



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 P-SPICE, 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 P-SPICE 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 P-SPICE Platform".

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	63.7575	N/A	3.1526
RT2	36.2988	N/A	23.0612
RT3	46.7664	N/A	8.5756
RT4	19.1773	N/A	14.9737
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	1.4016	N/A	311.1339u
CT2	38.6420m	N/A	35.6495m
CT3	4.6896m	N/A	5.9921m
CT4	1.0254m	N/A	13.9034m

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	28.6038	N/A	3.7513
RF2	60.6030	N/A	21.4424
RF3	22.8280	N/A	7.2191
RF4	53.9652	N/A	17.2484
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	812.7591u	N/A	290.6905u
CF2	4.5804m	N/A	3.6317m
CF3	235.8813m	N/A	19.4989m
CF4	1.5097	N/A	1.7173m

Note

- n/a indicates not applicable

