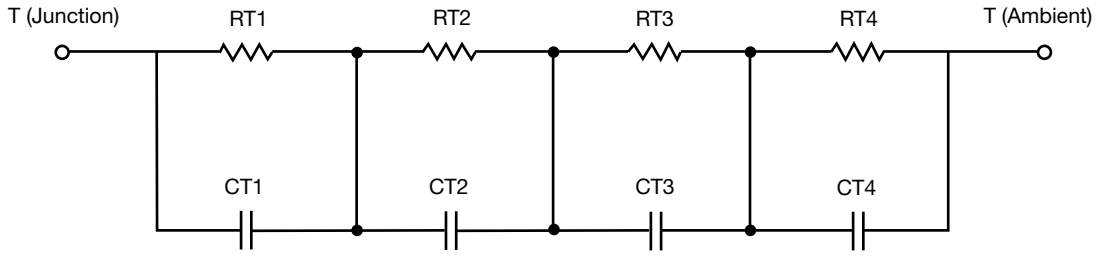
R-C Thermal Model Parameters

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

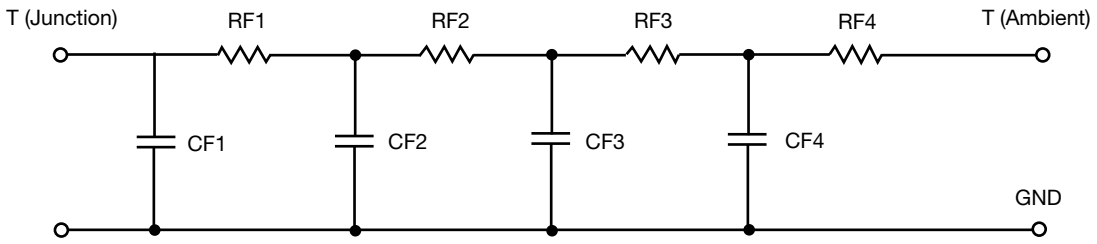


R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	25.7807	N/A	7.3702
RT2	10.0485	N/A	5.1225
RT3	5.9029	N/A	6.3038
RT4	43.2679	N/A	3.2035
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	51.8091m	N/A	147.5828m
CT2	6.8767u	N/A	8.6908m
CT3	9.8143m	N/A	109.3631m
CT4	1.5541	N/A	52.3585u

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	10.0124	N/A	3.3194
RF2	8.7944	N/A	7.0145
RF3	25.1153	N/A	9.7012
RF4	41.0779	N/A	1.9649
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	6.0196u	N/A	49.5029u
CF2	8.2915m	N/A	8.2374m
CF3	48.6293m	N/A	69.2851m
CF4	1.5955	N/A	676.3062u

Note
N/A indicates not applicable