



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	13.4893	724.8923m	n/a
RT2	8.0413	853.1039m	n/a
RT3	3.1557	920.0687m	n/a
RT4	45.1950	807.8590m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	228.1477m	898.8190u	n/a
CT2	29.4833m	10.4764m	n/a
CT3	1.5619m	6.6476m	n/a
CT4	1.5065	14.9136m	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	4.0894	1.2071	n/a
RF2	11.2307	828.4456m	n/a
RF3	15.7183	765.3764m	n/a
RF4	38.8188	511.6384m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.7297m	671.6489u	n/a
CF2	31.9123m	2.8653m	n/a
CF3	268.4064m	1.3463m	n/a
CF4	1.4217	3.4578m	n/a

Note

- n/a indicates not applicable

