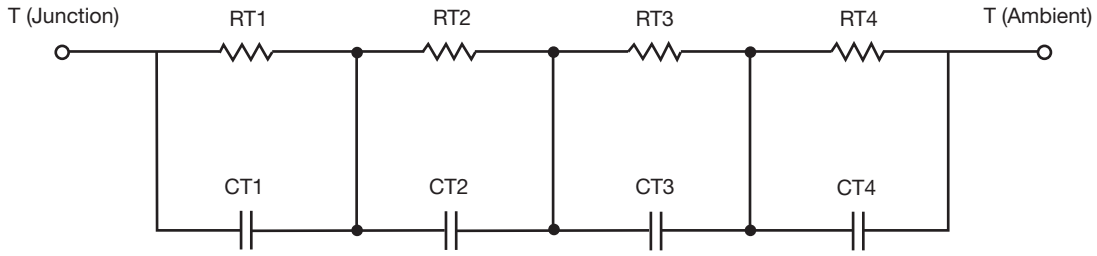
R-C Thermal Model Parameters

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

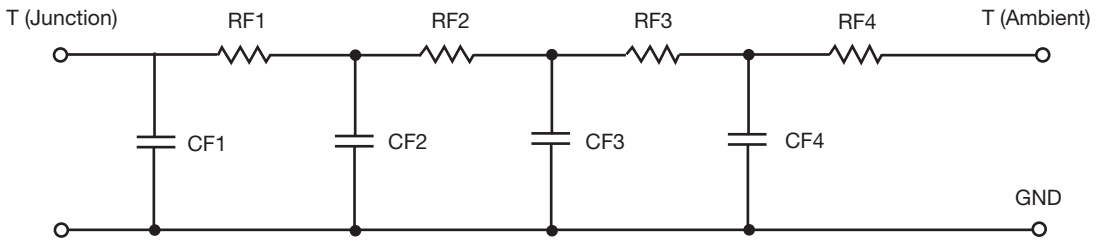


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient-Full Copper**	**Case**	**Ambient-Minimum Copper**
RT1	49.7725	N/A	80.0097
RT2	63.4555	N/A	50.5952
RT3	29.4154	N/A	81.9322
RT4	42.3566	N/A	117.4629
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient-Full Copper**	**Case**	**Ambient-Minimum Copper**
CT1	1.4634	N/A	379.3081m
CT2	726.0516u	N/A	216.6307u
CT3	41.6025m	N/A	17.6951m
CT4	140.1838u	N/A	922.2547u

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-Full Copper**	**Case**	**Ambient-Minimum Copper**
RF1	64.5758	N/A	60.3541
RF2	45.5712	N/A	112.0105
RF3	26.8463	N/A	84.3181
RF4	48.0067	N/A	73.3173
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient-Full Copper**	**Case**	**Ambient-Minimum Copper**
CF1	123.7264u	N/A	151.9302u
CF2	1.0825m	N/A	603.8145u
CF3	50.3194m	N/A	14.8117m
CF4	1.4521	N/A	395.9794m

Note
N/A indicates not applicable