

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

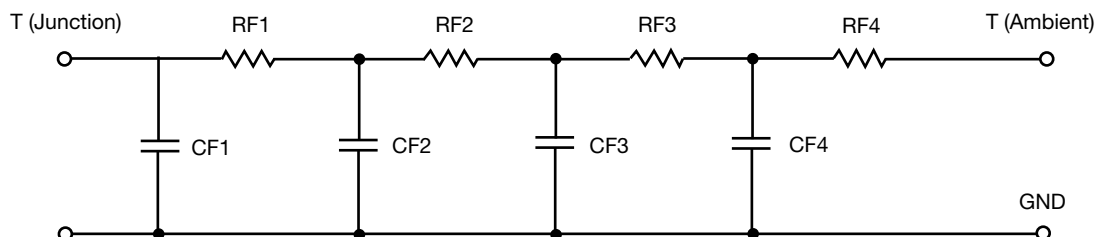


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	10.1054	N/A	10.3292
RT2	38.0982	N/A	19.4090
RT3	29.8754	N/A	11.9011
RT4	46.9210	N/A	18.3292
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	386.6502u	N/A	294.9398u
CT2	2.6595m	N/A	1.8258m
CT3	38.2348m	N/A	27.9961m
CT4	1.4097	N/A	3.2185m

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	10.8015	N/A	8.7185
RF2	39.2641	N/A	38.8212
RF3	27.8933	N/A	1.3064
RF4	47.0411	N/A	10.9737
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	231.9368u	N/A	130.6629u
CF2	2.0110m	N/A	761.2010u
CF3	27.3462m	N/A	15.2716m
CF4	1.2854	N/A	4.4579m

Note

N/A indicates not applicable

