

## 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 P-SPICE, 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 P-SPICE 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 P-SPICE Platform".

### R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	20.8369	N/A	4.2106
RT2	6.2505	N/A	9.6577
RT3	16.9980	N/A	6.3627
RT4	40.9146	N/A	4.7411
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	349.6927 m	N/A	225.0533 m
CT2	471.3714 u	N/A	13.1652 m
CT3	20.7554 m	N/A	1.7310 m
CT4	2.6297	N/A	138.3633 u

#### 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	6.4674	N/A	5.8106
RF2	17.7225	N/A	6.5174
RF3	22.8037	N/A	7.9891
RF4	38.0064	N/A	4.6829
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	445.5002 u	N/A	132.2512 u
CF2	17.6448 m	N/A	1.5505 m
CF3	244.3015 m	N/A	9.2501 m
CF4	2.3329	N/A	117.6707 m

**Note**

N/A indicates not applicable

