

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	28.2437	1.2564	N/A
RT2	13.6754	5.4219	N/A
RT3	25.0823	4.5487	N/A
RT4	42.9986	4.8038	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	2.2639m	6.5731m	N/A
CT2	103.0502u	55.6126u	N/A
CT3	41.3977m	404.2072u	N/A
CT4	1.1181	429.5997u	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	14.2316	6.6789	N/A
RF2	31.2017	4.9199	N/A
RF3	23.4768	2.7079	N/A
RF4	41.0899	1.6933	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	91.4937u	37.0761u	N/A
CF2	2.0991m	118.4691u	N/A
CF3	45.2208m	211.8647u	N/A
CF4	1.1414	980.4259u	N/A

Note

N/A indicates not applicable

