



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	2.8093	367.2490m	n/a
RT2	17.3923	1.2240	n/a
RT3	9.1082	79.3346m	n/a
RT4	38.6902	529.3849m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	10.8193m	6.3391m	n/a
CT2	660.4972m	40.3400m	n/a
CT3	76.8264m	21.6398u	n/a
CT4	2.9473	54.1517m	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	1.9289	288.5342m	n/a
RF2	10.4620	96.6377m	n/a
RF3	24.7179	349.8960m	n/a
RF4	30.8912	1.4649	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	4.6866m	1.8438m	n/a
CF2	37.5119m	3.9365m	n/a
CF3	442.4815m	2.1959m	n/a
CF4	3.2776	19.5576m	n/a

Note

- n/a indicates not applicable

