



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	11.6073	1.1343	N/A
RT2	5.5097	2.2508	N/A
RT3	17.8868	308.0000m	N/A
RT4	44.9962	2.8069	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	218.0334m	158.5416u	N/A
CT2	440.3168u	1.4572m	N/A
CT3	6.6156m	14.2076m	N/A
CT4	1.7938	808.2979u	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	5.1725	2.2329	N/A
RF2	17.9817	3.6756	N/A
RF3	12.9513	473.0165m	N/A
RF4	43.8945	118.4835m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	309.7798u	146.1906u	N/A
CF2	5.0133m	405.9513u	N/A
CF3	130.8577m	6.9647m	N/A
CF4	1.6377	263.1971m	N/A

Note

- n/a indicates not applicable

