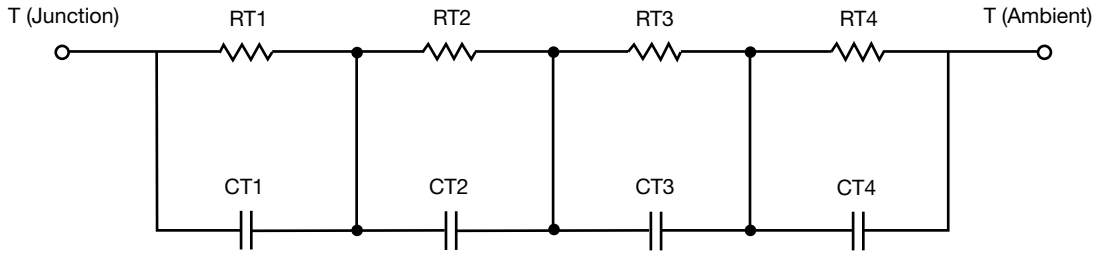
R-C Thermal Model Parameters

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

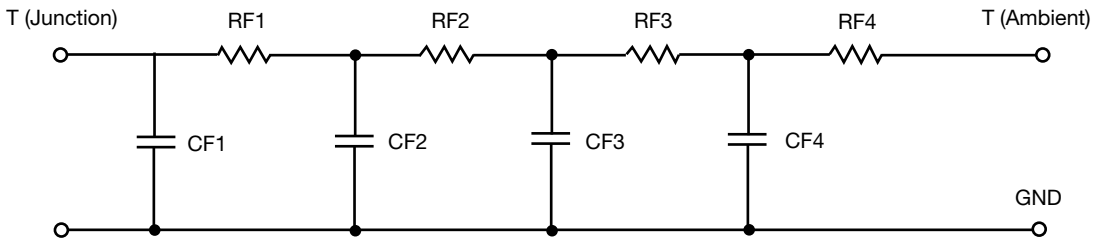


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	50.4543	N/A	116.7775
RT2	51.3463	N/A	104.7328
RT3	190.4217	N/A	70.6449
RT4	136.7068	N/A	47.8448
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	93.1541u	N/A	656.9581u
CT2	906.9822m	N/A	170.2609u
CT3	6.0447m	N/A	1.8163m
CT4	1.3935m	N/A	17.4542u

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	49.9352	N/A	60.7644
RF2	173.0018	N/A	168.6389
RF3	155.9927	N/A	100.0122
RF4	50.3639	N/A	10.5845
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	69.7709u	N/A	15.2430u
CF2	892.6995u	N/A	120.4802u
CF3	5.3040m	N/A	602.3505u
CF4	912.6752m	N/A	15.5404m

Note
N/A indicates not applicable