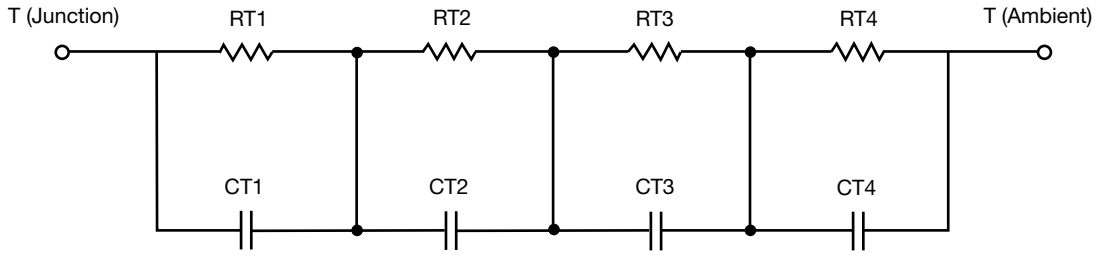
R-C Thermal Model Parameters

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

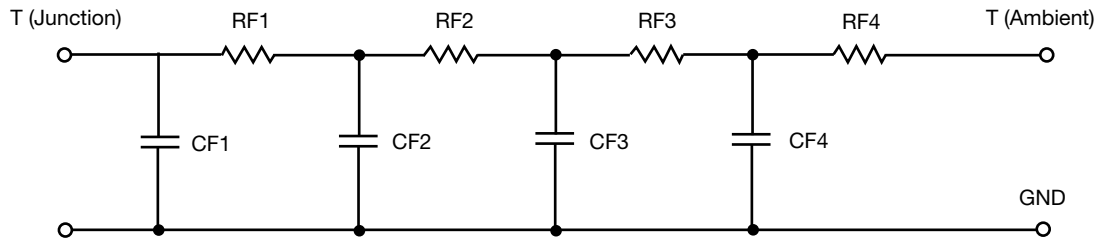


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	10.2723	N/A	14.8698
RT2	31.3272	N/A	21.2835
RT3	26.2717	N/A	6.5064
RT4	37.0647	N/A	2.4653
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.6729m	N/A	5.1618m
CT2	19.4013m	N/A	43.3168m
CT3	167.2474m	N/A	788.1029u
CT4	1.5985	N/A	5.1472

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	10.0808	N/A	5.4497
RF2	32.8666	N/A	21.5052
RF3	29.3421	N/A	8.9305
RF4	32.6626	N/A	8.7653
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.3592m	N/A	328.3391u
CF2	11.9223m	N/A	3.6039m
CF3	107.2307m	N/A	72.9857m
CF4	1.6831	N/A	13.4945u

Note
N/A indicates not applicable