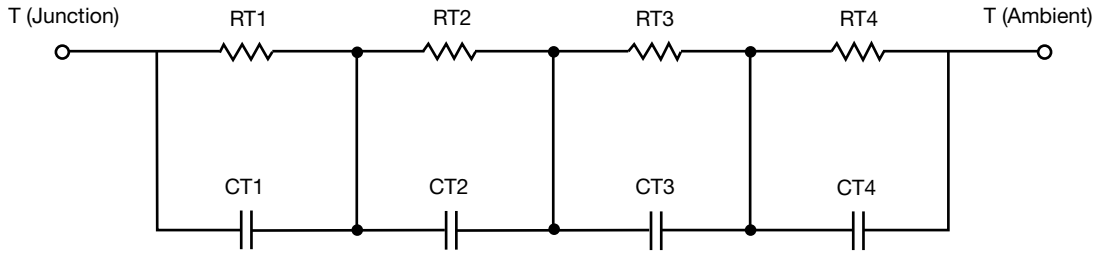
R-C Thermal Model Parameters

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 P-SPICE, 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 P-SPICE 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 P-SPICE Platform”.

R-C THERMAL MODEL FOR TANK CONFIGURATION



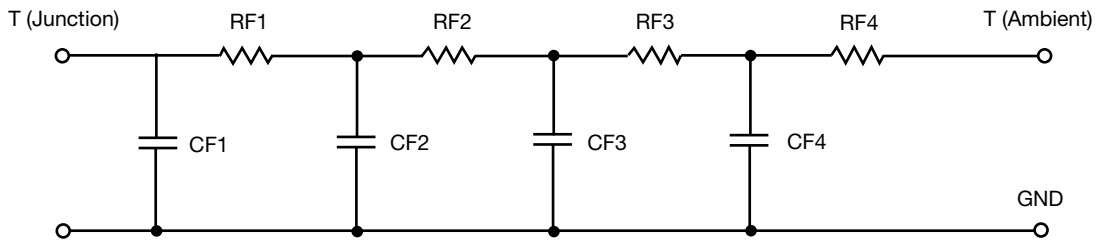
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	2.6589	78.8700m	N/A
RT2	6.5775	1.1503	N/A
RT3	9.6454	108.1800m	N/A
RT4	46.1182	462.6500m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	19.3342m	5.5342u	N/A
CT2	108.8288m	13.3983m	N/A
CT3	487.0439m	139.3863m	N/A
CT4	1.5446	9.6801m	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	6.4734	90.7507m	N/A
RF2	11.5611	1.2304	N/A
RF3	15.2442	102.0668m	N/A
RF4	31.7213	376.7825m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	25.1473m	467.2822u	N/A
CF2	119.0129m	5.0195m	N/A
CF3	902.3964m	19.3234m	N/A
CF4	708.6585m	6.3030m	N/A

Note

- n/a indicates not applicable