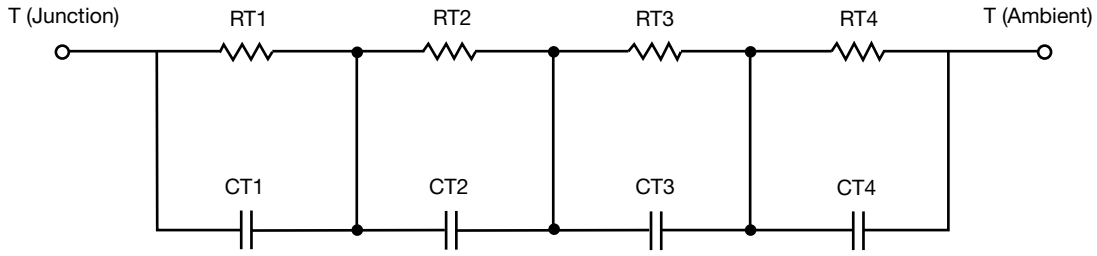
R-C Thermal Model Parameters

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



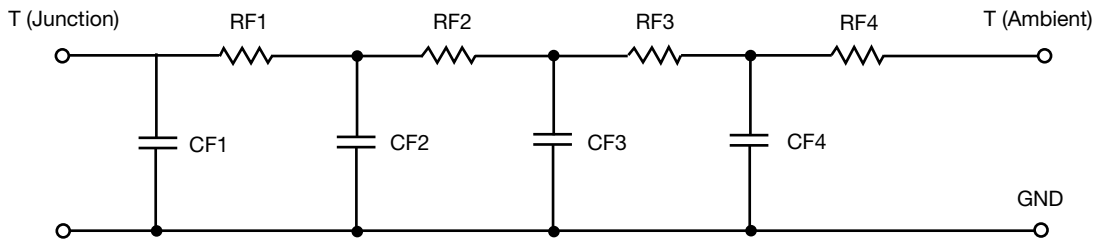
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	4.1566	1.3859	N/A
RT2	16.0677	74.3340m	N/A
RT3	9.8561	20.4535m	N/A
RT4	35.0365	312.9663m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	11.1120m	32.2480m	N/A
CT2	1.2668	19.7810u	N/A
CT3	130.3509m	119.3014m	N/A
CT4	2.8722	8.9230m	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	6.3465	128.7832m	N/A
RF2	17.0028	301.5352m	N/A
RF3	24.2980	330.1959m	N/A
RF4	16.9830	1.0351	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	12.1500m	2.5423m	N/A
CF2	185.8009m	2.7093m	N/A
CF3	1.5699	12.8435m	N/A
CF4	399.2455m	21.3257m	N/A

Note

- n/a indicates not applicable