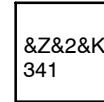




UDFN6 2 x 2, 0.65P
CASE 517DS

MARKING DIAGRAM



- &Z = Assembly Plant Code
- &2 = 2-Digit Date Code
- &K = Lot Code
- 341 = Specific Device Code

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

Features

Applications

FAN5341

PIN CONFIGURATION

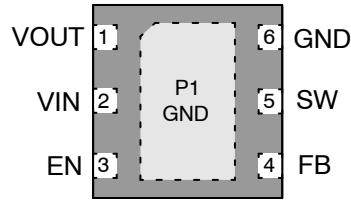


Figure 3. UMLP6 Package (Top View)

Table 2. PIN DEFINITIONS

Pin #	Name	Description
1	VOUT	Boost Output Voltage. Output of the boost regulator. Connect the LEDs to this pin. Connect C _{OUT} (Output Capacitor) to GND.
2	VIN	Input Voltage. Connect to power source and decouple with C _{IN} to GND.
3	EN	Enable Brightness Control. Program dimming levels by driving pin with digital pulses.
4	FB	Voltage Feedback. The boost regulator regulates this pin to 0.253 V to control the LED string current. Tie this pin to a current setting resistor (R _{SET}) between GND and the cathode of the LED string
5	SW	Switching node. Tie inductor L1 from VIN to SW pin.
6	GND	Ground. Tie directly to a GND plane.

Table 3. ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Min.	Max.	Units
V _{IN}	VIN Pin	-0.3	6.0	V
V _{FB} , V _{EN}	FB, EN Pins	-0.3	V _{IN} + 0.3	V
V _{SW}	SW Pin	-0.3	22.0	V
V _{OUT}	VOUT Pin	-0.3	22.0	V
ESD	Electrostatic Discharge Protection Level	Human Body Model per JESD22-A114	3.3	kV
		Charged Device Model per JESD22-C101	2.0	
T _J	Junction Temperature	-40	+150	C
T _{STG}	Storage Temperature	-65	+150	C
T _L	Lead Soldering Temperature, 10 Seconds		+260	C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Table 4. RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min.	Max.	Units
V _{IN}	V _{IN} Supply Voltage	2.7	5.5	V
V _{OUT}	VOUT Voltage (Note 1)	6.2	17.5	V
I _{OUT}	VOUT Load Current	5	25	mA
T _A	Ambient Temperature	-40	+85	C
T _J	Junction Temperature	-40	+125	C

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied. Extended exposure to stresses beyond the Recommended Operating Ranges limits may affect device reliability.

1. Application should guarantee that minimum and maximum duty-cycle should fall between 20–85% to meet the specified range.

FAN5341

PROPERTIES

	Parameter	Typical	Units
JA	Junction-to-Ambient Thermal Resistance, UMLP6 Package	70	C/W

NOTE: Junction-to-ambient thermal resistance is a function of application and board layout. This data is measured with four-layer 2s2p boards in accordance to JEDEC standard JESD51. Special attention must be paid not to exceed junction temperature $T_{J(max)}$ at a given ambient temperature T_A .

Table 6. ELECTRICAL SPECIFICATIONS

($V_{IN} = 2.7\text{ V to } 5.5\text{ V}$ and $T_A = -40\text{ C to } +85\text{ C}$ unless otherwise noted. Typical values are at $T_A = 25\text{ C}$ and $V_{IN} = 3.6\text{ V}$.)

Symbol

ELECTRICAL SPECIFICATIONS

Efficiency (%)

Efficiency (%)

LED Current (mA)

Delta Feedback Voltage (mV)

LED Current (mA)

OVP (V)

LED Current (mA)

Input Voltage (V)

ELECTRICAL SPECIFICATIONS (continued)

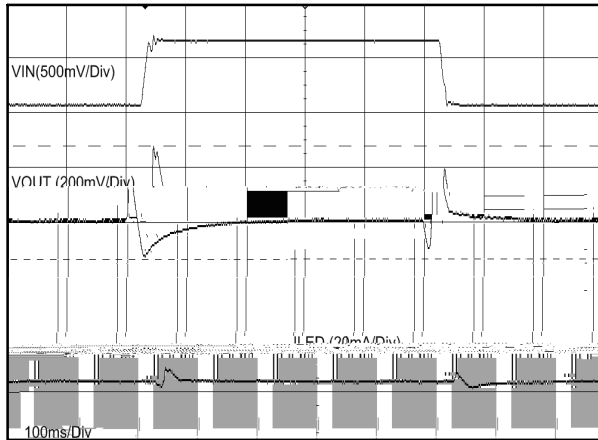


Figure 10. Line Transient Response for 4 LEDs at $V_{IN} = 3.6\text{ V} \pm 0.6\text{ V}$ with $L = 10\text{ }\mu\text{H}$, $C_{OUT} = 1.0\text{ }\mu\text{F}$ and $I_{LED} = 25\text{ mA}$

