



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	2.8200	1.8483	n/a
RT2	17.2879	1.5239	n/a
RT3	13.4933	1.2962	n/a
RT4	46.8236	1.6783	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	500.5460u	5.2786m	n/a
CT2	10.8223m	5.1908m	n/a
CT3	248.3247m	345.6980u	n/a
CT4	1.5831	14.9480m	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	6.6876	1.6037	n/a
RF2	19.1592	2.6735	n/a
RF3	22.3763	1.9970	n/a
RF4	32.5260	10.6817m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	1.5131m	264.4232u	n/a
CF2	17.8427m	2.0951m	n/a
CF3	515.8497m	1.2438m	n/a
CF4	1.9238	3.4315u	n/a

Note

- n/a indicates not applicable

