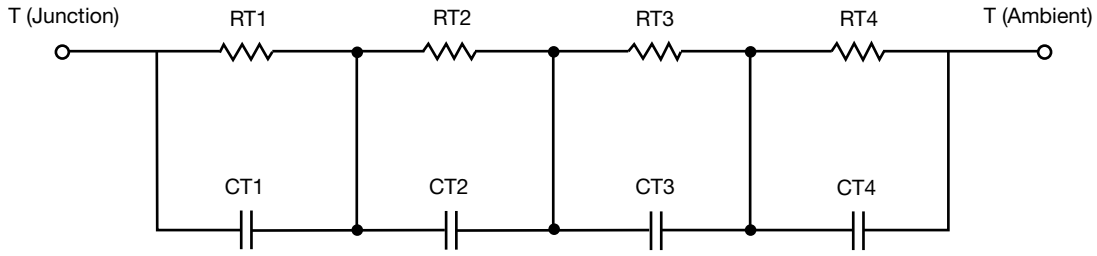
R-C Thermal Model Parameters

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



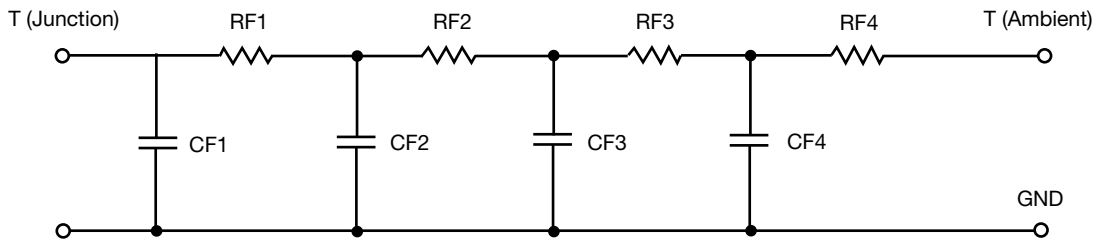
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	3.8595	1.8483	N/A
RT2	14.3087	1.5239	N/A
RT3	14.1029	1.2962	N/A
RT4	48.0166	1.6783	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	850.2622u	5.2786m	N/A
CT2	12.6435m	5.1908m	N/A
CT3	162.3478m	345.6980u	N/A
CT4	1.4630	14.9480m	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	6.4438	1.5984	N/A
RF2	19.4521	2.6795	N/A
RF3	20.1700	1.9946	N/A
RF4	34.8803	12.2267m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.3357m	263.0874u	N/A
CF2	17.2777m	2.1057m	N/A
CF3	482.0657m	1.2436m	N/A
CF4	1.7481	3.4315u	N/A

Note

- n/a indicates not applicable