



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	2.6671	285.9460m	n/a
RT2	29.3595	56.2810m	n/a
RT3	6.0060	70.6330m	n/a
RT4	16.9674	387.1400m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	10.4513m	899.4749u	n/a
CT2	3.5426	93.6283m	n/a
CT3	133.2854m	209.5093u	n/a
CT4	1.0811	2.9087m	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	2.6279	98.7154m	n/a
RF2	7.9638	291.1542m	n/a
RF3	26.9983	265.2063m	n/a
RF4	17.4100	143.9849m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	7.1119m	158.4406u	n/a
CF2	94.0692m	508.2161u	n/a
CF3	779.4767m	667.4484u	n/a
CF4	5.4584	12.5789m	n/a

Note

- n/a indicates not applicable