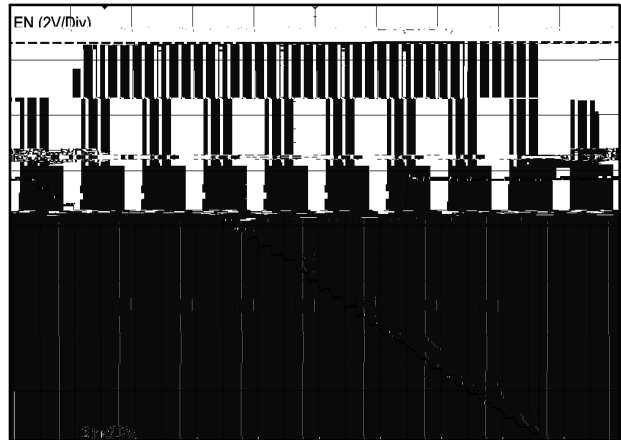


Figure 11. FAN5341 Dimming Operation at $V_{IN} = 3.6\text{ V}$ for 4 LEDs with $L = 10\text{ }\mu\text{H}$, $C_{OUT} = 1.0\text{ }\mu\text{F}$ and $I_{LED} = 25\text{ mA}$

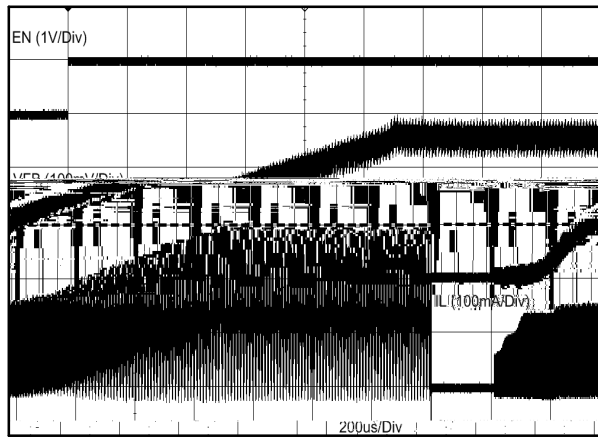


Figure 12. Startup Waveform for Switch Voltage, Inductor Current, V_{FB} and EN for 4 LEDs at $V_{IN} = 3.6\text{ V} \pm 0.6\text{ V}$ with $L = 10\text{ }\mu\text{H}$, $C_{OUT} = 1.0\text{ }\mu\text{F}$ and $I_{LED} = 25\text{ mA}$

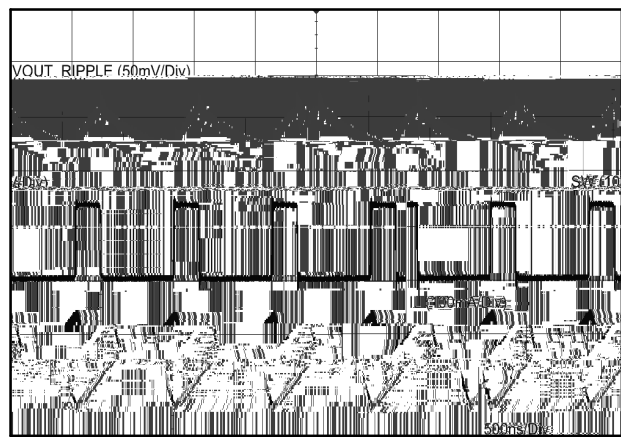


Figure 13. Steady-State Waveform for V_{OUT} , Switch Voltage and Inductor Current for 4 LEDs at $V_{IN} = 3.6\text{ V} \pm 0.6\text{ V}$ with $L = 10\text{ }\mu\text{H}$, $C_{OUT} = 1.0\text{ }\mu\text{F}$ and $I_{LED} = 25\text{ mA}$



FAN5341

APPLICATION INFORMATION

Inductor & Output Capacitor Selection

Table 7. RECOMMENDED EXTERNAL COMPONENTS

# of LEDs	Inductor (L)	Part Number	Manufacturer	Min C _{OUT}	Part Number	Manufacturer
3, 4, 5	10.0 μ H	LQH43MN100K03	Murata	1.00 μ F	CV105X5R105K25AT	AVX/Kyocera
		NLCV32T-100K-PFR	TDK			
		VLF3010AT-100MR49-1	TDK			
	4.7 μ H	LQH43MN4R7K03	Murata	1.00 μ F	CV105X5R105K25AT	AVX/Kyocera
		NLCV32T-4R7M-PFR	TDK			
		LPF2010T-4R7M	ABCO			

Component Placement and PCB Recommendations

Figure 15. Recommended Component Placement

UDFN6 2x2, 0.65P
CASE 517DS
ISSUE O

DATE 31 OCT 2016

SIDE VIEW

BOTTOM VIEW

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