



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	11.5763	1.7132	n/a
RT2	2.6086	780.4250m	n/a
RT3	15.6746	838.8750m	n/a
RT4	51.1405	1.1675	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	222.5365m	6.5458m	n/a
CT2	1.8574m	6.3893m	n/a
CT3	14.4440m	477.3020u	n/a
CT4	1.2219	18.6562m	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	3.9388	1.4011	n/a
RF2	16.1338	1.7489	n/a
RF3	15.0981	1.2189	n/a
RF4	45.8293	131.1000m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.6428m	468.4146u	n/a
CF2	12.7668m	3.3748m	n/a
CF3	192.1122m	1.5716m	n/a
CF4	1.1884	528.8642m	n/a

Note

- n/a indicates not applicable

