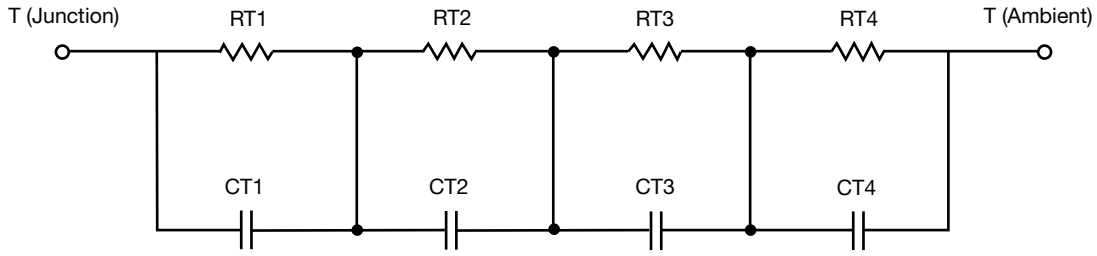
R-C Thermal Model Parameters

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



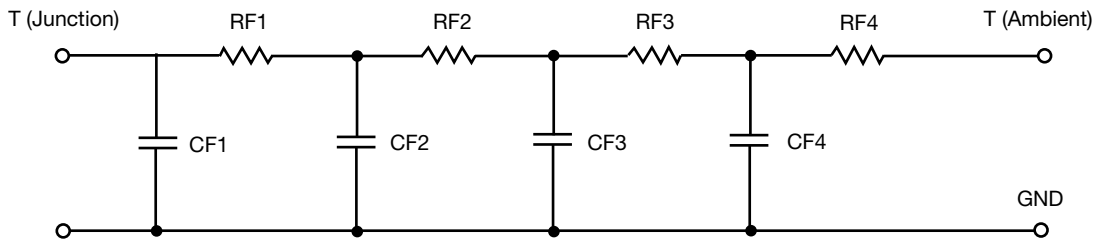
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	54.3221	N/A	10.5728
RT2	43.0534	N/A	26.3593
RT3	20.0586	N/A	20.1530
RT4	32.5659	N/A	32.4409
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	2.3400m	N/A	206.8610u
CT2	1.7591	N/A	30.9221m
CT3	371.5974u	N/A	1.6891m
CT4	40.1570m	N/A	2.5627m

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	28.4825	N/A	14.9048
RF2	53.3251	N/A	32.4855
RF3	26.0952	N/A	26.7320
RF4	42.0972	N/A	15.6667
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	337.0223u	N/A	187.1065u
CF2	2.2161m	N/A	717.5210u
CF3	46.6603m	N/A	3.5761m
CF4	1.6917	N/A	63.6956m

Note

- n/a indicates not applicable