



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	12.1992	655.2936m	n/a
RT2	5.4915	1.1746	n/a
RT3	576.5141m	44.0643m	n/a
RT4	51.0769	853.3153m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	159.3984m	1.8545m	n/a
CT2	23.4490m	11.2239m	n/a
CT3	3.6089m	56.1831u	n/a
CT4	1.2114	23.7321m	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	6.8577	514.0159m	n/a
RF2	10.0485	511.9531m	n/a
RF3	18.9353	960.6889m	n/a
RF4	33.9738	731.4603m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	13.9221m	1.3195m	n/a
CF2	97.2880m	7.1524u	n/a
CF3	595.5611m	7.9498m	n/a
CF4	1.0446	177.8169u	n/a

Note

- n/a indicates not applicable

