



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	44.1418m	244.8404m	n/a
RT2	385.6845m	44.2179m	n/a
RT3	36.7627	173.0700m	n/a
RT4	2.5794	137.3989m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	51.1537	141.8127m	n/a
CT2	185.6256m	9.8939m	n/a
CT3	2.4531	44.0502m	n/a
CT4	532.6518m	33.0437m	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	333.1137m	177.1887m	n/a
RF2	1.7283	244.5392m	n/a
RF3	13.6412	94.1826m	n/a
RF4	24.2544	84.7297m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	36.6584m	7.5259m	n/a
CF2	125.1615m	18.9620m	n/a
CF3	1.4855	70.1705m	n/a
CF4	1.8332	338.8084m	n/a

Note

- n/a indicates not applicable

