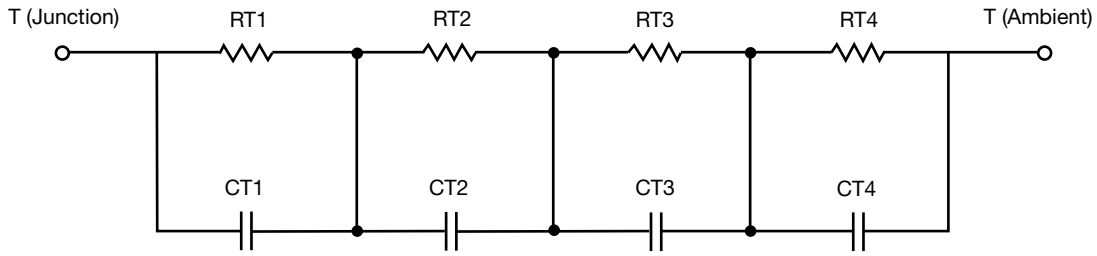
R-C Thermal Model Parameters

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



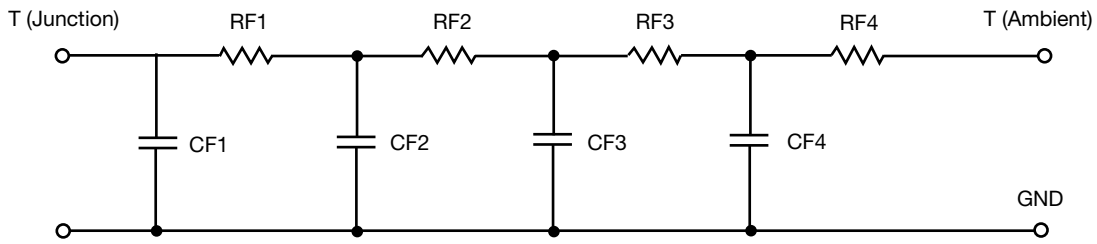
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	29.0023	423.2020m	n/a
RT2	6.3918	71.1934m	n/a
RT3	2.0061	351.7294m	n/a
RT4	17.6000	113.8752m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	3.9093	2.0052m	n/a
CT2	104.9009m	16.6793u	n/a
CT3	3.3225m	684.0572u	n/a
CT4	1.0573	27.8877m	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	2.8318	66.6559m	n/a
RF2	7.5920	362.5665m	n/a
RF3	23.4467	408.9064m	n/a
RF4	21.1295	121.8712m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	6.1728m	44.0241u	n/a
CF2	115.9544m	341.9702u	n/a
CF3	714.3899m	762.8165u	n/a
CF4	4.0317	11.3395m	n/a

Note

- n/a indicates not applicable