



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	7.9892	235.0967m	n/a
RT2	6.1462	210.2907m	n/a
RT3	1.3297	197.4123m	n/a
RT4	34.2342	463.3201m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	502.0408m	311.6263m	n/a
CT2	37.9057m	271.7333m	n/a
CT3	1.8534m	3.4453m	n/a
CT4	1.1773	79.8622m	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	1.9141	228.8434m	n/a
RF2	7.3595	855.5031m	n/a
RF3	14.6737	6.4782m	n/a
RF4	25.7787	4.8527m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.1559m	3.3845m	n/a
CF2	37.2826m	49.8875m	n/a
CF3	373.2207m	18.8003	n/a
CF4	1.0459	1.3217m	n/a

Note

- n/a indicates not applicable

