

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	67.2818	N/A	15.3870
RT2	41.6678	N/A	7.4805
RT3	42.4345	N/A	4.2053
RT4	13.3184	N/A	22.8823
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.3730	N/A	8.7704m
CT2	21.7740m	N/A	7.1996m
CT3	3.9706m	N/A	159.7924u
CT4	762.8610u	N/A	34.6643m

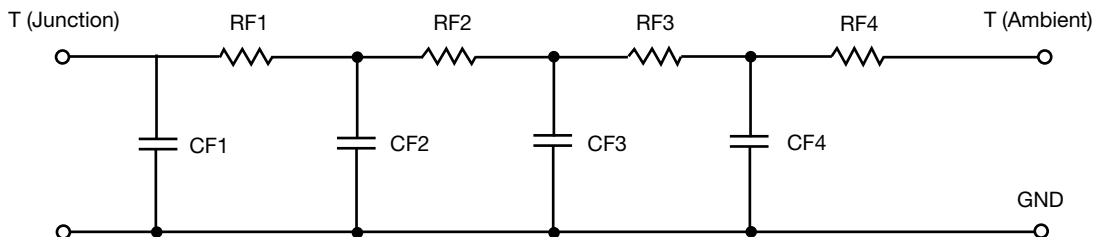
Note

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	28.5136	N/A	4.4520
RF2	58.9300	N/A	22.6081
RF3	16.4341	N/A	8.0275
RF4	61.0746	N/A	14.8820
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	819.6560u	N/A	172.0366u
CF2	4.8254m	N/A	3.0633m
CF3	177.2805m	N/A	23.1978m
CF4	1.4272	N/A	702.2210u

Note

N/A indicates not applicable

