

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	2.6892	109.8307m	n/a
RT2	655.5550m	136.6896m	n/a
RT3	449.4584m	147.4310m	n/a
RT4	36.2817	10.1212m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	940.6628m	84.2280m	n/a
CT2	1.1098	274.9338m	n/a
CT3	38.5440m	7.9658m	n/a
CT4	2.6825	126.9190	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	2.8596	132.3307m	n/a
RF2	5.1895	143.4683m	n/a
RF3	14.8442	121.3213m	n/a
RF4	16.9885	18.1641m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	281.1703m	6.5980m	n/a
CF2	1.0471	22.6330m	n/a
CF3	1.4882	266.8078m	n/a
CF4	35.7328m	1.0686k	n/a

Note

- n/a indicates not applicable

