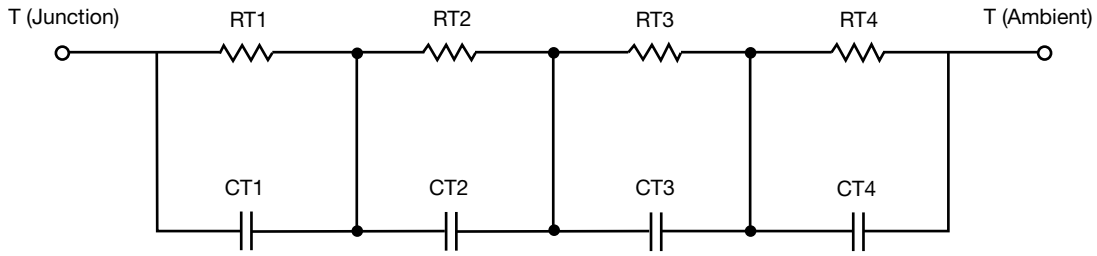
R-C Thermal Model Parameters

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



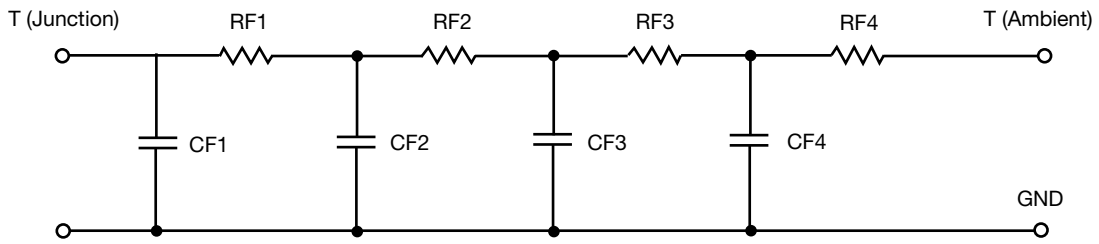
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	3.7469	826.9201m	n/a
RT2	10.1237	974.6534m	n/a
RT3	10.3255	431.5265m	n/a
RT4	45.8039	1.0669	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.9148m	12.2646m	n/a
CT2	40.8574m	3.3336m	n/a
CT3	361.3102m	679.4834u	n/a
CT4	1.4484	10.5347m	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	3.5392	1.1784	n/a
RF2	11.0366	584.0920m	n/a
RF3	12.8711	1.2455	n/a
RF4	42.5531	292.0080m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	1.0453m	689.1036u	n/a
CF2	26.9837m	3.0325m	n/a
CF3	197.1650m	556.5222u	n/a
CF4	1.2747	10.1133m	n/a

Note

- n/a indicates not applicable