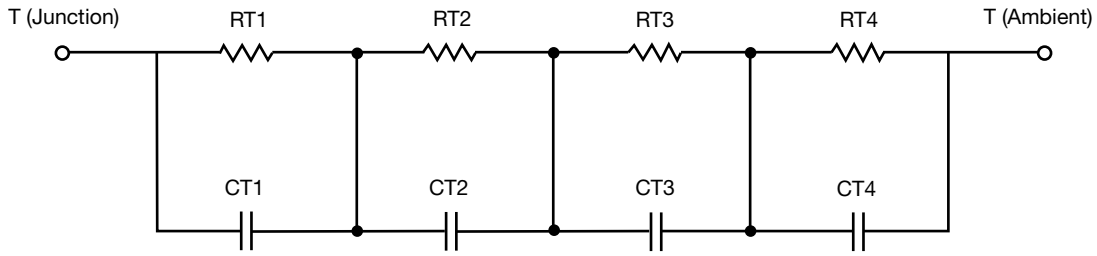
R-C Thermal Model Parameters

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



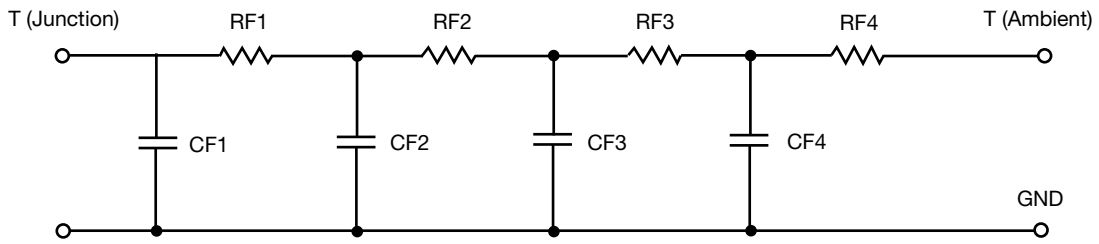
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	10.4297	267.2231m	n/a
RT2	3.3059	466.9131m	n/a
RT3	1.0418	47.2834m	n/a
RT4	25.2226	118.5804m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	10.3423	2.8635m	n/a
CT2	1.9855	35.1936m	n/a
CT3	142.7837m	7.8375m	n/a
CT4	3.6682	840.8548m	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	1.7175	316.8651m	n/a
RF2	5.5312	170.3820m	n/a
RF3	20.8763	284.9033m	n/a
RF4	11.8750	127.8496m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	122.1122m	1.9861m	n/a
CF2	1.1400	16.7470m	n/a
CF3	1.0483	25.2657m	n/a
CF4	3.5864	413.1927m	n/a

Note

- n/a indicates not applicable