

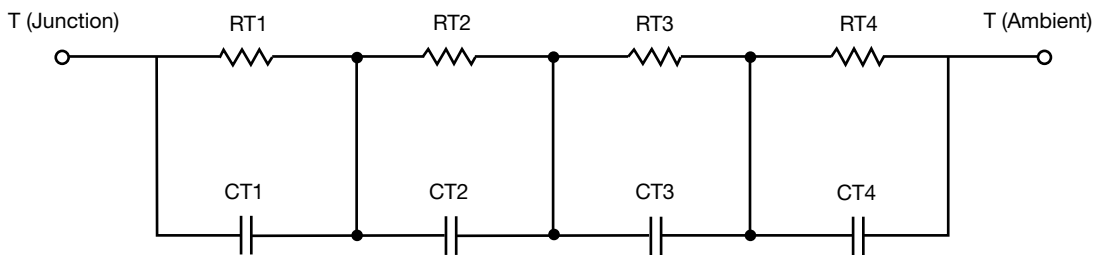
## R-C Thermal Model Parameters

### 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	N/A	324.2172m	N/A
RT2	N/A	1.5117	N/A
RT3	N/A	601.2406m	N/A
RT4	N/A	1.0499	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	N/A	681.4888u	N/A
CT2	N/A	44.5238m	N/A
CT3	N/A	5.2184m	N/A
CT4	N/A	11.9483m	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



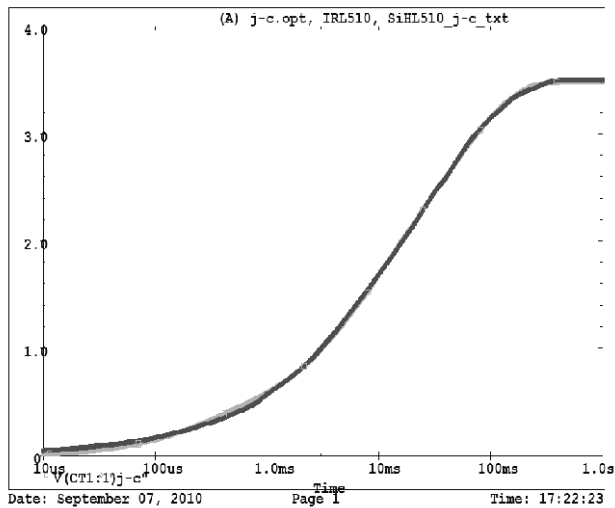
R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RF1	N/A	1.2268	N/A
RF2	N/A	1.8665	N/A
RF3	N/A	354.6526m	N/A
RF4	N/A	63.0889m	N/A
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	N/A	1.3727m	N/A
CF2	N/A	12.8321m	N/A
CF3	N/A	303.5334m	N/A
CF4	N/A	441.3182u	N/A

**Note**

N/A indicates not applicable



IRL510, SiHL510 Tank j-c Temperature: 27.0



IRL510, SiHL510 Filter j-c Temperature: 27.0

