

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	1.8466	8.7258 m	N/A
RT2	8.6537	860.3247 m	N/A
RT3	8.9203	1.0239	N/A
RT4	50.5794	1.3078	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	19.3558 m	272.7334 m	N/A
CT2	662.3573 m	785.7250 u	N/A
CT3	69.5132 m	15.7955 m	N/A
CT4	1.4467	9.9370 m	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	5.1251	1.0063	N/A
RF2	7.2426	1.1288	N/A
RF3	10.2282	542.6271 m	N/A
RF4	47.4041	522.3664 m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	16.3084 m	714.8558 u	N/A
CF2	85.8103 m	4.7421 m	N/A
CF3	170.6002 m	668.1445 u	N/A
CF4	1.2159	1.1324 m	N/A

Note

N/A indicates not applicable

