



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	4.3995	457.3061m	n/a
RT2	35.2150	385.9538m	n/a
RT3	14.0685	802.8660m	n/a
RT4	16.3170	556.9695m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.2026m	428.1864u	n/a
CT2	2.8333	13.7595m	n/a
CT3	27.3501m	2.6020m	n/a
CT4	955.3359m	14.0160m	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	2.7293	665.5589m	n/a
RF2	15.6355	736.1656m	n/a
RF3	23.6554	583.0927m	n/a
RF4	27.9798	215.1828m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	504.9210u	381.3301u	n/a
CF2	16.8734m	1.5872m	n/a
CF3	588.7018m	1.4590m	n/a
CF4	2.6384	40.8187m	n/a

Note

- n/a indicates not applicable

