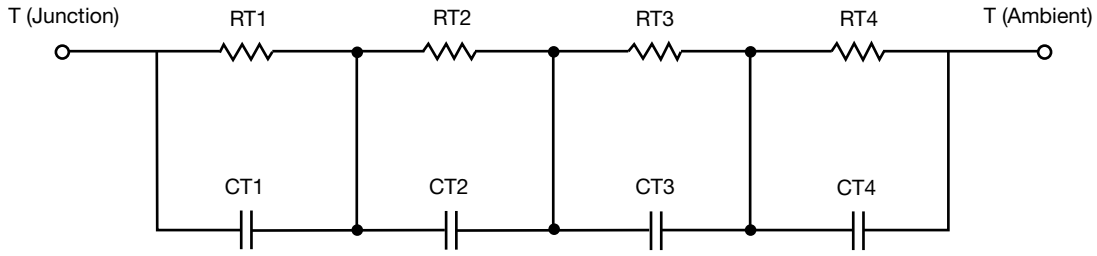
R-C Thermal Model Parameters

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



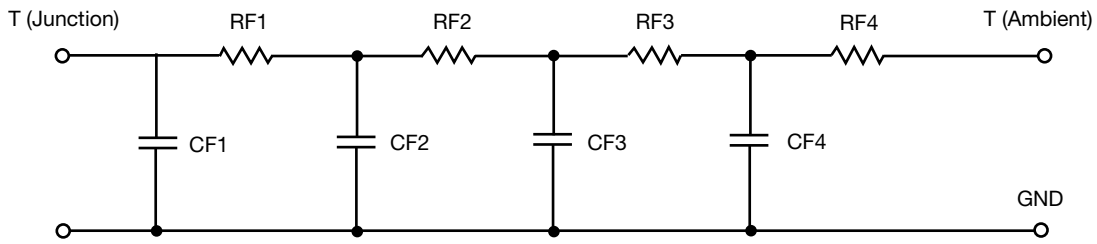
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	9.0284	N/A	4.1634
RT2	28.0016	N/A	7.5380
RT3	13.1585	N/A	4.8168
RT4	44.7063	N/A	13.4199
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	974.6009u	N/A	31.6933m
CT2	21.2200m	N/A	9.5157m
CT3	239.2101m	N/A	461.8892u
CT4	1.3414	N/A	121.1355m

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	9.9692	N/A	4.1724
RF2	19.4817	N/A	13.7171
RF3	22.0248	N/A	5.8294
RF4	43.3794	N/A	6.2705
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	973.2708u	N/A	294.3269u
CF2	15.8749m	N/A	5.6989m
CF3	37.7206m	N/A	125.7808m
CF4	1.2868	N/A	24.9944m

Note

- n/a indicates not applicable