



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	3.5302	355.0189u	n/a
RT2	15.5146	387.6525m	n/a
RT3	10.9190	788.8922m	n/a
RT4	50.0362	824.6885m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	6.3365m	133.2390u	n/a
CT2	89.2381m	3.4686m	n/a
CT3	1.5005	48.6912m	n/a
CT4	1.6872	48.9651m	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	4.1150	12.1320m	n/a
RF2	13.5178	594.7650m	n/a
RF3	24.1576	766.4783m	n/a
RF4	38.2096	628.9017m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	7.5813m	1.2398u	n/a
CF2	53.0129m	3.9732m	n/a
CF3	448.2773m	23.9120m	n/a
CF4	1.6111	7.6268m	n/a

Note

- n/a indicates not applicable

