



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	43.0726	43.5060m	n/a
RT2	7.5007	579.5486m	n/a
RT3	12.4332	840.9497m	n/a
RT4	1.5651	342.9524m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.8210	198.9916u	n/a
CT2	51.8236m	67.5793m	n/a
CT3	466.1293m	51.1961m	n/a
CT4	5.0260m	6.0268m	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	4.1653	412.0976m	n/a
RF2	9.2227	414.5048m	n/a
RF3	18.1030	258.3381m	n/a
RF4	33.1784	718.1150m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	11.0348m	3.3649m	n/a
CF2	69.5528m	18.1036m	n/a
CF3	469.5505m	6.9566m	n/a
CF4	1.7588	9.9602m	n/a

Note

- n/a indicates not applicable

