

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	11.6018	N/A	2.1617
RT2	45.2328	N/A	16.1278
RT3	24.4380	N/A	10.5886
RT4	29.1649	N/A	1.2390
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.8783m	N/A	382.1721u
CT2	9.7234m	N/A	10.6377m
CT3	1.3043	N/A	4.1401m
CT4	3.1950	N/A	1.3695

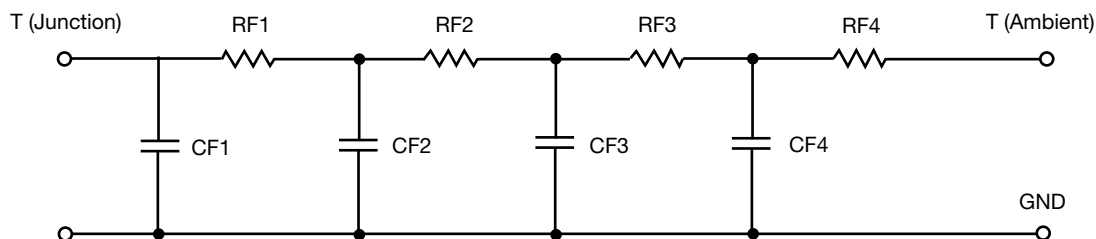
Note

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	9.4002	N/A	3.1432
RF2	35.1681	N/A	14.4633
RF3	15.9349	N/A	7.3560
RF4	49.5385	N/A	5.0375
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.0633m	N/A	475.1758u
CF2	5.5490m	N/A	2.6092m
CF3	21.9394m	N/A	3.2805m
CF4	1.2502	N/A	50.4320m

Note
N/A indicates not applicable

