



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	4.5034	460.2591m	n/a
RT2	13.2634	275.5326m	n/a
RT3	6.0352	319.7662m	n/a
RT4	30.1980	140.2449m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	31.9104m	184.1382m	n/a
CT2	1.4683	26.7314m	n/a
CT3	241.8779m	60.2684m	n/a
CT4	3.6512	954.2000u	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	5.0060	177.6155m	n/a
RF2	6.9882	598.7150m	n/a
RF3	21.4063	331.7787m	n/a
RF4	20.5994	88.1093m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	24.9483m	1.2323m	n/a
CF2	130.9790m	17.9738m	n/a
CF3	832.2918m	104.4197m	n/a
CF4	4.1580	1.4187	n/a

Note

- n/a indicates not applicable

