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 N-PCh	Case	Foot
RT1	192.3210	N/A	N/A
RT2	61.5015	N/A	N/A
RT3	320.4037	N/A	N/A
RT4	97.9177	N/A	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient N-PCh	Case	Foot
CT1	1.1215m	N/A	N/A
CT2	161.6802u	N/A	N/A
CT3	4.1548m	N/A	N/A
CT4	137.6723m	N/A	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
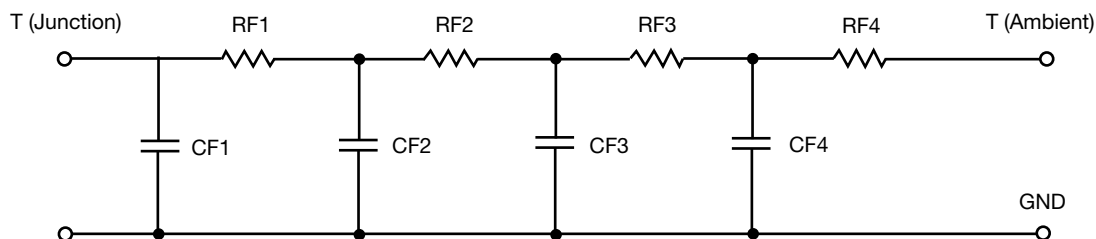
R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient N-PCh	Case	Foot
RF1	84.0821	N/A	N/A
RF2	316.9084	N/A	N/A
RF3	190.5896	N/A	N/A
RF4	80.2197	N/A	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient N-PCh	Case	Foot
CF1	137.1333u	N/A	N/A
CF2	856.4747u	N/A	N/A
CF3	6.1949m	N/A	N/A
CF4	134.1247m	N/A	N/A

Note

N/A indicates not applicable