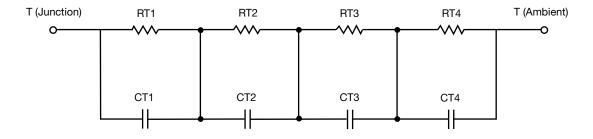# R-C Thermal Model Parameters

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 PSpice, 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 PSpice 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 PSpice Platform".

R-C THERMAL MODEL FOR TANK CONFIGURATION

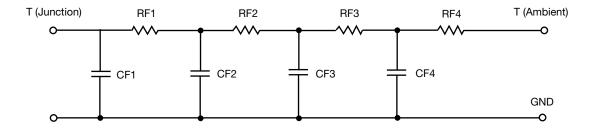| R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	n/a	355.5383m	n/a
RT2	n/a	188.9848m	n/a
RT3	n/a	3.7658m	n/a
RT4	n/a	1.7111m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	n/a	60.3582m	n/a
CT2	n/a	109.2384m	n/a
CT3	n/a	9.2364m	n/a
CT4	n/a	6.0143m	n/a

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	n/a	3.9560m	n/a
RF2	n/a	393.5071m	n/a
RF3	n/a	141.7468m	n/a
RF4	n/a	10.7901m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	n/a	17.6382m	n/a
CF2	n/a	19.4591m	n/a
CF3	n/a	477.1934u	n/a
CF4	n/a	8.0976m	n/a

Note

• n/a indicates not applicable