



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	9.5570	201.6351m	n/a
RT2	5.1600	585.8864m	n/a
RT3	15.6182	1.5918	n/a
RT4	50.3701	413.0519m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	365.2326m	241.6669u	n/a
CT2	3.8693m	5.4127m	n/a
CT3	23.3517m	5.4802m	n/a
CT4	1.4119	749.8853u	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	6.4898	595.1641m	n/a
RF2	15.7440	1.5209	n/a
RF3	12.3625	256.6545m	n/a
RF4	46.1013	426.6525m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	3.1105m	214.9122u	n/a
CF2	17.7826m	2.0143m	n/a
CF3	240.9698m	6.4214m	n/a
CF4	1.2560	11.7438m	n/a

Note

- n/a indicates not applicable

