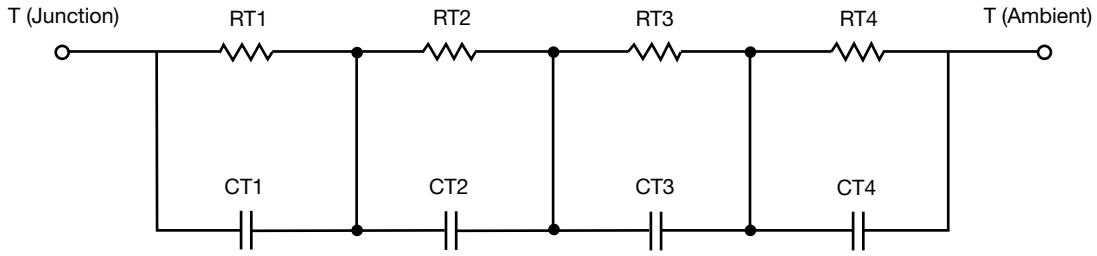
R-C Thermal Model Parameters

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

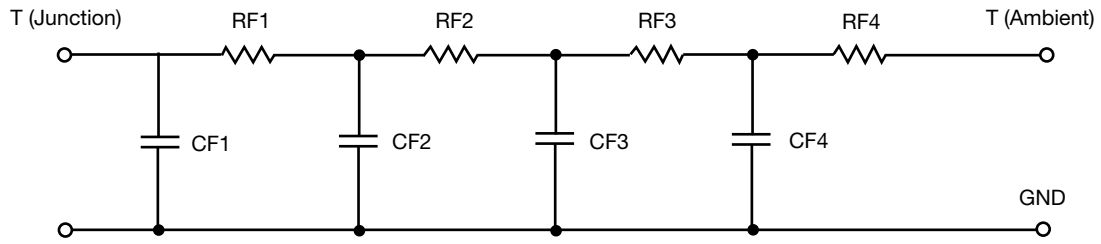


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	10.7644	N/A	25.3902
RT2	39.3417	N/A	18.0075
RT3	27.3989	N/A	6.5005
RT4	46.7861	N/A	10.1150
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	327.2863u	N/A	992.3153u
CT2	2.8848m	N/A	4.7444m
CT3	43.1177m	N/A	179.7239u
CT4	1.3447	N/A	32.2242m

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	17.2523	N/A	10.9556
RF2	40.8846	N/A	35.2046
RF3	21.2176	N/A	9.9208
RF4	45.0046	N/A	3.7183
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	379.4374u	N/A	174.0805u
CF2	3.1469m	N/A	767.5327u
CF3	56.9180m	N/A	13.7530m
CF4	1.3257	N/A	33.0215u

Note
N/A indicates not applicable