



# FAN6241M6X

## ORDERING INFORMATION

Part Number	Operating Temperature	Package	Packing Method
FAN6241M6X	-40°C ~125°C	6-Lead, SOT23 (Pb-Free)	3000 / Tap & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

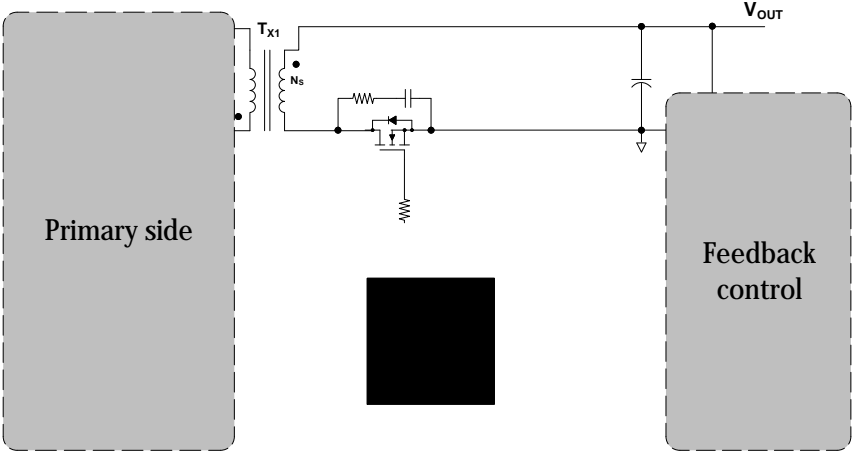


Figure 1. FAN6241M6X Typical Application Schematic

# FAN6241M6X

## PIN FUNCTION DESCRIPTION

Pin #	Name	Description
1	GATE	Gate drive output pin
2	CP	SR gate charge pump. connect one 3.3 nF capacitor to GATE pin
3	VDD	Internal regulator 5 V output and gate drive power supply rail. Bypass with 1 $\mu$ F capacitor to GND
4	VIN	LDO input, supports up to 26 V operation. An integrated 5 V LDO generates the internal VDD power supply rail for the low-voltage control circuitry
5	GND	Ground pin
6	DRAIN	Synchronous rectifier drain sense input

## ABSOLUTE MAXIMUM RATINGS (Notes 1, 2, 3)

Parameter	Symbol	Min.	Max.	Unit
$V_{IN}$	Power Supply Input Pin Voltage	-0.3	26	V
$V_{DD}$	Internal Regulator Output Pin Voltage	-0.3	6.5 V	V
$V_{DRAIN}$	Drain Sense Input Pin Voltage	-1	120	V
$V_{GATE}$	Gate Drive Output Pin Voltage	-0.3	6.5 V	V
CP	Charge pump Pin Voltage			

