



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	35.8641	310.2715m	n/a
RT2	1.4017	253.3849m	n/a
RT3	7.4243	199.9085m	n/a
RT4	5.3099	336.4351m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.0936	206.5226m	n/a
CT2	2.2122m	254.4803m	n/a
CT3	361.4211m	3.8048m	n/a
CT4	38.0967m	84.3501m	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	1.4070	228.1450m	n/a
RF2	7.0825	363.4882m	n/a
RF3	11.5452	256.3715m	n/a
RF4	29.9653	251.9953m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.4267m	3.2122m	n/a
CF2	31.8238m	45.6898m	n/a
CF3	278.4343m	8.6461m	n/a
CF4	968.9708m	78.8022m	n/a

Note

- n/a indicates not applicable

