

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 PSpice, 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 PSpice 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 PSpice Platform".

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	32.3515	323.9091m	n/a
RT2	11.9618	1.6041	n/a
RT3	4.6901	319.0629m	n/a
RT4	20.9755	566.6364m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.7687	2.3825m	n/a
CT2	163.7749m	6.5013m	n/a
CT3	19.2376m	1.3756m	n/a
CT4	2.1601	37.9170m	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	6.2037	944.4443m	n/a
RF2	12.1818	1.1793	n/a
RF3	18.3648	284.9593m	n/a
RF4	33.1802	391.9254m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	17.9603m	811.0039u	n/a
CF2	132.5965m	5.9969m	n/a
CF3	762.0847m	1.4128m	n/a
CF4	1.0177	11.0148m	n/a

Note

- n/a indicates not applicable

