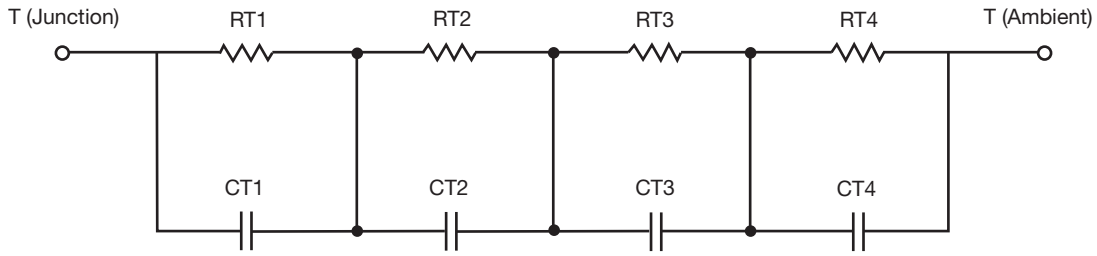
R-C Thermal Model Parameters

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



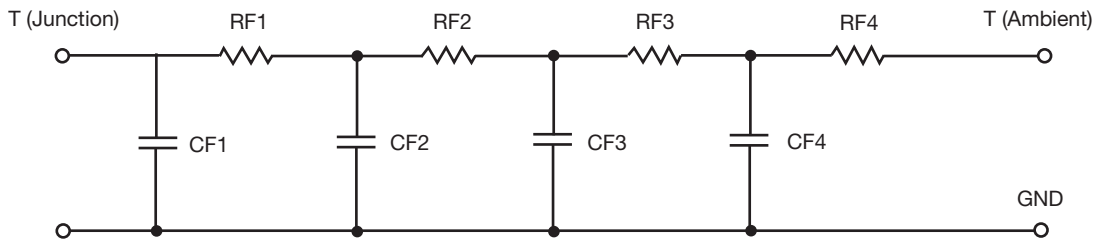
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	19.9231	32.3220m	n/a
RT2	11.2170	250.6132m	n/a
RT3	7.8507	341.0582m	n/a
RT4	3.0092	475.7066m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	4.6330	3.6152m	n/a
CT2	3.7242	2.8910	n/a
CT3	108.4374m	30.5415m	n/a
CT4	27.7645m	98.3384m	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	3.6267	524.4659m	n/a
RF2	8.1445	324.8333m	n/a
RF3	22.2249	43.9408m	n/a
RF4	8.0039	206.7600m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	20.6891m	18.3812m	n/a
CF2	85.2278m	98.1025m	n/a
CF3	2.1553	277.3109m	n/a
CF4	966.7335m	3.2718	n/a

Note

- n/a indicates not applicable