

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	18.2823	N/A	4.3121
RT2	3.0996	N/A	8.7441
RT3	14.9389	N/A	7.1972
RT4	48.5465	N/A	1.7079
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	111.5991 m	N/A	511.2084 m
CT2	1.8156 m	N/A	95.3817 m
CT3	32.4928 m	N/A	11.7575 m
CT4	1.1937	N/A	1.3800 m

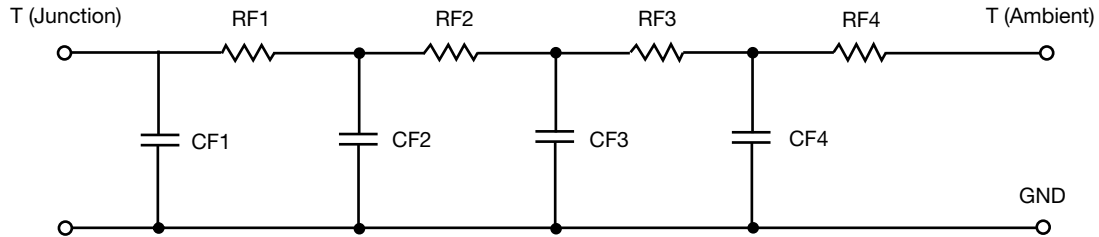
Note

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	5.2145	N/A	1.6405
RF2	20.3001	N/A	9.8621
RF3	15.7367	N/A	5.3965
RF4	43.7203	N/A	5.1071
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.1276 m	N/A	910.6381 u
CF2	24.0138 m	N/A	8.7466 m
CF3	105.4244 m	N/A	90.6527 m
CF4	1.2224	N/A	70.0337 m

Note

N/A indicates not applicable

