

Vishay Siliconix

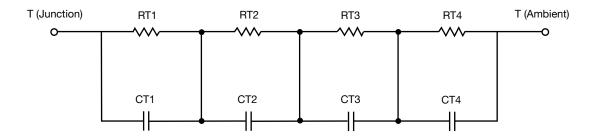
## **R-C Thermal Model Parameters**

#### **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 RES	SISTANCE (°C/W)	
Junction to	Ambient	Case	Foot
RT1	n/a	29.7952m	n/a
RT2	n/a	147.2430m	n/a
RT3	n/a	31.5569m	n/a
RT4	n/a	291.4049m	n/a
	THERMAL CAPAC	CITANCE (Joules/°C)	
Junction to	Ambient	Case	Foot
CT1	n/a	16.7413m	n/a
CT2	n/a	40.3832m	n/a
CT3	n/a	179.6499m	n/a
CT4	n/a	100.8306m	n/a

#### Note

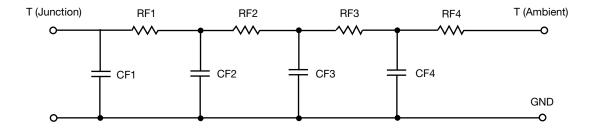
n/a indicates not applicable

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.

Revision: 13-Jul-2018 1 Document Number: 92123



### **R-C THERMAL MODEL FOR FILTER CONFIGURATION**



THERMAL RESISTANCE (°C/W)					
Junction to	Ambient	Case	Foot		
RF1	n/a	32.9445m	n/a		
RF2	n/a	212.2835m	n/a		
RF3	n/a	98.2326m	n/a		
RF4	n/a	156.5660m	n/a		
	THERMAL CAPAC	ITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot		
CF1	n/a	7.2821m	n/a		
CF2	n/a	12.6862m	n/a		
CF3	n/a	46.5461m	n/a		
CF4	n/a	77.0499m	n/a		

#### Note

• n/a indicates not applicable





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