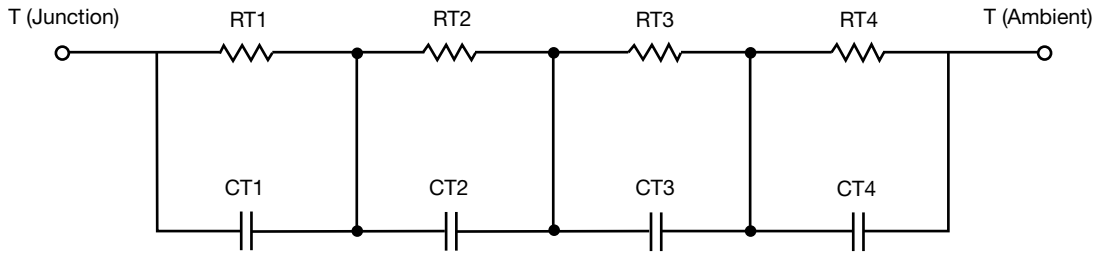
R-C Thermal Model Parameters

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



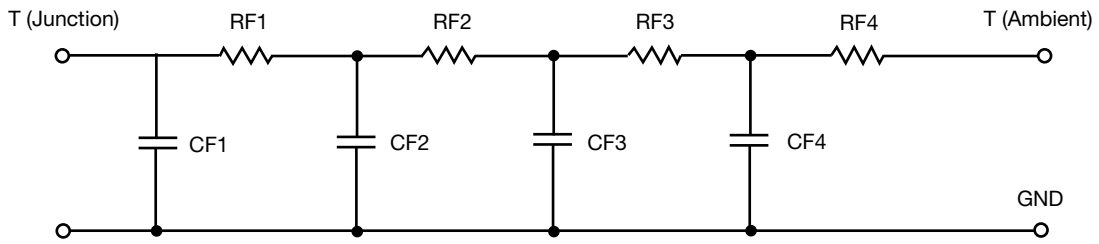
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.9922	460.2604m	n/a
RT2	10.4869	670.4055m	n/a
RT3	10.0610	652.8894m	n/a
RT4	46.4599	816.4447m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	7.5864m	38.9247m	n/a
CT2	58.5485m	20.9545m	n/a
CT3	584.9996m	1.5797m	n/a
CT4	1.7319	17.8967m	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	5.0642	908.4314m	n/a
RF2	12.1971	527.2562m	n/a
RF3	15.7305	855.0788m	n/a
RF4	37.0082	309.2336m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	8.2444m	1.3016m	n/a
CF2	60.5405m	6.3307m	n/a
CF3	483.2376m	1.8524m	n/a
CF4	1.5844	6.3415m	n/a

Note

- n/a indicates not applicable