

## 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	3.9927	27.7226m	n/a
RT2	12.2918	709.1820m	n/a
RT3	12.0271	371.3819m	n/a
RT4	34.6884	787.2900m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.4944m	1.2136	n/a
CT2	30.2500m	2.6726m	n/a
CT3	973.0312m	501.3570u	n/a
CT4	2.6198	8.2039m	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	6.7701	646.1041m	n/a
RF2	11.4300	717.2259m	n/a
RF3	20.8007	396.7723m	n/a
RF4	23.9992	139.8980m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.8362m	461.4456u	n/a
CF2	41.6628m	2.2484m	n/a
CF3	767.2349m	2.4743m	n/a
CF4	2.8120	70.0403m	n/a

Note

- n/a indicates not applicable

