



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	139.4436m	n/a
RT2	2.1204	95.3592m	n/a
RT3	1.5181	48.7923m	n/a
RT4	24.7144	216.4049m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	9.5009	49.1074m	n/a
CT2	1.4716	806.2055m	n/a
CT3	210.3317m	10.3499m	n/a
CT4	3.5599	163.6698m	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	102.4339m	n/a
RF2	7.7647	198.2584m	n/a
RF3	14.0639	118.2265m	n/a
RF4	16.2884	81.0812m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	115.4236m	9.9664m	n/a
CF2	1.1496	38.5769m	n/a
CF3	1.4131	98.6377m	n/a
CF4	1.1953	487.8784m	n/a

Note

- n/a indicates not applicable

