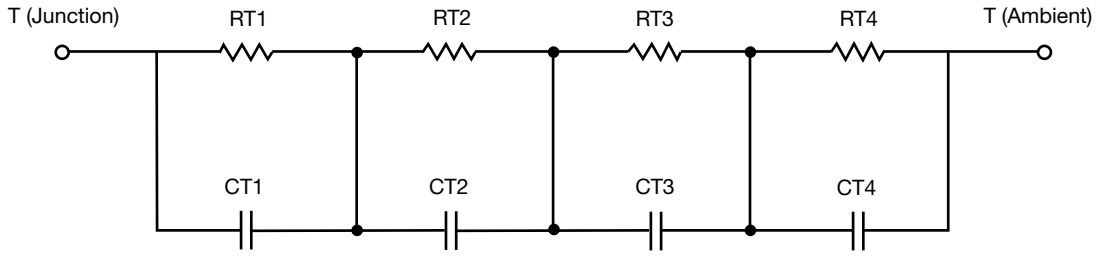
R-C Thermal Model Parameters

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

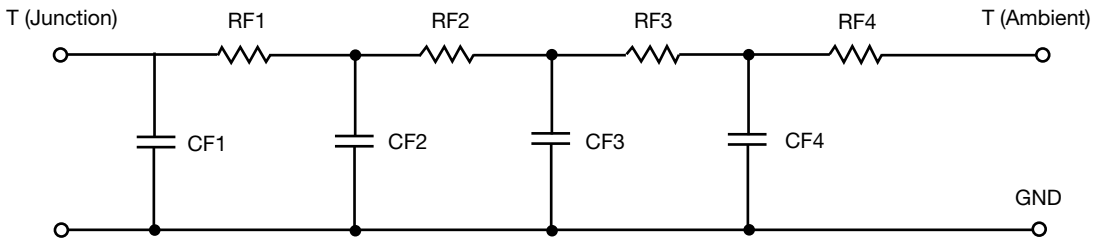


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	186.4657	N/A	N/A
RT2	55.8056	N/A	N/A
RT3	292.8939	N/A	N/A
RT4	111.6750	N/A	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.6968m	N/A	N/A
CT2	175.4195u	N/A	N/A
CT3	4.5286m	N/A	N/A
CT4	145.2224m	N/A	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 N-PCh**	**Case**	**Foot**
RF1	67.8768	N/A	N/A
RF2	296.3505	N/A	N/A
RF3	186.4030	N/A	N/A
RF4	95.7450	N/A	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient N-PCh**	**Case**	**Foot**
CF1	163.4479u	N/A	N/A
CF2	1.0026m	N/A	N/A
CF3	5.1692m	N/A	N/A
CF4	146.3402m	N/A	N/A

Note
N/A indicates not applicable