

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	4.9632	64.2225m	N/A
RT2	12.7824	1.6880	N/A
RT3	11.2826	1.1529	N/A
RT4	41.2141	387.4210m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	7.0271m	46.0382u	N/A
CT2	79.6104m	48.0444m	N/A
CT3	1.6782	43.3737m	N/A
CT4	1.7679	3.7450m	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	6.4420	309.2139m	N/A
RF2	12.9968	1.1445	N/A
RF3	19.3619	1.8437	N/A
RF4	31.2253	1.0587m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	6.8508m	1.1192m	N/A
CF2	68.7985m	10.4722m	N/A
CF3	678.6464m	28.4249m	N/A
CF4	1.0633	3.1968m	N/A

Note

N/A indicates not applicable

