



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	11.7471	306.0091m	n/a
RT2	6.7372	1.0218	n/a
RT3	3.3545	263.8566m	n/a
RT4	48.1612	608.3340m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	215.0470m	59.9098m	n/a
CT2	55.1324m	70.5355m	n/a
CT3	5.5202m	3.2626m	n/a
CT4	1.3238	157.0584m	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	5.3084	445.6137m	n/a
RF2	12.3057	1.6503	n/a
RF3	13.2801	80.5413m	n/a
RF4	39.1058	23.5450m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	5.3687m	3.8746m	n/a
CF2	60.2049m	36.6552m	n/a
CF3	409.2114m	2.1638m	n/a
CF4	1.1219	86.5449m	n/a

Note

- n/a indicates not applicable

