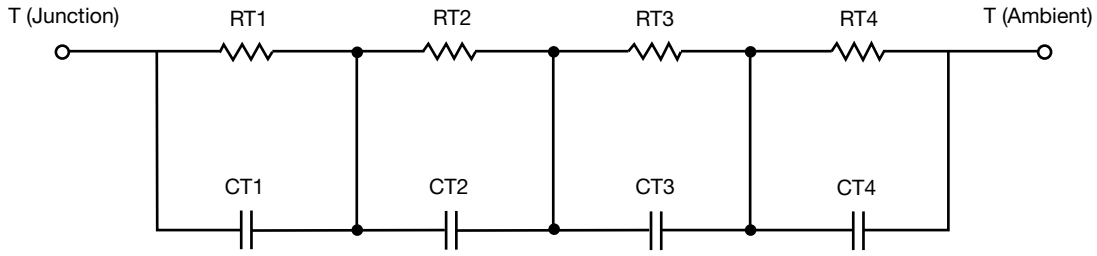
R-C Thermal Model Parameters

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



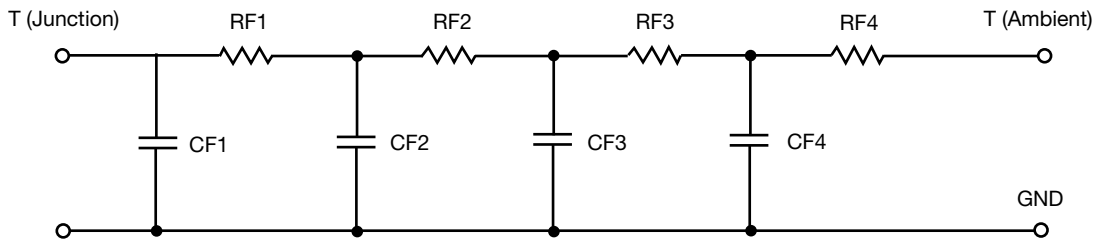
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	7.4051	N/A	18.0040
RT2	42.0055	N/A	38.8177
RT3	50.3084	N/A	7.6538
RT4	75.2810	N/A	10.5478
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	762.9437u	N/A	5.1448m
CT2	748.5719u	N/A	575.4664u
CT3	10.5310m	N/A	6.9346m
CT4	859.4243m	N/A	80.1610u

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	25.6357	N/A	15.1617
RF2	54.7634	N/A	36.8923
RF3	28.6582	N/A	12.4838
RF4	65.9427	N/A	10.4017
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	264.5067u	N/A	77.5842u
CF2	2.1836m	N/A	408.5290u
CF3	58.3375m	N/A	746.7631u
CF4	1.0908	N/A	4.8235m

Note

- n/a indicates not applicable