

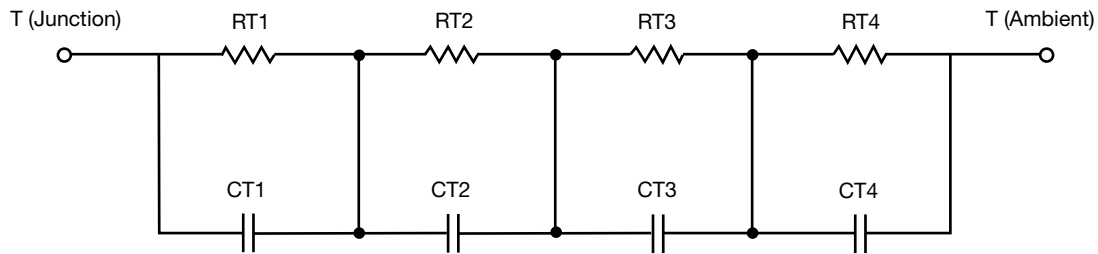
R-C Thermal Model Parameters

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-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	1.4625	379.2868m	n/a
CT2	726.2381u	216.5849u	n/a
CT3	41.5280m	17.7105m	n/a
CT4	140.4882u	922.2424u	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	123.9497u	151.8190u	n/a
CF2	1.0736m	601.9485u	n/a
CF3	50.7900m	14.8017m	n/a
CF4	1.4354	395.4353m	n/a

Note

- n/a indicates not applicable

