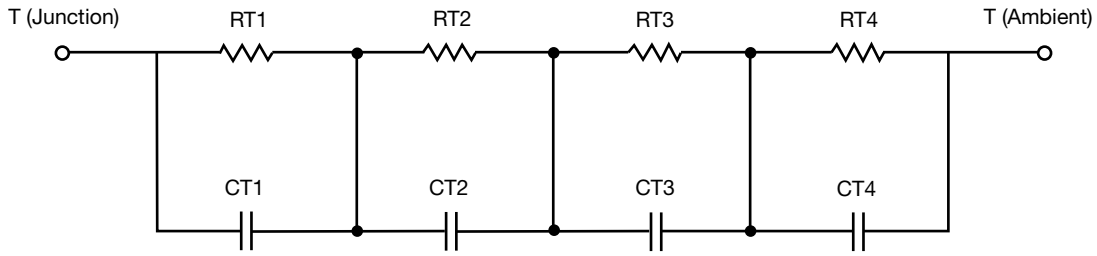
R-C Thermal Model Parameters

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 PSpice, 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 PSpice 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 PSpice Platform”.

R-C THERMAL MODEL FOR TANK CONFIGURATION



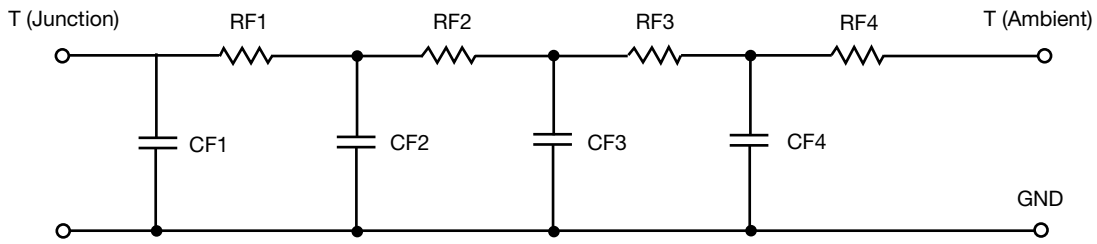
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	n/a	118.3310m	n/a
RT2	n/a	67.8015m	n/a
RT3	n/a	542.2140m	n/a
RT4	n/a	71.6535m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	n/a	4.0927m	n/a
CT2	n/a	354.3568m	n/a
CT3	n/a	46.3065m	n/a
CT4	n/a	357.0730m	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	n/a	114.9575m	n/a
RF2	n/a	123.2504m	n/a
RF3	n/a	129.2293m	n/a
RF4	n/a	432.5628m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	n/a	3.0382m	n/a
CF2	n/a	29.1047m	n/a
CF3	n/a	95.8402u	n/a
CF4	n/a	3.9800m	n/a

Note

- n/a indicates not applicable