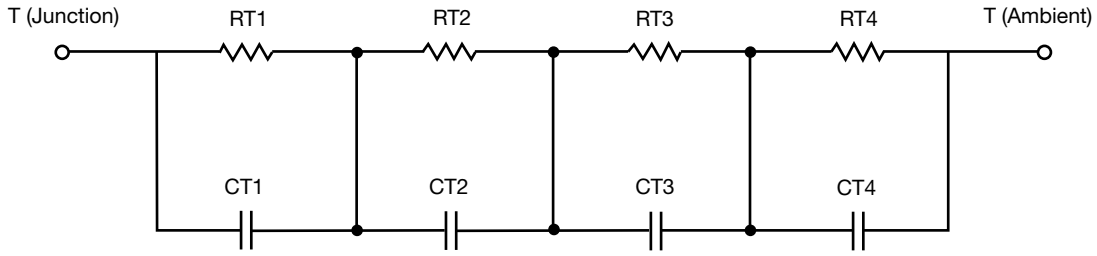
R-C Thermal Model Parameters

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

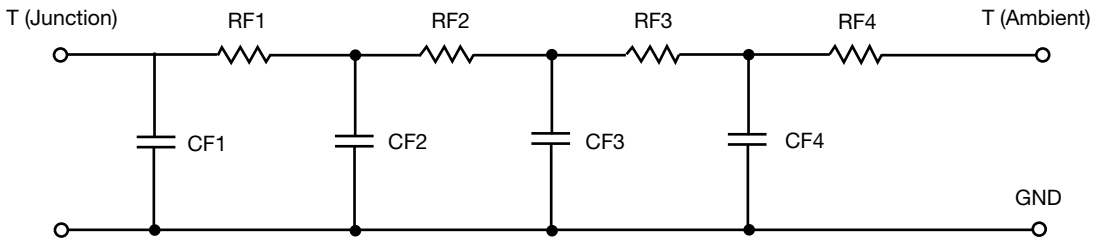


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	12.1580	22.6476m	N/A
RT2	5.5481	850.2150m	N/A
RT3	2.1869	197.9754m	N/A
RT4	29.9464	93.8171m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.1941	434.9871u	N/A
CT2	305.8976m	50.7498m	N/A
CT3	16.9395m	5.1806m	N/A
CT4	3.4196	17.2607	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	2.4899	225.2747m	N/A
RF2	8.9029	457.4818m	N/A
RF3	17.6937	322.9947m	N/A
RF4	20.7597	90.6632m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	17.2157m	3.2557m	N/A
CF2	205.1949m	37.8150m	N/A
CF3	790.5519m	37.1620m	N/A
CF4	3.6140	282.0535m	N/A

Note
N/A indicates not applicable