

Vishay Siliconix

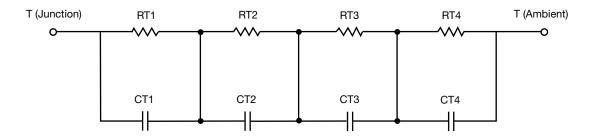
## **R-C Thermal Model Parameters**

#### 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 RESISTANCE (°C/W)						
Junction to	Ambient	Case	Foot			
RT1	n/a	55.6487m	n/a			
RT2	n/a	104.5765m	n/a			
RT3	n/a	183.0678m	n/a			
RT4	n/a	356.7070m	n/a			
	THERMAL CAPAC	ITANCE (Joules/°C)				
Junction to	Ambient	Case	Foot			
CT1	n/a	567.2105u	n/a			
CT2	n/a	31.6221m	n/a			
CT3	n/a	19.3365m	n/a			
CT4	n/a	73.4034m	n/a			

Note

• n/a indicates not applicable

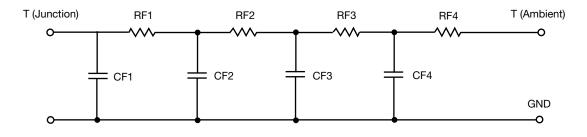
This document is intended as a SPICE modeling guideline and does not constitute a commercial product datasheet. Designers should refer to the appropriate datasheet of the same number for guaranteed specification limits.

Revision: 19-Mar-15



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



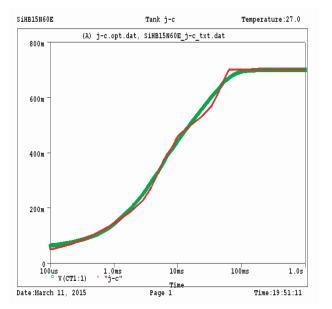
R-C VALUES FOR FILTER CONFIGURATION THERMAL RESISTANCE (°C/W)					
RF1	n/a	98.0201m	n/a		
RF2	n/a	62.3196m	n/a		
RF3	n/a	319.3378m	n/a		
RF4	n/a	220.3225m	n/a		
	THERMAL CAPAC	CITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot		
CF1	n/a	1.8840m	n/a		
CF2	n/a	9.5543m	n/a		
CF3	n/a	1.8538m	n/a		
CF4	n/a	104.0989m	n/a		

Note

• n/a indicates not applicable

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