



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	16.6684	5.8561m	n/a
RT2	206.3476m	130.6571m	n/a
RT3	35.9530	84.2571m	n/a
RT4	2.6348	180.6176m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	620.3890	750.3129u	n/a
CT2	13.8795m	8.5686m	n/a
CT3	2.4034	776.7372m	n/a
CT4	414.0579m	64.8332m	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	713.5911m	13.8170m	n/a
RF2	2.0301	180.1515m	n/a
RF3	2.0159	182.3410m	n/a
RF4	35.0598	24.0101m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	101.8323m	2.8234m	n/a
CF2	246.5979m	5.3883m	n/a
CF3	356.9224m	96.0870m	n/a
CF4	1.8936	4.1152	n/a

Note

- n/a indicates not applicable

