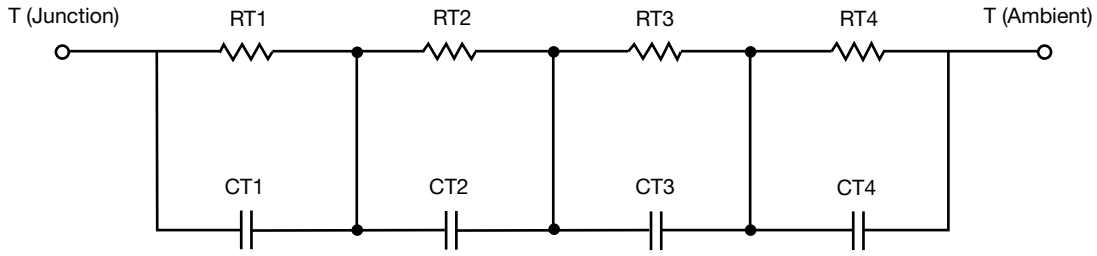
R-C Thermal Model Parameters

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



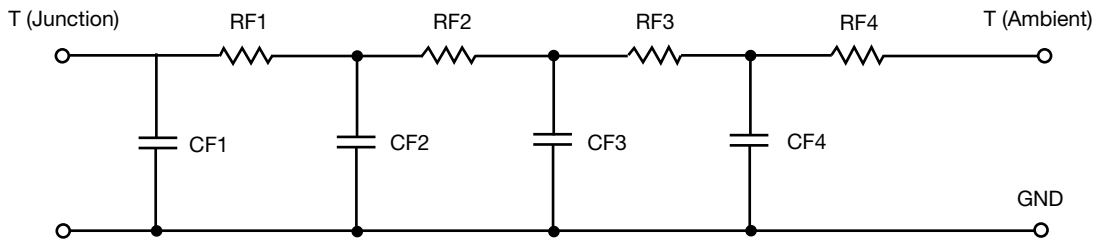
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	1.7773	498.7497m	N/A
RT2	11.2830	1.2366	N/A
RT3	8.9226	855.9841m	N/A
RT4	47.7847	9.2285m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	6.5685m	792.9288u	N/A
CT2	65.1712m	13.0960m	N/A
CT3	1.3931	9.0214m	N/A
CT4	1.6525	1.6689	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	4.5972	835.3553m	N/A
RF2	9.3756	1.2934	N/A
RF3	23.5721	269.7336m	N/A
RF4	32.2308	198.7888m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	15.2852m	881.8600u	N/A
CF2	58.9901m	5.6723m	N/A
CF3	610.7953m	12.5702m	N/A
CF4	1.5953	1.4302m	N/A

Note

- n/a indicates not applicable