



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	5.4624	773.4522m	n/a
RT2	14.0521	250.8645m	n/a
RT3	8.6488	382.3693m	n/a
RT4	41.8367	593.3140m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	4.3529m	14.9084m	n/a
CT2	81.4497m	6.9421m	n/a
CT3	1.7261	609.4043u	n/a
CT4	1.7344	8.3270m	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	4.8447	474.1853m	n/a
RF2	17.0387	615.3405m	n/a
RF3	19.0483	721.7601m	n/a
RF4	29.0683	188.7141m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.2936m	446.1730u	n/a
CF2	61.0551m	2.9052m	n/a
CF3	842.3632m	906.8851u	n/a
CF4	1.0247	131.6774m	n/a

Note

- n/a indicates not applicable

