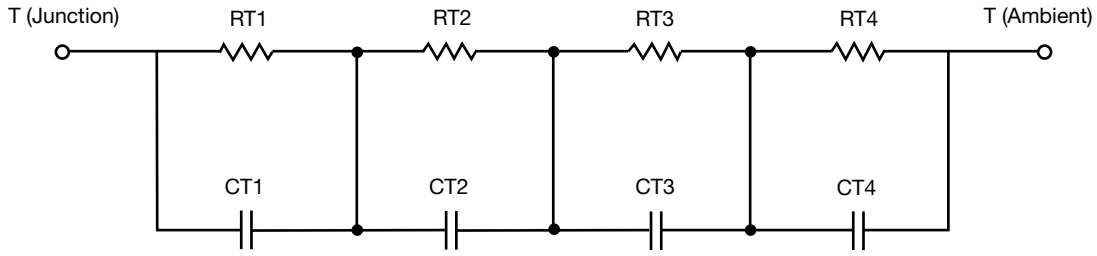
R-C Thermal Model Parameters

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



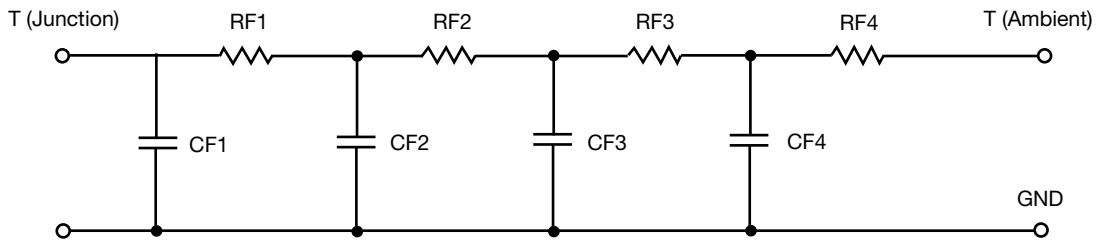
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	6.1945	2.3830	N/A
RT2	17.3052	1.8520	N/A
RT3	15.3937	1.5643	N/A
RT4	42.1066	2.3235	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	619.1346u	4.6629m	N/A
CT2	17.1967m	11.1392m	N/A
CT3	374.8519m	221.5192u	N/A
CT4	2.3068	29.6732m	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	7.7040	1.6989	N/A
RF2	18.8084	1.3291	N/A
RF3	16.0514	3.4747	N/A
RF4	38.4362	1.5807	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	854.5448u	248.3305u	N/A
CF2	18.8212m	1.4817m	N/A
CF3	325.6201m	2.4682m	N/A
CF4	2.0253	18.7737m	N/A

Note

- n/a indicates not applicable