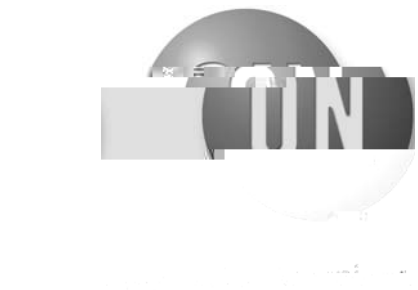
FAN6250M6X



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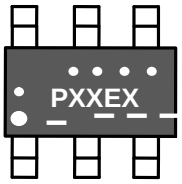
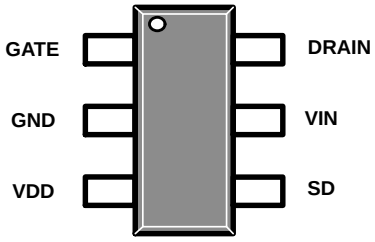
MARKING DIAGRAM



...	= Year Code
PXX	= 250 : FAN6250
E X	= Die Run Code
–––	= Date Code

PIN CONNECTIONS



Description

The FAN6250M6X is a secondary−side synchronous rectifier (SR) controller for an isolated flyback converter operating in Discontinuous Conduction Mode (DCM). The adaptive dead time control algorithm minimizes the body diode conduction of SR MOSFET while guaranteeing stable and robust SR operation against noise and disturbance caused by the circuit parasitic.

Programmable thermal Shut−Down (SD) function that is informing primary side controller to shut−down the power system when pairing with PSR controller − FAN1080. The Dynamic Response Enhancement (DRE) function that minimizes system response time when pairing with PSR controller − FAN1080.

Features

- Works in Discontinuous Conduction Modes (DCM) and Boundary Conduction Modes (BCM)
- Adaptive Turn−off Trigger Blanking Time for Wide SR MOSFET Application
- Gate Turn−on Blanking Time (minimum Gate OFF Time)
- Dynamic Response Enhancement (DRE) Function that minimizes System Response Time
- Programmable Shut−Down (SD) Protection
- Minimum Turn−on Delay (20 ns)
- Input Voltage (VIN) Range for LDO Input: 3.25 V to 20 V
- Fewest External Components Allowed
- Accurate Turn Off Dead Time Regulation when working with PSR Power System
- Small Footprint: SOT−23 6 Pin
- This is a Pb−Free Device

Typical Applications

- Travel Adapter for Smart Phones, Feature Phones, and Tablet PCs
- AC−DC Adapters for Portable Devices that Require CV/CC Control

ORDERING INFORMATION

Part Number	Operating Temperature	Package	Packing Method†
FAN6250M6X	−40°C to 125°C	6 Lead, SOT23 (Pb−Free)	3000 / Tape & 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. FAN6250 Typical Application Schematic

Table 1. PIN FUNCTION DESCRIPTION

Pin #	Name	Description

Table 5. ELECTRICAL CHARACTERISTICS

V_{IN} = 5.5 V and T_A = −40 to 125°C unless noted otherwise

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
VDD Section						
Turn−On Threshold	V_{IN} rising	V_{IN-ON}	3.06	3.15	3.25	V
Turn−Off Threshold	V_{IN} falling	V_{IN-OFF}	2.78	2.9	3.05	V
Operating Current	f_{SW} = 100 kHz, C_{GATE} = 3.3 nF, V_{IN} = 5 V	I_{IN-OP}		2.0	2.8	mA
Power Supply Section						
Internal LDO Output Voltage						

Table 5. ELECTRICAL CHARACTERISTICS (continued)
V_{IN} = 5.5 V and T_A = −40 to 125°C unless noted otherwise

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Shut−Down Section						
Threshold voltage for Shut−Down function triggered		V_{SD-TH}	0.97	1.00	1.03	V
Shut−Down current source		I_{SD-TH}	44	50	56	μA
Impedance for Shut−Down trigger		Z_{SD-TH}	18.48	20.00	21.68	kΩ
Denounce Cycles for Shut−Down		$N_{SD-Debounce}$		7		Cycles
Output Driver Section						
Output Voltage Low	V_{IN} = 6 V	V_{OL}			0.25	V
Output Voltage High	V_{IN} = 6 V	V_{OH}	4.9			V
Rise Time	V_{IN} = 6 V, C_L = 3300 pF, GATE = 1 V ~ 4 V	t_R			90	ns
Fall Time	V_{IN} = 6 V, C_L = 3300 pF, GATE = 4 V ~ 1 V	t_F			30	ns

4. Guaranteed by Design.
5. Specification operation temperature range −5°C ~ 85°C
6. Specification operation temperature range −5°C ~ 50°C

