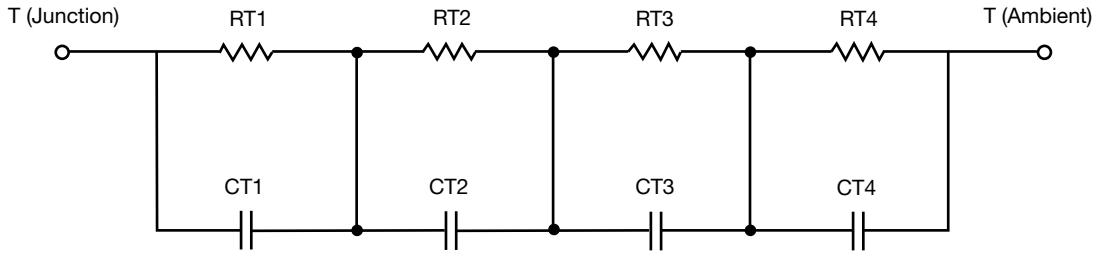
R-C Thermal Model Parameters

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

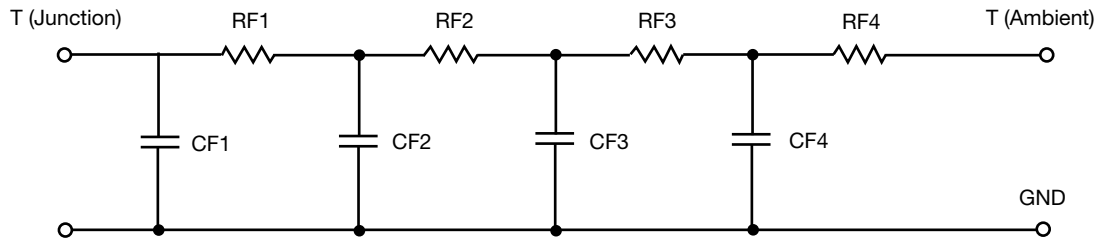


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	6.8691	N/A	6.9691
RT2	29.7186	N/A	7.1401
RT3	22.2929	N/A	16.5264
RT4	51.1194	N/A	7.4970
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	192.4257u	N/A	24.4542m
CT2	2.8877m	N/A	97.5800u
CT3	61.5344m	N/A	1.1742m
CT4	1.7756	N/A	8.7921m

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	13.5537	N/A	9.0737
RF2	34.6494	N/A	20.2614
RF3	31.5664	N/A	4.4365
RF4	30.2305	N/A	4.2630
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	368.1080u	N/A	94.6325u
CF2	4.7639m	N/A	1.0386m
CF3	503.7330m	N/A	4.3147m
CF4	3.5416	N/A	28.7568m

Note
N/A indicates not applicable