

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 P-SPICE, 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 P-SPICE 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 P-SPICE Platform".

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	N/A	135.7167m	N/A
RT2	N/A	28.7397m	N/A
RT3	N/A	49.3990m	N/A
RT4	N/A	15.6310m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	N/A	321.4137m	N/A
CT2	N/A	82.6649m	N/A
CT3	N/A	121.8473m	N/A
CT4	N/A	6.1620m	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	N/A	43.4526m	N/A
RF2	N/A	22.0418m	N/A
RF3	N/A	56.9347m	N/A
RF4	N/A	106.6470m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	N/A	12.7326m	N/A
CF2	N/A	58.4076m	N/A
CF3	N/A	2.2507m	N/A
CF4	N/A	298.3987m	N/A

Note

N/A indicates not applicable