# FAN6241M6X

## RECOMMENDED OPERATING RANGES (Note 5)

Parameter	Symbol	Min.	Max.
-----------	--------	------	------



# FAN6241M6X

## TYPICAL PERFORMANCE CHARACTERISTICS

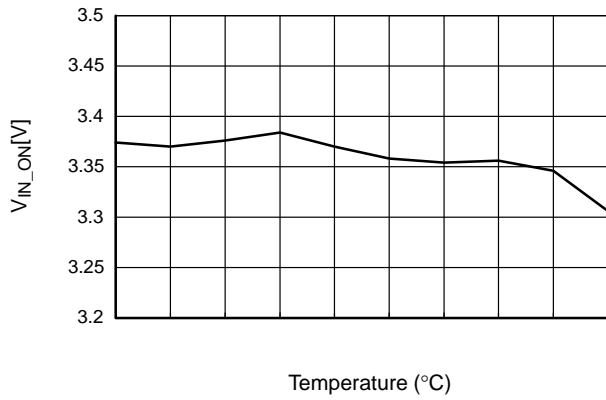


Figure 3.  $V_{IN\_ON}$  vs. Temperature

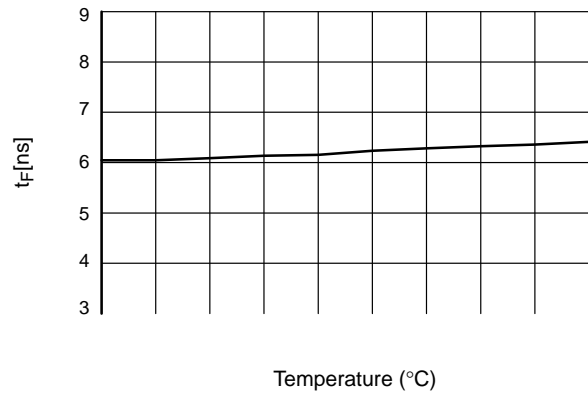


Figure 4.  $t_F$  vs. Temperature

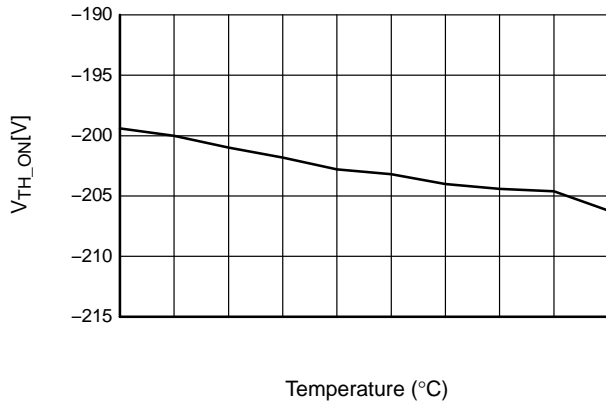


Figure 5.  $V_{TH\_ON}$  vs. Temperature

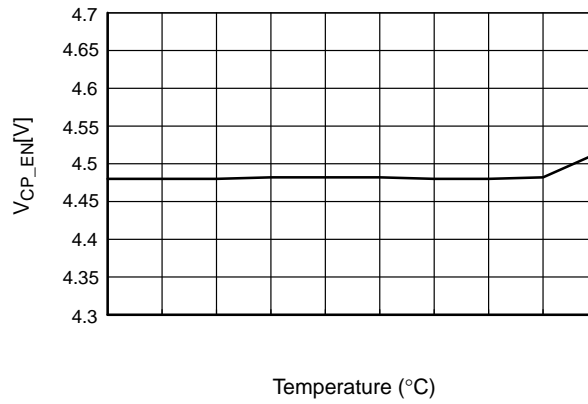


Figure 6.  $V_{CP\_EN}$  vs. Temperature

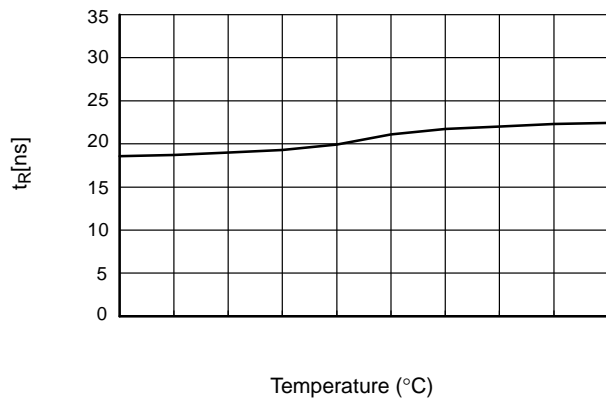


Figure 7.  $t_R$  vs. Temperature

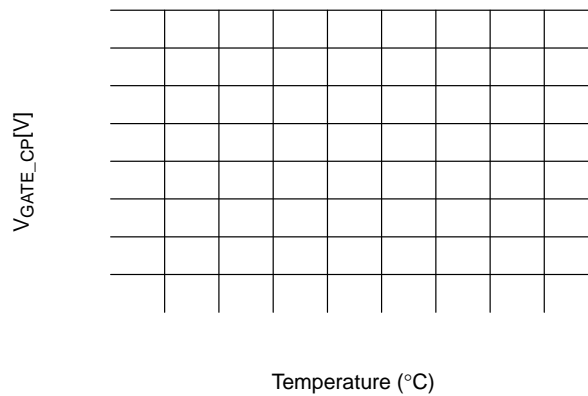


Figure 8.  $V_{GATE\_CP}$  vs. Temperature

# FAN6241M6X

## FUNCTIONAL DESCRIPTION

### Theory of SR Control Operation

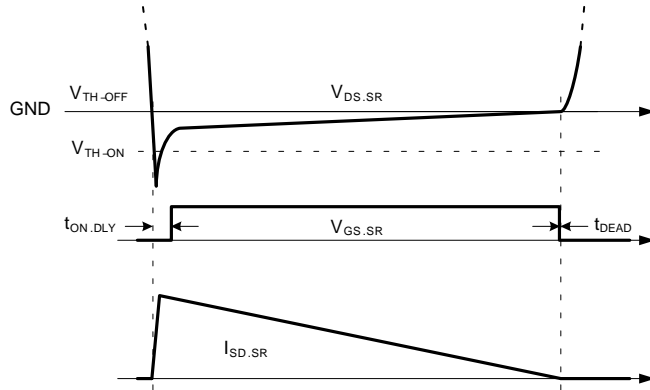


Figure 9. SR MOSFET Operation Waveforms (Ideal Case)

