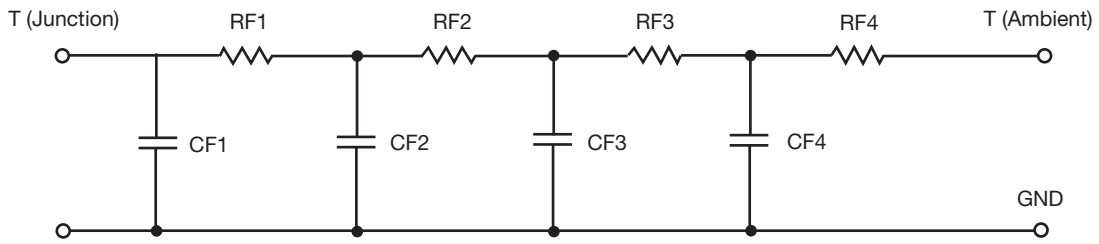
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	11.9620	1.3791	N/A
RT2	1.8399	285.8682m	N/A
RT3	8.2438	32.8660m	N/A
RT4	42.6184	107.7627m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	577.4660m	26.2180m	N/A
CT2	4.1706m	4.9134m	N/A
CT3	60.5257m	20.0699u	N/A
CT4	1.8790	750.5808m	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	4.7362	107.0034m	N/A
RF2	9.6449	620.1823m	N/A
RF3	17.1108	538.7485m	N/A
RF4	33.1254	543.0444m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	13.1848m	581.3357u	N/A
CF2	80.8399m	8.2964m	N/A
CF3	474.2258m	28.7274m	N/A
CF4	1.7630	110.4756u	N/A

Note

- n/a indicates not applicable