



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	31.5841	69.0737m	n/a
RT2	736.5000m	132.9812m	n/a
RT3	2.9311	149.4828m	n/a
RT4	4.7483	148.4623m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.8728	11.4355m	n/a
CT2	200.9925m	512.4947m	n/a
CT3	730.7719m	68.1290m	n/a
CT4	26.2971	239.9071m	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	643.7000m	108.9512m	n/a
RF2	3.9845	15.2516m	n/a
RF3	16.3586	254.3985m	n/a
RF4	19.0132	121.3987m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	36.1175m	10.3283m	n/a
CF2	468.1577m	22.5981m	n/a
CF3	1.9545	25.6972m	n/a
CF4	628.5618m	434.1381m	n/a

Note

- n/a indicates not applicable

