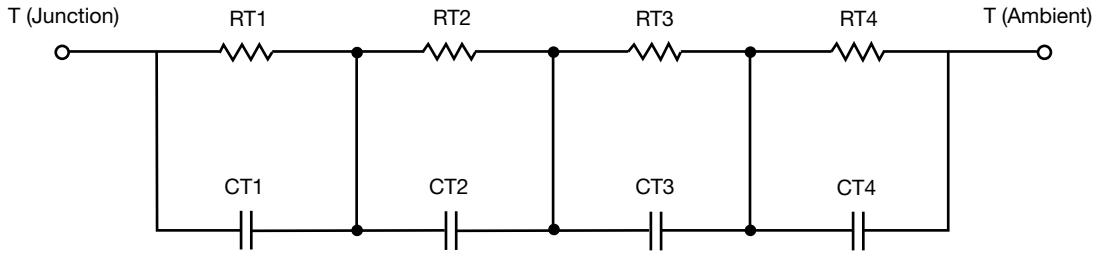
R-C Thermal Model Parameters

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

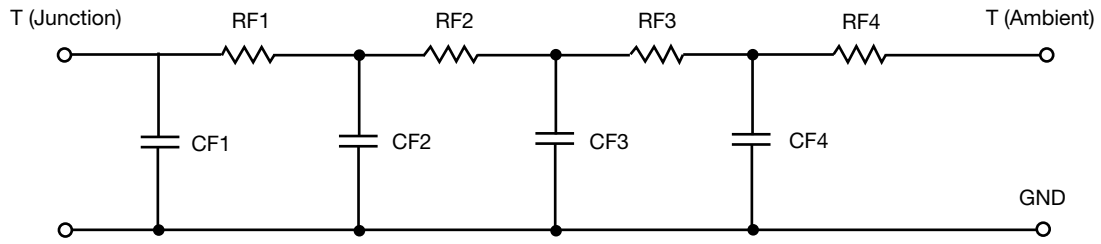


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	11.2055	N/A	30.5721
RT2	35.8092	N/A	7.0286
RT3	22.8679	N/A	7.0444
RT4	54.7348	N/A	256.6887m
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	360.0404u	N/A	1.3361m
CT2	2.9224m	N/A	118.5190m
CT3	58.1072m	N/A	179.8899u
CT4	1.3430	N/A	605.1347m

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	20.4035	N/A	9.7677
RF2	37.8026	N/A	29.3364
RF3	19.7004	N/A	4.6160
RF4	46.9554	N/A	1.2794
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	454.5151u	N/A	172.1962u
CF2	4.4018m	N/A	1.3115m
CF3	201.1246m	N/A	153.9473m
CF4	1.4807	N/A	575.3297m

Note
N/A indicates not applicable