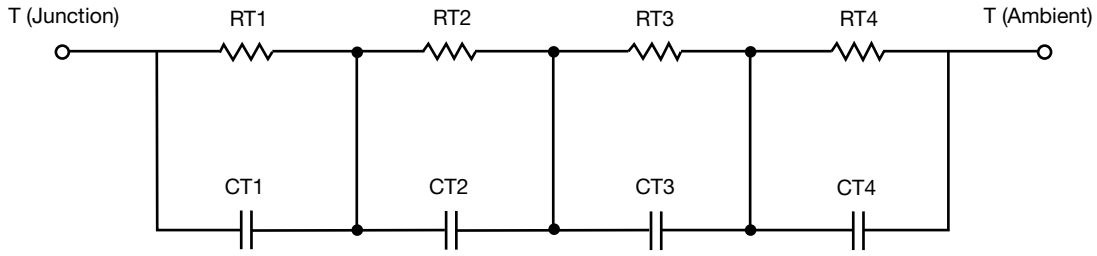
R-C Thermal Model Parameters

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



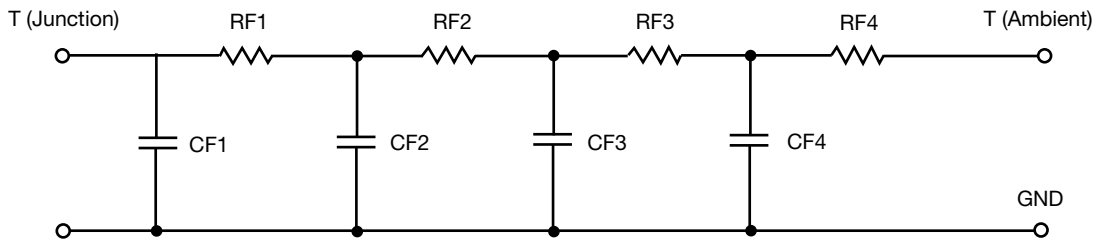
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	30.6943	N/A	19.6269
RT2	25.6066	N/A	11.2760
RT3	10.8922	N/A	6.7062
RT4	57.8069	N/A	7.4109
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	2.7069m	N/A	2.9106m
CT2	47.5358m	N/A	2.2316m
CT3	289.2588u	N/A	184.2558u
CT4	1.6008	N/A	265.9319m

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	14.0749	N/A	6.8364
RF2	32.3325	N/A	20.8315
RF3	22.776	N/A	10.1486
RF4	55.8166	N/A	7.1835
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	293.6227u	N/A	126.1423u
CF2	2.6071m	N/A	944.0284u
CF3	60.7101m	N/A	2.1748m
CF4	1.6334	N/A	221.8686m

Note

- n/a indicates not applicable