



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	3.5514	2.1241	n/a
RT2	23.0208	151.2889m	n/a
RT3	12.3247	754.4341m	n/a
RT4	26.1031	170.1770m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	13.1172m	5.4885m	n/a
CT2	2.6537	134.6038m	n/a
CT3	123.5317m	854.4844u	n/a
CT4	1.9980	200.5773m	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	1.1610	1.0397	n/a
RF2	9.0138	1.4072	n/a
RF3	11.7139	573.7258m	n/a
RF4	43.1113	179.3742m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.8952m	732.9105u	n/a
CF2	38.6993m	4.7483m	n/a
CF3	229.7826m	5.2476m	n/a
CF4	1.0506	21.4151m	n/a

Note

- n/a indicates not applicable

