

## 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	17.1126	519.2120m	N/A
RT2	6.8690	773.1836m	N/A
RT3	16.1637	512.2163m	N/A
RT4	40.6062	612.0871m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.4426	35.3995m	N/A
CT2	6.7338m	9.4201m	N/A
CT3	49.6220m	914.9923u	N/A
CT4	1.9725	28.5198m	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**

<b>R-C VALUES FOR FILTER CONFIGURATION</b>			
<b>THERMAL RESISTANCE (°C/W)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
RF1	3.8336	522.6738m	N/A
RF2	15.8950	1.1379	N/A
RF3	16.9738	718.9857m	N/A
RF4	44.0266	22.2690m	N/A
<b>THERMAL CAPACITANCE (Joules/°C)</b>			
<b>Junction to</b>	<b>Ambient</b>	<b>Case</b>	<b>Foot</b>
CF1	3.2477m	651.8629u	N/A
CF2	17.0412m	4.1647m	N/A
CF3	464.0384m	11.3940m	N/A
CF4	1.0786	76.1873m	N/A

**Note**

N/A indicates not applicable

