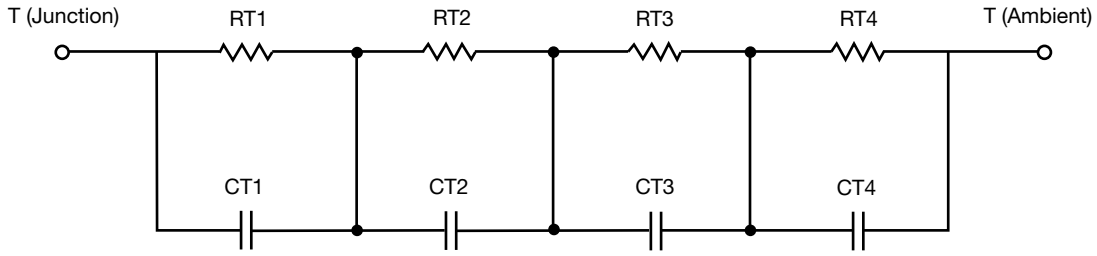
R-C Thermal Model Parameters

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

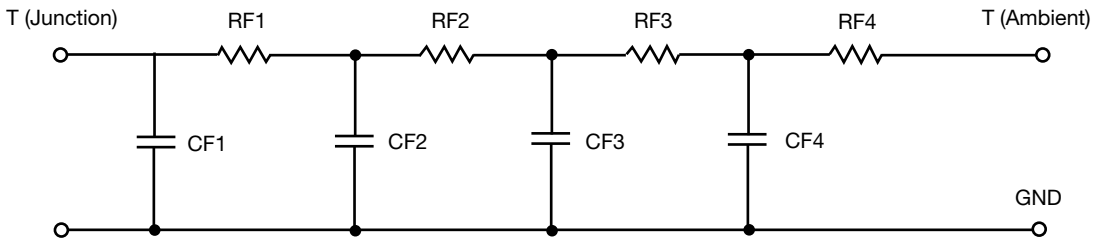


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	7.7869	N/A	9.4098
RT2	28.8415	N/A	6.4101
RT3	28.3342	N/A	2.1014
RT4	20.3440	N/A	4.0678
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	2.8803m	N/A	81.1976m
CT2	38.4240m	N/A	11.4273m
CT3	1.2835	N/A	801.1094u
CT4	5.4758	N/A	311.4672m

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	2.5440	N/A	1.5311
RF2	15.1571	N/A	6.4452
RF3	24.5488	N/A	7.0784
RF4	42.4422	N/A	6.9453
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	618.3207u	N/A	465.2895u
CF2	8.9007m	N/A	5.9741m
CF3	63.6445m	N/A	26.2157m
CF4	1.4103	N/A	106.0408m

Note
N/A indicates not applicable