



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-Full Copper	Ambient-Minimum Copper	Foot
RT1	49.7725	80.0097	N/A
RT2	63.4555	50.5952	N/A
RT3	29.4154	81.9322	N/A
RT4	42.3566	117.4629	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient-Full Copper	Ambient-Minimum Copper	Foot
CT1	1.4624	379.2857m	N/A
CT2	726.3768u	216.5842u	N/A
CT3	41.5842m	17.7102m	N/A
CT4	140.4806u	922.2411u	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-Full Copper	Ambient-Minimum Copper	Foot
RF1	64.5758	60.3541	N/A
RF2	45.5712	112.0105	N/A
RF3	26.8463	84.3181	N/A
RF4	48.0067	73.3173	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient-Full Copper	Ambient-Minimum Copper	Foot
CF1	123.6881u	152.1308u	N/A
CF2	1.0726m	603.3566u	N/A
CF3	50.8911m	14.8092m	N/A
CF4	1.4413	396.7026m	N/A

Note

- n/a indicates not applicable

