

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	18.5376	89.5892m	n/a
RT2	16.3651	91.1474m	n/a
RT3	7.0559	20.9129m	n/a
RT4	2.0414	48.3505m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	5.1896	7.1683	n/a
CT2	2.3851	752.1703m	n/a
CT3	201.6368m	3.6608	n/a
CT4	33.5378m	292.3093m	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	2.1358	24.6765m	n/a
RF2	8.0135	77.5829m	n/a
RF3	25.8313	59.5763m	n/a
RF4	8.1609	88.1643m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	24.6130m	132.1687m	n/a
CF2	122.2192m	179.0471m	n/a
CF3	1.4385	34.1698m	n/a
CF4	6.9247	5.8838	n/a

Note

- n/a indicates not applicable

