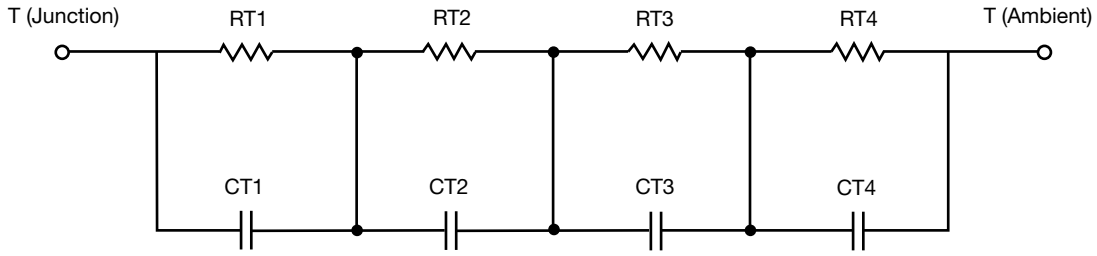
R-C Thermal Model Parameters

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

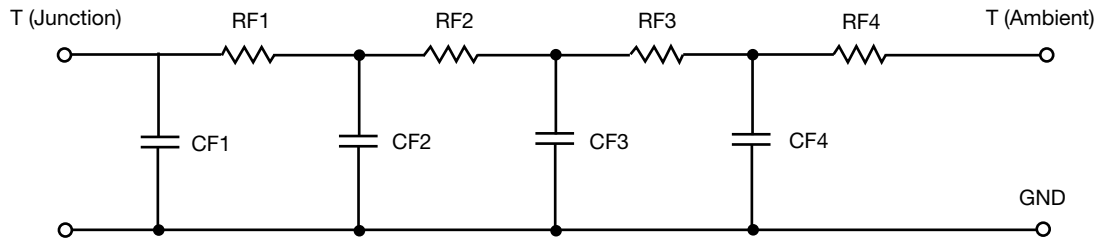


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	30.7325	N/A	86.4552
RT2	33.9303	N/A	28.2822
RT3	198.5157	N/A	66.7214
RT4	146.8209	N/A	117.5861
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	1.0213	N/A	583.2469u
CT2	88.8717u	N/A	43.9099u
CT3	6.2427m	N/A	33.8964m
CT4	1.0838m	N/A	2.7410m

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	38.7381	N/A	34.6397
RF2	184.0768	N/A	122.4750
RF3	152.7850	N/A	100.1321
RF4	33.4432	N/A	42.1701
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	73.9758u	N/A	49.6912u
CF2	831.2381u	N/A	431.4476u
CF3	5.8851m	N/A	3.3530m
CF4	604.5864m	N/A	54.2251m

Note
N/A indicates not applicable