



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	8.9980	1.4427	n/a
RT2	4.9136	668.1746m	n/a
RT3	10.7323	110.6837m	n/a
RT4	56.3561	978.4417m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	221.0888m	7.9939m	n/a
CT2	6.1600m	1.0715m	n/a
CT3	34.7397m	2.9660m	n/a
CT4	1.2286	16.8582m	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	3.9442	903.7922m	n/a
RF2	15.7715	1.1458	n/a
RF3	12.7844	602.2510m	n/a
RF4	48.4453	548.1568m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.1096m	648.0246u	n/a
CF2	18.3595m	3.3180m	n/a
CF3	375.1008m	6.4540m	n/a
CF4	1.0378	715.2968u	n/a

Note

- n/a indicates not applicable

