# 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
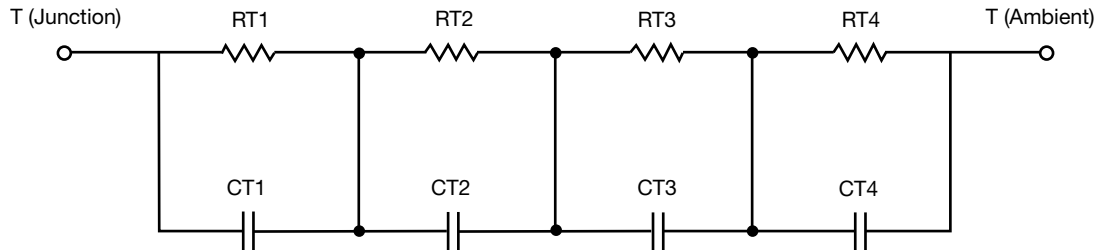
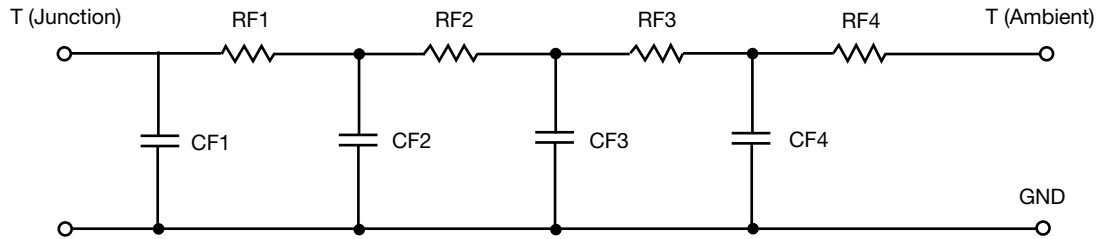| R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	21.8851	113.7564m	N/A
RT2	3.3856	156.0019m	N/A
RT3	777.2462m	70.2424m	N/A
RT4	13.9006	161.3440m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	4.6123	669.6819m	N/A
CT2	1.0693	241.2340m	N/A
CT3	53.1968m	11.4021m	N/A
CT4	6.6023	68.1279m	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	Case	Foot
RF1	1.3207	126.6349m	N/A
RF2	5.4727	114.5283m	N/A
RF3	26.7163	158.5477m	N/A
RF4	6.3731	101.8491m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	56.3746m	10.5414m	N/A
CF2	945.5625m	53.6846m	N/A
CF3	1.7131	15.2177m	N/A
CF4	234.6497m	480.4873m	N/A

Note

• n/a indicates not applicable