



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	4.4375	462.1791m	n/a
RT2	14.3188	286.0381m	n/a
RT3	15.5796	776.2020m	n/a
RT4	35.6641	675.5808m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.2378m	12.1020m	n/a
CT2	28.0153m	428.1727u	n/a
CT3	1.0055	1.4557m	n/a
CT4	2.7518	10.1157m	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	5.3600	444.5210m	n/a
RF2	14.3755	799.9749m	n/a
RF3	26.5384	860.9323m	n/a
RF4	23.7261	94.5718m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	2.1556m	297.7422u	n/a
CF2	26.3346m	995.2109u	n/a
CF3	709.0080m	2.8373m	n/a
CF4	3.3105	44.0973m	n/a

Note

- n/a indicates not applicable

