



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	43.2503	131.6673	n/a
RT2	39.1171	90.1846	n/a
RT3	18.5118	134.6946	n/a
RT4	32.6007	41.1355	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient-Full Copper	Ambient-Minimum Copper	Foot
CT1	230.6672u	356.6958u	n/a
CT2	1.1788	244.7051m	n/a
CT3	13.8687m	3.9352m	n/a
CT4	9.8485u	17.1196u	n/a

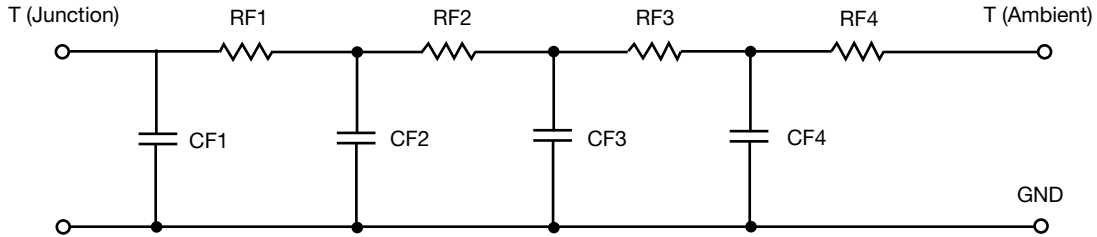
Note

- 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	35.4664	45.7400	n/a
RF2	43.1770	145.8935	n/a
RF3	16.5111	119.7150	n/a
RF4	38.1414	86.2498	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient-Full Copper	Ambient-Minimum Copper	Foot
CF1	9.4145u	16.2184u	n/a
CF2	237.7847u	309.2108u	n/a
CF3	18.3560m	3.7821m	n/a
CF4	1.1693	238.6994m	n/a

Note

- n/a indicates not applicable

