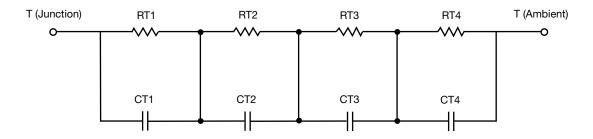# R-C Thermal Model Parameters

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

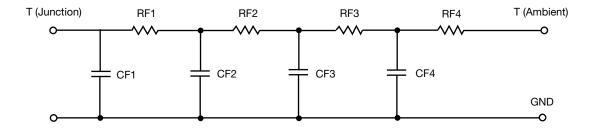| R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	43.0726	45.0911m	n/a
RT2	7.5007	566.1039m	n/a
RT3	12.4332	836.9466m	n/a
RT4	1.5651	356.6991m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.8210	199.6857u	n/a
CT2	51.8236m	68.7996m	n/a
CT3	466.1293m	51.7980m	n/a
CT4	5.0260m	6.4757m	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	4.1631	413.8437m	n/a
RF2	9.2178	416.3104m	n/a
RF3	18.1030	256.6934m	n/a
RF4	33.1784	715.7935m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	11.0289m	3.3706m	n/a
CF2	69.5533m	18.2898m	n/a
CF3	469.5532m	7.3350m	n/a
CF4	1.7579	10.5077m	n/a

Note

• n/a indicates not applicable