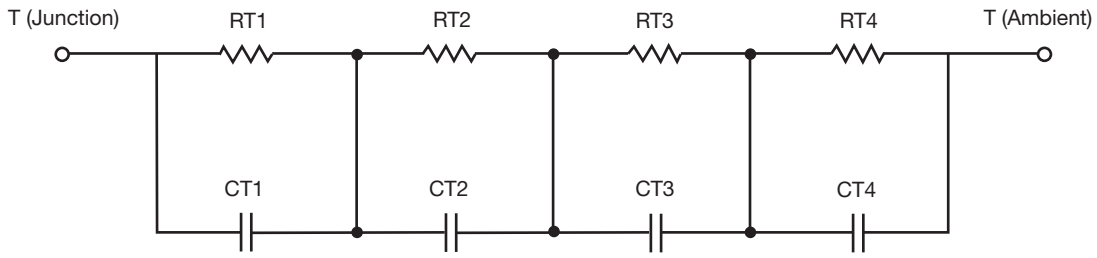
R-C Thermal Model Parameters

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

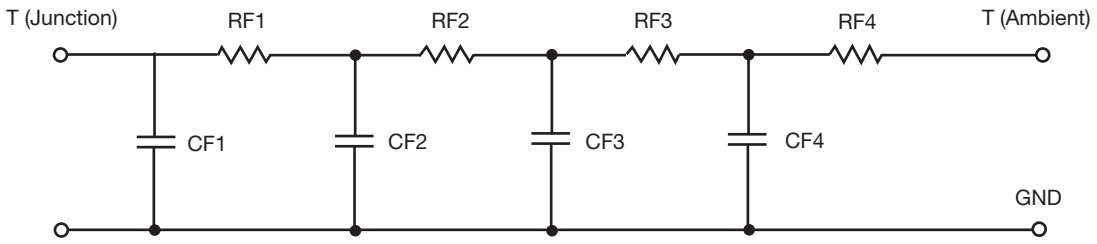


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	7.9344	N/A	16.5723
RT2	27.8340	N/A	5.8542
RT3	24.8157	N/A	10.5182
RT4	49.4159	N/A	11.7903
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	354.5621u	N/A	63.1322m
CT2	7.6679m	N/A	223.1288u
CT3	107.7155m	N/A	14.5653m
CT4	1.6874	N/A	4.6830m

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	13.5539	N/A	6.0362
RF2	34.5655	N/A	15.9059
RF3	31.5683	N/A	5.2784
RF4	30.1424	N/A	17.3449
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	759.6832u	N/A	179.5997u
CF2	11.5498m	N/A	2.8966m
CF3	392.8529m	N/A	711.6018u
CF4	3.3280	N/A	41.3177m

Note
N/A indicates not applicable