R-C Thermal Model Parameters
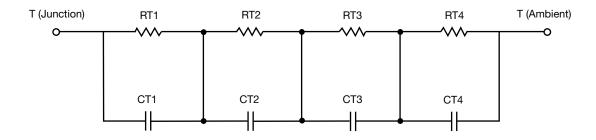
DESCRIPTION

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

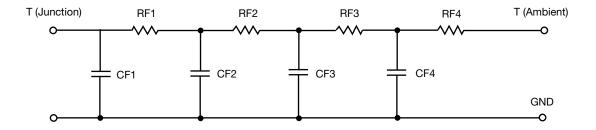| R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	10.7586	328.6903m	N/A
RT2	56.0523	1.2651	N/A
RT3	5.6688	524.6707m	N/A
RT4	12.3041	975.3874m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	6.7715m	60.1655m	N/A
CT2	1.3521	8.7319m	N/A
CT3	115.1949m	1.4783m	N/A
CT4	286.7213m	12.3685m	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	5.1243	760.1672m	N/A
RF2	13.6789	1.5164	N/A
RF3	22.8949	804.4327m	N/A
RF4	43.1966	12.2001m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	2.2339m	1.0110m	N/A
CF2	17.0410m	3.5217m	N/A
CF3	350.5590m	4.7781m	N/A
CF4	1.4793	31.1527u	N/A

Note
• n/a indicates not applicable