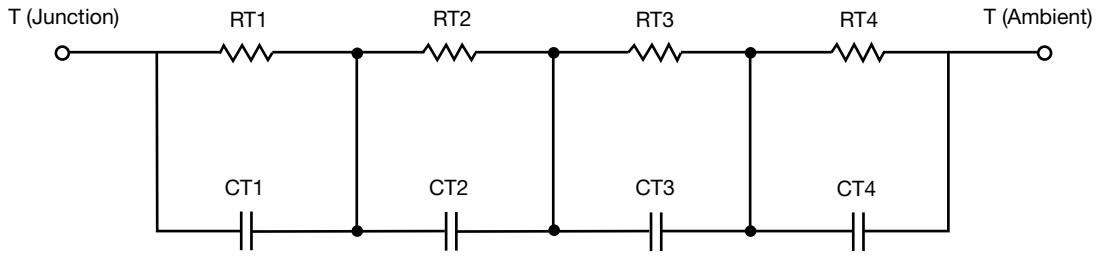
R-C Thermal Model Parameters

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



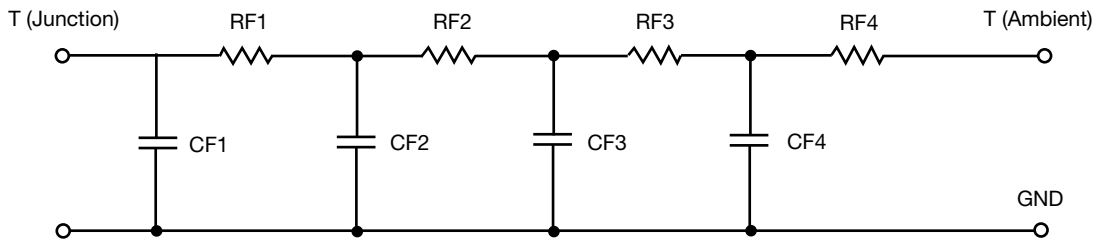
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	5.1943	32.9129m	n/a
RT2	10.4308	796.6920m	n/a
RT3	7.8320	769.4356m	n/a
RT4	46.5429	400.9595m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	3.5278m	7.2049m	n/a
CT2	78.4462m	15.6233m	n/a
CT3	628.3597m	4.6867m	n/a
CT4	1.3981	699.9690u	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	4.7651	469.9467m	n/a
RF2	15.8065	902.5280m	n/a
RF3	15.4127	424.7020m	n/a
RF4	34.0126	203.6749m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.8235m	429.3701u	n/a
CF2	56.1198m	3.1560m	n/a
CF3	672.8345m	46.6061u	n/a
CF4	1.0078	114.6630m	n/a

Note

- n/a indicates not applicable