### SR Turn On Algorithm

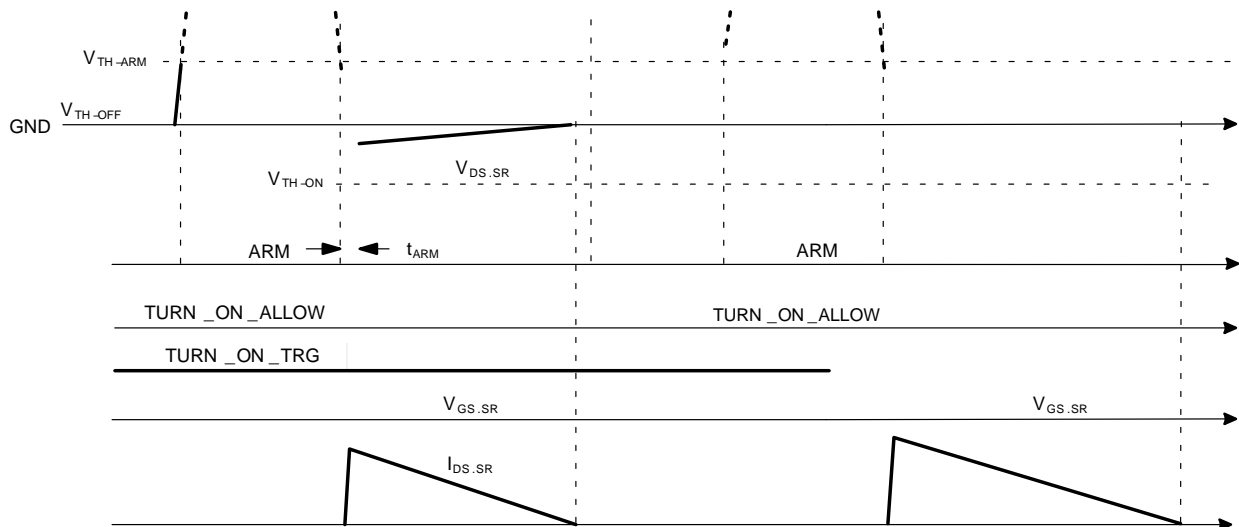


Figure 10. Turn On Algorithm

SR Turn Off Algorithm



FAN6241M6X

# FAN6241M6X

## PCB LAYOUT GUIDANCE

### Printed Circuit Board (PCB) Layout

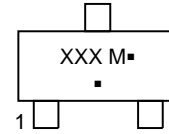
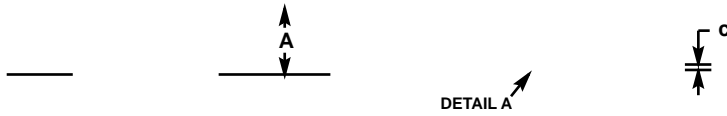
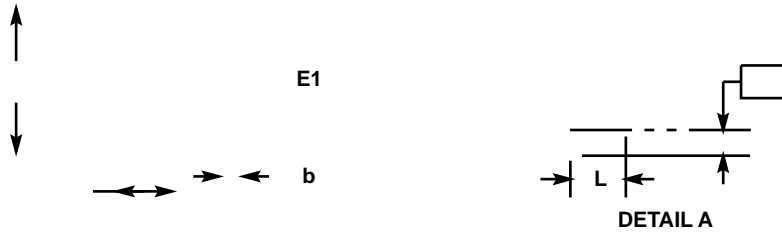
- 

### IC Side:

-

**SOT-23, 6 Lead**  
CASE 527AJ

SCALE 2:1



- XXX = Specific Device Code
- M = Date Code
- = Pb-Free Package

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "

**onsemi**, **onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi**

---

---