



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 P-SPICE, 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 P-SPICE 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 P-SPICE Platform".

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	37.1958	N/A	112.9183
RT2	60.3434	N/A	73.8081
RT3	141.9394	N/A	52.0263
RT4	116.8234	N/A	31.1470
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	134.5145u	N/A	1.6707m
CT2	1.3597	N/A	517.1635u
CT3	4.7590m	N/A	16.9207m
CT4	876.6792u	N/A	62.8334u

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	43.3188	N/A	47.8899
RF2	160.9599	N/A	138.0276
RF3	94.0155	N/A	76.0888
RF4	58.0114	N/A	7.7535
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	96.0568u	N/A	62.4806u
CF2	637.6166u	N/A	437.3652u
CF3	7.1971m	N/A	4.6125m
CF4	1.4359	N/A	134.4261m

Note

- n/a indicates not applicable

