



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	11.6471	102.4024m	n/a
RT2	2.1204	178.7438m	n/a
RT3	1.5181	239.2567m	n/a
RT4	24.7144	479.5971m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	9.5009	4.1628m	n/a
CT2	1.4716	399.2007m	n/a
CT3	210.3317m	3.0272m	n/a
CT4	3.5599	20.1011m	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	1.8830	201.8428m	n/a
RF2	7.7647	248.4252m	n/a
RF3	14.0639	465.0192m	n/a
RF4	16.2884	84.7128m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	115.4236m	1.5268m	n/a
CF2	1.1496	762.3465u	n/a
CF3	1.4131	25.6185m	n/a
CF4	1.1953	1.3080	n/a

Note

- n/a indicates not applicable

