

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	4.8851	27.7226m	n/a
RT2	12.2914	713.3935m	n/a
RT3	11.1703	371.3819m	n/a
RT4	34.6532	787.5020m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.3553m	1.2136	n/a
CT2	39.3247m	2.6726m	n/a
CT3	1.1951	501.3570u	n/a
CT4	2.6133	8.2039m	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	7.5622	646.1041m	n/a
RF2	11.4302	718.2059m	n/a
RF3	20.8047	396.7723m	n/a
RF4	23.2029	139.8980m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	4.2789m	461.4443u	n/a
CF2	51.8034m	2.2484m	n/a
CF3	816.4646m	2.4743m	n/a
CF4	2.9322	70.0384m	n/a

Note

- n/a indicates not applicable

