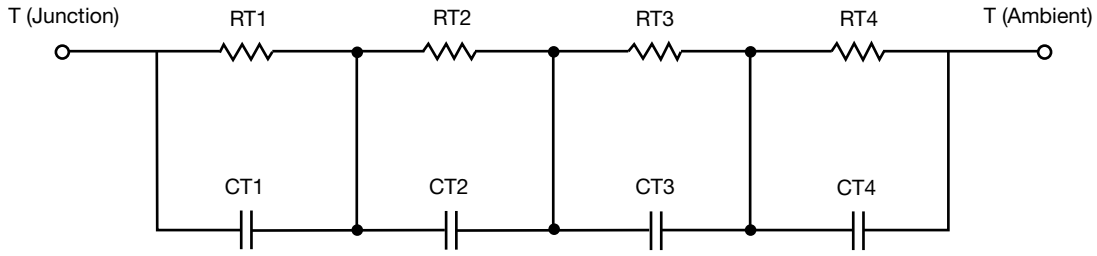
R-C Thermal Model Parameters

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



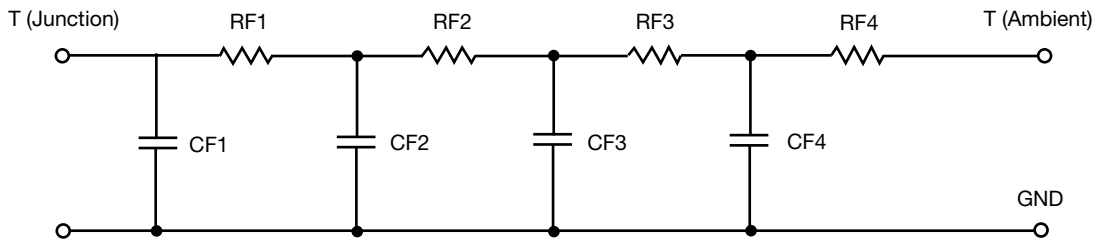
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	16.5092	2.5802	N/A
RT2	5.3249	1.9905	N/A
RT3	13.8983	953.8691m	N/A
RT4	34.4286	2.9927	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	2.0446	10.1258m	N/A
CT2	1.6264m	645.7499u	N/A
CT3	64.7135m	207.1322m	N/A
CT4	2.3130	25.5125m	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	4.7398	2.7380	N/A
RF2	14.2741	3.3257	N/A
RF3	11.5401	1.9054	N/A
RF4	39.3391	528.1796m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.5361m	651.3760u	N/A
CF2	49.3542m	8.0384m	N/A
CF3	565.8090m	7.6002m	N/A
CF4	957.9811m	464.0647m	N/A

Note

- n/a indicates not applicable