



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	22.2059	799.2365m	n/a
RT2	23.7669	4.6484	n/a
RT3	7.6017	3.3644	n/a
RT4	36.4255	2.1482	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	104.7266m	3.4906m	n/a
CT2	5.8752m	789.4879u	n/a
CT3	199.1127u	138.3058u	n/a
CT4	2.3698	4.0745m	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	8.0406	5.3844	n/a
RF2	25.0454	2.5345	n/a
RF3	21.4374	2.1787	n/a
RF4	35.4766	902.4000m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	168.0138u	124.4716u	n/a
CF2	5.1683m	403.4326u	n/a
CF3	88.5345m	1.3860m	n/a
CF4	2.2342	227.2856u	n/a

Note

- n/a indicates not applicable

