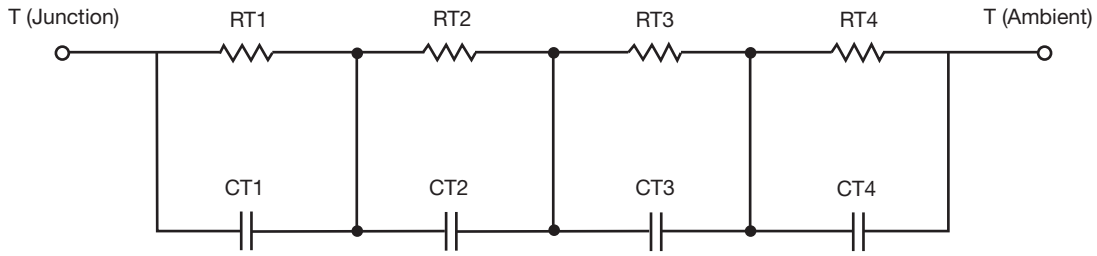
R-C Thermal Model Parameters

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



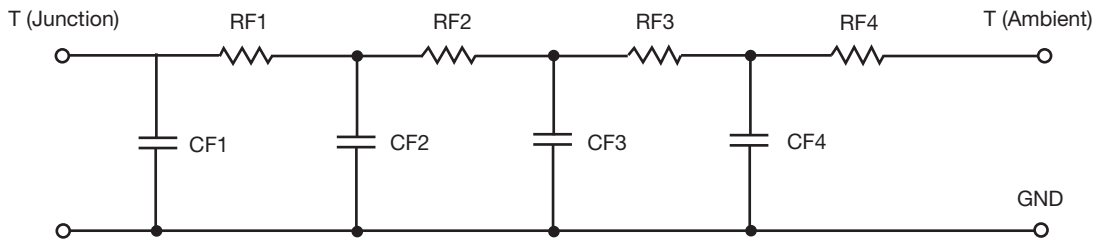
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	60.6253	n/a	9.0636
RT2	16.9651	n/a	2.7529
RT3	61.1685	n/a	7.5912
RT4	25.7913	n/a	30.5800
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.4467	n/a	4.1442m
CT2	269.2768m	n/a	279.3391u
CT3	6.2168m	n/a	235.0682m
CT4	1.1293m	n/a	12.3991m

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	13.2424	n/a	4.5767
RF2	47.7776	n/a	19.6106
RF3	39.0009	n/a	23.0119
RF4	63.8585	n/a	3.2552
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	463.7733u	n/a	418.7427u
CF2	2.0266m	n/a	3.7639m
CF3	15.7870m	n/a	15.4893m
CF4	1.1630	n/a	1.0588

Note

- n/a indicates not applicable