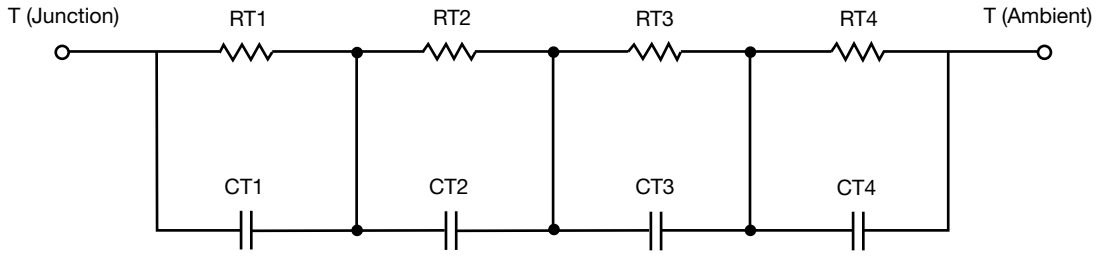
R-C Thermal Model Parameters

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

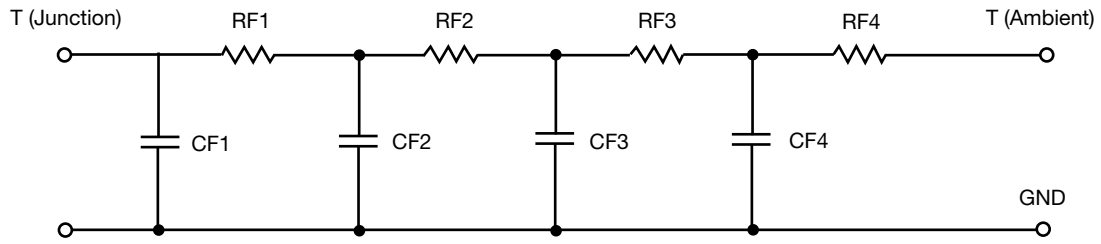


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	9.9200	N/A	1.5288
RT2	36.0063	N/A	13.9633
RT3	8.3942	N/A	10.5743
RT4	56.0196	N/A	8.9073
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	4.8803m	N/A	1.4955m
CT2	22.2855m	N/A	6.4573m
CT3	746.7562m	N/A	208.9777m
CT4	1.6946	N/A	69.6922m

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	3.9622	N/A	10.0019
RF2	30.1226	N/A	15.6863
RF3	21.7701	N/A	5.1622
RF4	54.4404	N/A	4.0751
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.1970m	N/A	2.7277m
CF2	8.8061m	N/A	15.2177m
CF3	76.1876m	N/A	184.7941m
CF4	1.5946	N/A	4.5021m

Note
N/A indicates not applicable