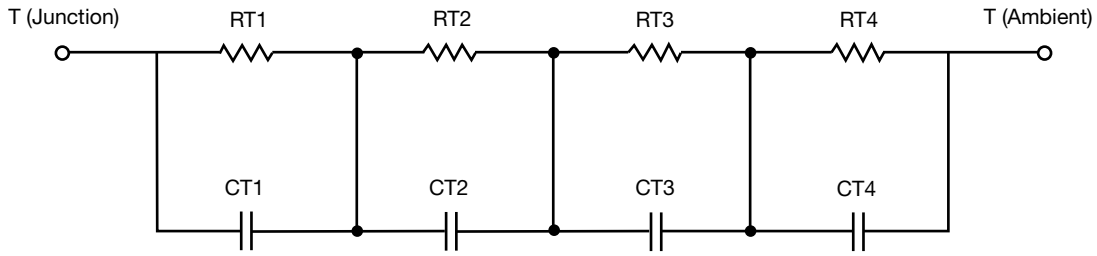
R-C Thermal Model Parameters

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 PSpice, 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 PSpice 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 PSpice Platform”.

R-C THERMAL MODEL FOR TANK CONFIGURATION



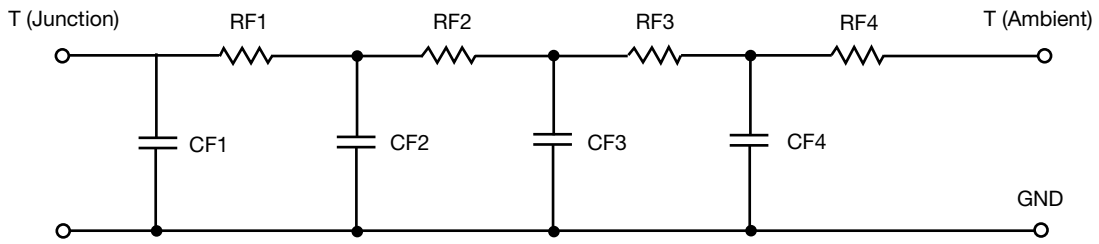
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	3.4648	643.9943m	n/a
RT2	10.1910	548.7507m	n/a
RT3	10.9617	523.9282m	n/a
RT4	45.3825	478.8909m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.7406m	4.3488m	n/a
CT2	19.1896m	6.1848m	n/a
CT3	239.4381m	459.0249u	n/a
CT4	1.6244	18.1341m	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	5.9911	538.4539m	n/a
RF2	12.4506	574.3615m	n/a
RF3	18.3648	447.3709m	n/a
RF4	33.1935	639.8137m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.5629m	319.8142u	n/a
CF2	26.3988m	1.0282m	n/a
CF3	476.5024m	1.4918m	n/a
CF4	1.9975	3.0399m	n/a

Note

- n/a indicates not applicable