

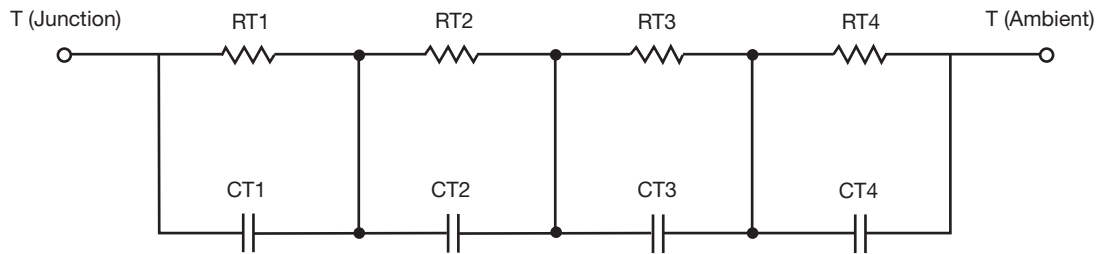
R-C Thermal Model Parameters

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-Maximum Copper	Ambient-Minimum Copper	Foot
RT1	12.8248	45.1147	n/a
RT2	19.2749	27.913	n/a
RT3	7.6094	43.7693	n/a
RT4	45.2909	58.203	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient-Maximum Copper	Ambient-Minimum Copper	Foot
CT1	1.1262m	6.0905m	n/a
CT2	4.6477m	1.0009m	n/a
CT3	388.3882m	82.4402m	n/a
CT4	1.3177	790.3907m	n/a

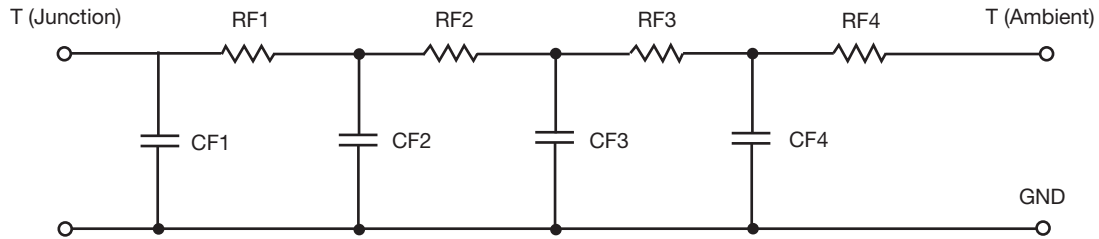
Note

- 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-Maximum Copper	Ambient-Minimum Copper	Foot
RF1	6.6816	28.8531	n/a
RF2	21.9645	49.9437	n/a
RF3	10.4237	51.3801	n/a
RF4	45.9302	44.8231	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient-Maximum Copper	Ambient-Minimum Copper	Foot
CF1	684.2544u	706.9421u	n/a
CF2	1.0002m	3.7926m	n/a
CF3	80.4005m	82.2921m	n/a
CF4	1.143	1.0287	n/a

Note

- n/a indicates not applicable

