



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	17.6382	69.9330m	n/a
RT2	9.1792	328.6946m	n/a
RT3	6.6744	545.3977m	n/a
RT4	31.5082	555.9747m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.7091	424.2166u	n/a
CT2	265.8076m	14.0061m	n/a
CT3	34.4248m	19.7153m	n/a
CT4	2.3886	35.5188m	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	6.2512	97.0991m	n/a
RF2	10.0102	741.9069m	n/a
RF3	29.9743	466.6080m	n/a
RF4	18.7643	194.3881m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	24.5021m	934.7667u	n/a
CF2	117.2105m	5.4010m	n/a
CF3	857.0343m	8.1292m	n/a
CF4	2.3784	35.2006m	n/a

Note

- n/a indicates not applicable

