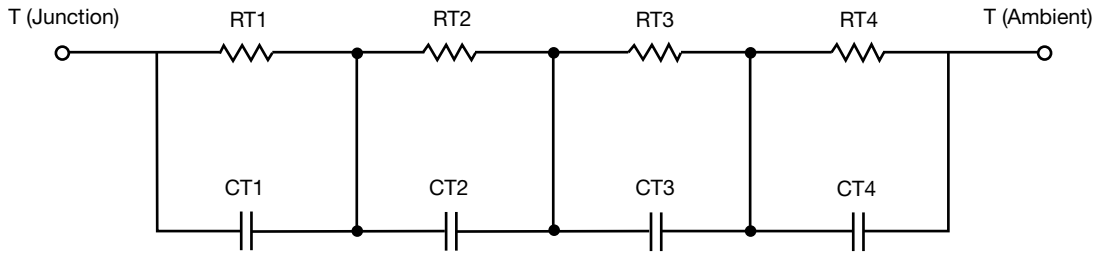
R-C Thermal Model Parameters

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



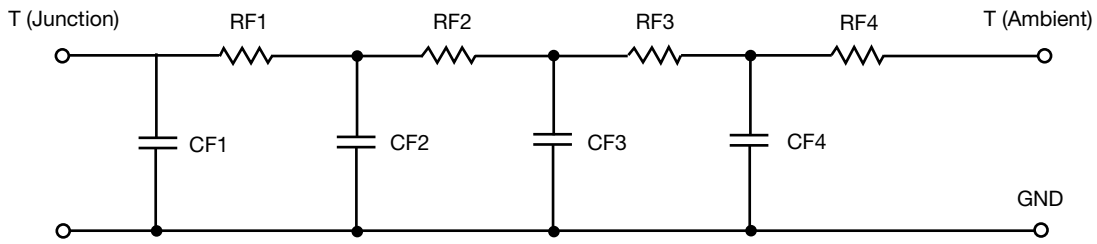
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.6671	523.6347m	n/a
RT2	29.3595	121.2703m	n/a
RT3	6.0060	93.1270m	n/a
RT4	16.9674	361.9680m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	6.2418m	1.5490m	n/a
CT2	3.7898	23.1816m	n/a
CT3	149.7055m	99.4491u	n/a
CT4	1.1072	755.0714u	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	2.3765	240.2205m	n/a
RF2	7.5989	475.5150m	n/a
RF3	25.5970	203.2297m	n/a
RF4	19.4276	181.0348m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	4.4141m	162.7711u	n/a
CF2	95.8332m	411.9658u	n/a
CF3	749.7230m	1.6297m	n/a
CF4	4.8178	249.1401u	n/a

Note

- n/a indicates not applicable