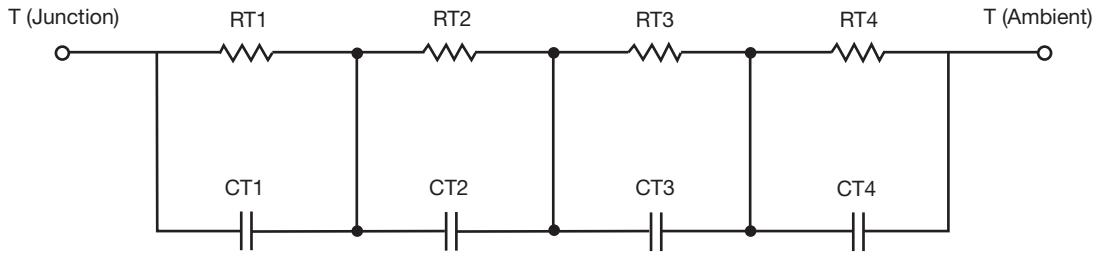
R-C Thermal Model Parameters

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



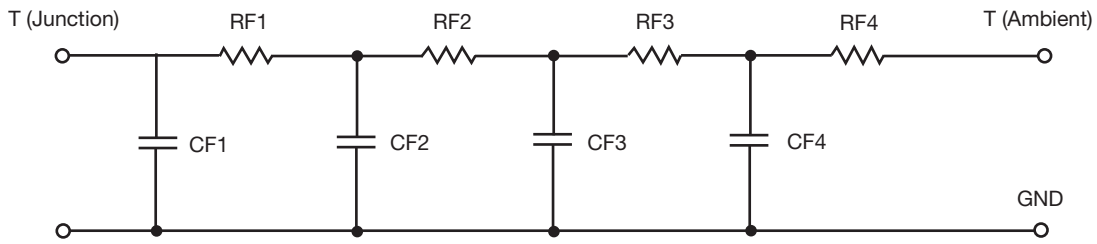
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	9.9838	587.4579m	n/a
RT2	7.7580	825.8679m	n/a
RT3	1.1536	59.3621m	n/a
RT4	46.1046	927.3121m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	371.7864m	2.3183m	n/a
CT2	49.0612m	20.4936m	n/a
CT3	3.2779m	1.6657m	n/a
CT4	1.4811	15.6566m	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	2.4989	446.3680m	n/a
RF2	10.5217	764.3633m	n/a
RF3	12.4388	697.5599m	n/a
RF4	39.5406	491.7088m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	4.3788m	1.1383m	n/a
CF2	45.3762m	2.0969m	n/a
CF3	408.6075m	9.5449m	n/a
CF4	1.1825	20.3426u	n/a

Note

- n/a indicates not applicable