



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	13.4893	749.3627m	n/a
RT2	8.0413	947.7470m	n/a
RT3	3.1557	671.2174m	n/a
RT4	45.1950	354.0292m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	228.1477m	26.6579m	n/a
CT2	29.4833m	15.0320m	n/a
CT3	1.5619m	1.5304m	n/a
CT4	1.5065	31.4913m	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	4.0894	925.4799m	n/a
RF2	11.2307	565.6445m	n/a
RF3	15.7183	1.1184	n/a
RF4	38.8188	112.1113m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.7297m	1.2265m	n/a
CF2	31.9123m	6.8789m	n/a
CF3	268.4064m	1.5140u	n/a
CF4	1.4217	155.7077m	n/a

Note

- n/a indicates not applicable

