

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	4.6909	570.5074m	N/A
RT2	13.2853	562.0266m	N/A
RT3	14.3939	818.9809m	N/A
RT4	48.4368	458.7082m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	4.8121m	1.0876m	N/A
CT2	611.4415m	9.6533m	N/A
CT3	31.3639m	13.4317m	N/A
CT4	1.3871	22.7849m	N/A

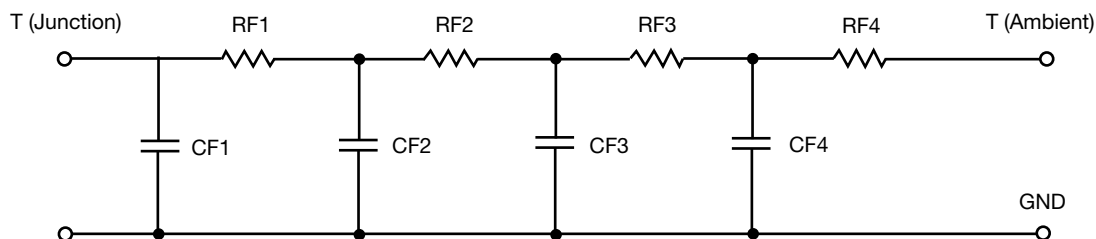
Note

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	4.8796	785.1489m	N/A
RF2	16.1363	989.4071m	N/A
RF3	20.9721	538.1160m	N/A
RF4	38.8088	82.9939m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.0246m	941.4666u	N/A
CF2	23.5277m	3.2426m	N/A
CF3	391.9521m	6.7082m	N/A
CF4	1.1592	418.0760u	N/A

Note

N/A indicates not applicable

