# 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
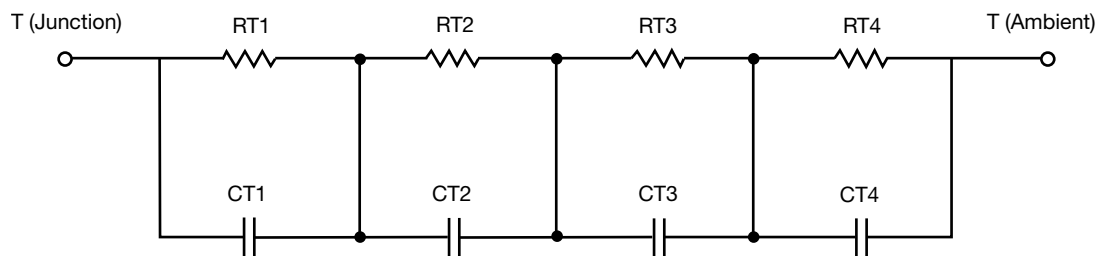
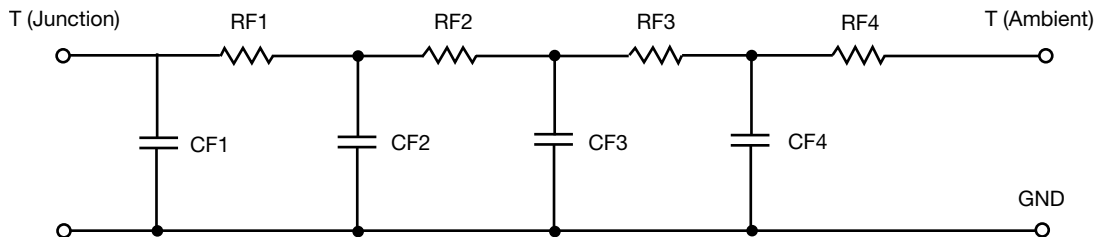| R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	n/a	654.4054m	n/a
RT2	n/a	418.3270m	n/a
RT3	n/a	121.6249m	n/a
RT4	n/a	405.6427m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	n/a	1.6648m	n/a
CT2	n/a	60.2889m	n/a
CT3	n/a	32.1508m	n/a
CT4	n/a	361.4425m	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	n/a	422.9873m	n/a
RF2	n/a	357.1151m	n/a
RF3	n/a	502.6891m	n/a
RF4	n/a	317.2085m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	n/a	1.5283m	n/a
CF2	n/a	46.4073u	n/a
CF3	n/a	42.0438m	n/a
CF4	n/a	360.7781m	n/a

Note
• n/a indicates not applicable