

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	11.9104	32.6721m	n/a
RT2	3.1921	178.8373m	n/a
RT3	931.0189m	132.5909m	n/a
RT4	23.9695	57.0643m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	8.2562	23.2670m	n/a
CT2	1.0641	18.5330m	n/a
CT3	147.3202m	4.4123m	n/a
CT4	4.0108	349.3439m	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	884.7234m	164.5848m	n/a
RF2	6.5762	171.0568m	n/a
RF3	23.1425	31.4611m	n/a
RF4	9.4830	32.8974m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	24.3391m	2.5878m	n/a
CF2	882.6174m	8.5054m	n/a
CF3	1.7594	164.8946m	n/a
CF4	2.6137	23.6876m	n/a

Note

- n/a indicates not applicable

