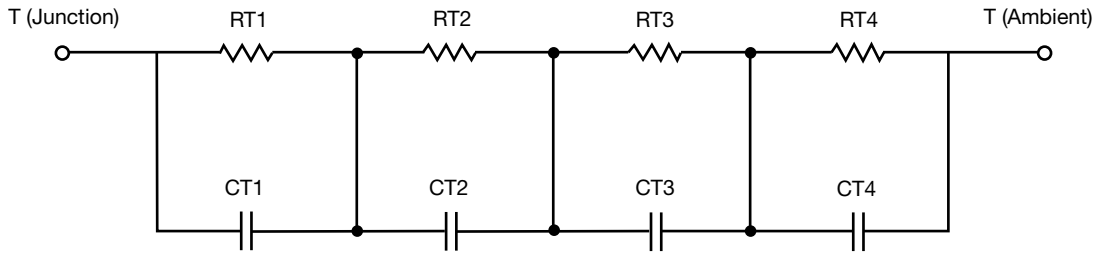
R-C Thermal Model Parameters

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



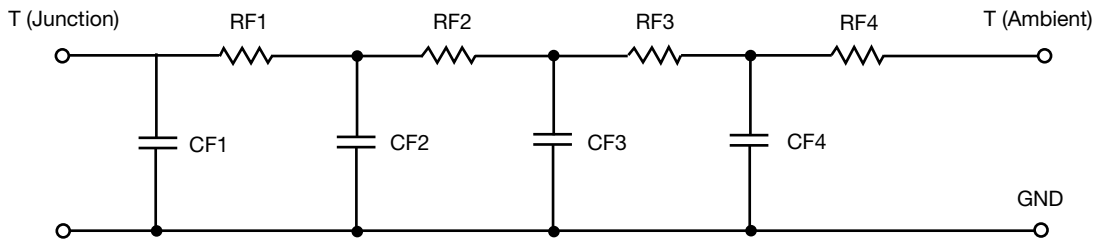
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.6436	63.3366m	n/a
RT2	13.1123	130.0983m	n/a
RT3	374.2000m	116.6595m	n/a
RT4	23.8699	89.9056m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	729.7622m	212.1474m	n/a
CT2	4.4534	10.1414m	n/a
CT3	32.2306m	5.3242m	n/a
CT4	4.9198	64.3798m	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	327.5000m	107.8719m	n/a
RF2	2.5217	128.5110m	n/a
RF3	22.8575	41.3600m	n/a
RF4	14.2933	122.2571m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	39.8492m	2.4732m	n/a
CF2	201.0480m	1.9065m	n/a
CF3	1.8288	14.6422m	n/a
CF4	3.0116	29.4780m	n/a

Note

- n/a indicates not applicable