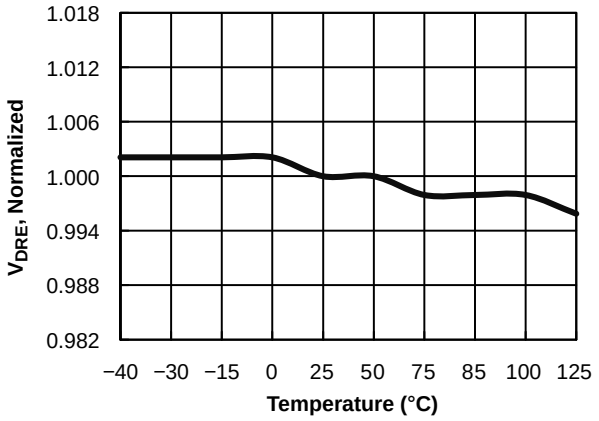


Figure 9. VIN Pin DRE Function Trigger Level (V_{DRE}) vs. Temperature

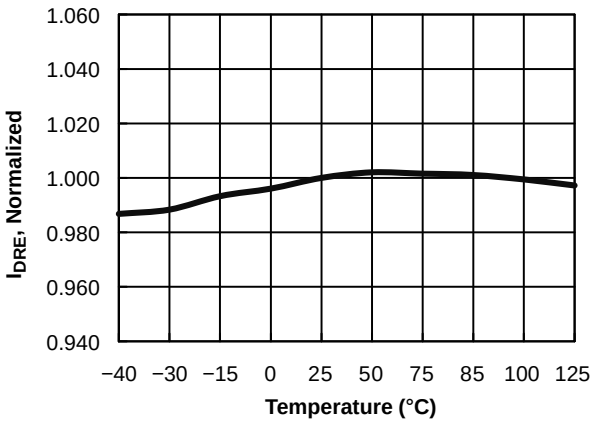


Figure 10. Drain Pin Sinking Current for DRE Triggered (I_{DRE}) vs. Temperature

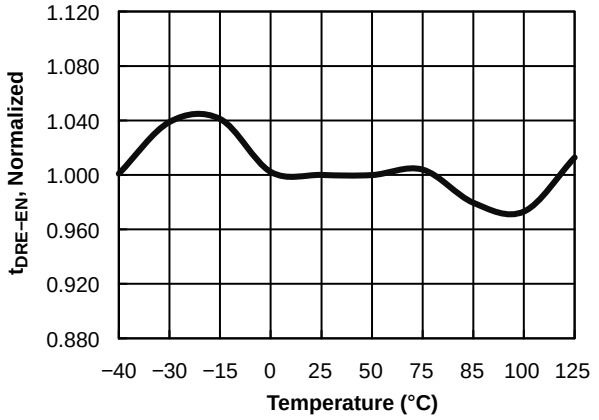


Figure 11. DRE Function Enable Period (t_{DRE-EN}) vs. Temperature

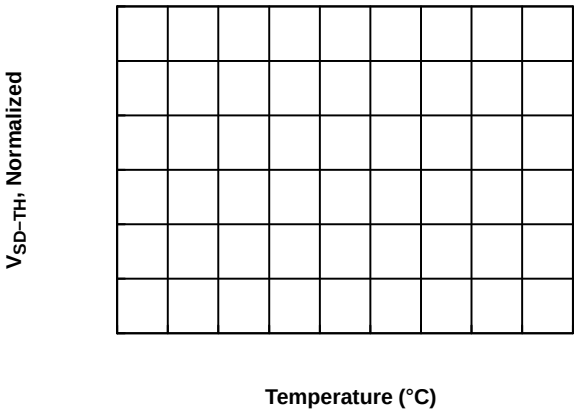


Figure 12. Shut−Down Threshold Voltage (V_{SD-TH}) vs. Temperature

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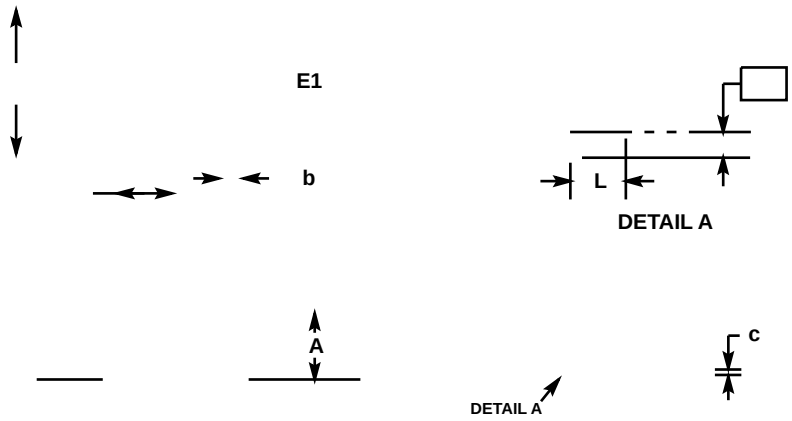
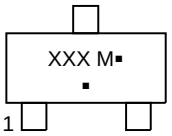
SCALE 2:1





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 “