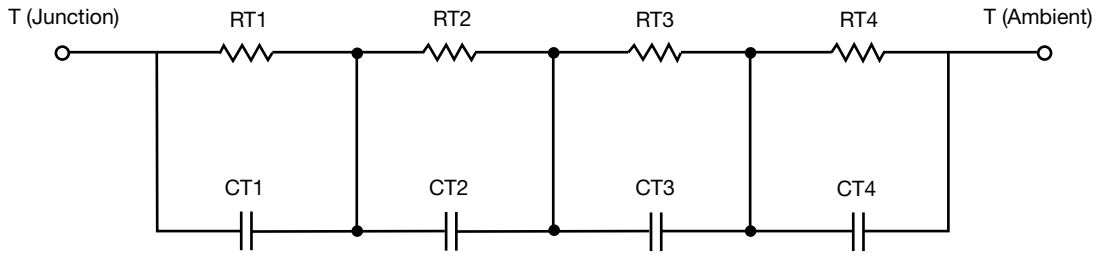
R-C Thermal Model Parameters

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



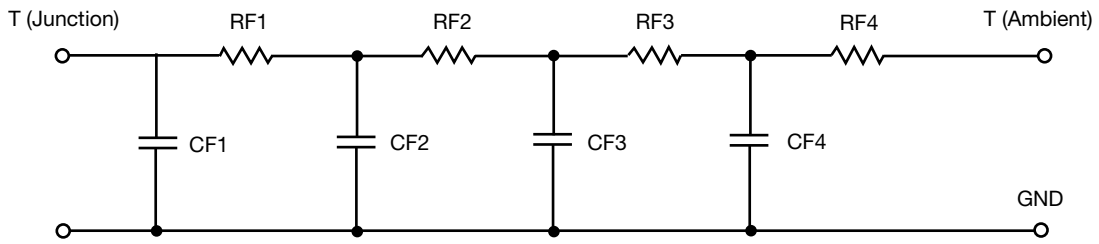
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	10.6188	667.5181m	n/a
RT2	14.5360	2.4699	n/a
RT3	4.9416	608.4584m	n/a
RT4	50.6409	763.9922m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	273.9002m	530.3164u	n/a
CT2	22.2190m	5.4407m	n/a
CT3	3.9804m	38.2362m	n/a
CT4	1.2541	3.0012m	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	8.0602	915.8463m	n/a
RF2	17.3277	897.8975m	n/a
RF3	20.1149	1.6678	n/a
RF4	35.3968	1.0155	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	3.7539m	431.9700u	n/a
CF2	24.4956m	953.2681u	n/a
CF3	535.4813m	3.3297m	n/a
CF4	1.2206	440.3418u	n/a

Note

- n/a indicates not applicable