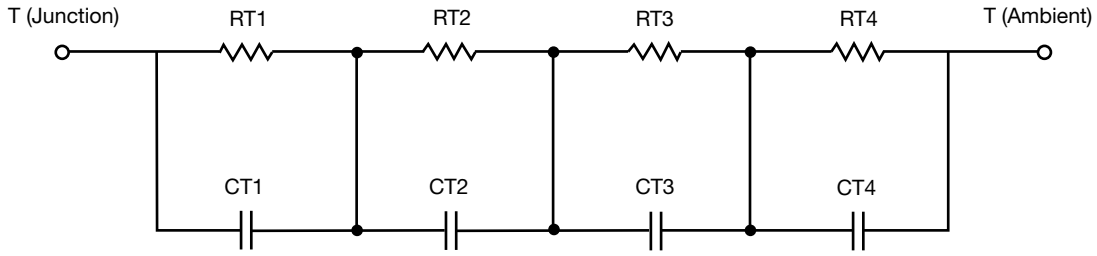
R-C Thermal Model Parameters

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

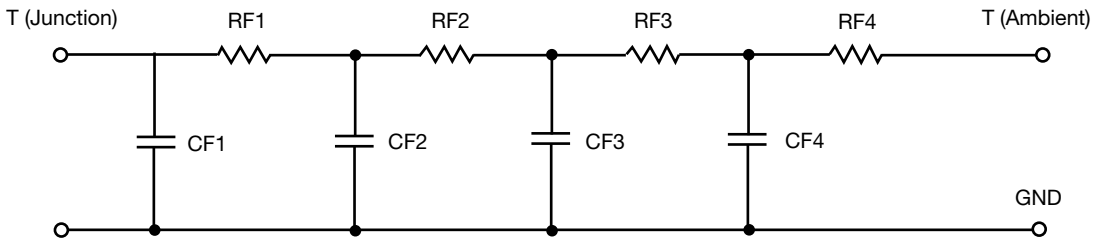


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	7.5453	N/A	11.5494
RT2	25.1545	N/A	5.5428
RT3	27.3397	N/A	6.9149
RT4	58.8635	N/A	18.8845
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.4992m	N/A	135.3049m
CT2	8.3220m	N/A	586.5990u
CT3	80.3118m	N/A	38.3754m
CT4	1.1933	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	13.1029	N/A	1.9922
RF2	37.7205	N/A	12.8692
RF3	34.3527	N/A	17.5441
RF4	34.4070	N/A	10.5352
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.2290m	N/A	121.8618u
CF2	12.0773m	N/A	1.5304m
CF3	444.5039m	N/A	5.1649m
CF4	2.0292	N/A	129.1349m

Note
N/A indicates not applicable