

Features

- Fast 1.2MHz Switching Frequency
- High Efficiency : 85% Typical
- The minimum input voltage 2.5 V
- Drives 7 Series 2 Parallel LED's with 5V V_{IN}
- Drives 3 Series 5 Parallel LED's with 5V V_{IN}
- Requires Only 0.47uF Output Capacitor
- Inherently Matched LED Current
- Over-voltage protection and UVLO function
- Uses Very Small Inductors
- SOT23-6 Package

Applications

- LED series and parallel applications
- LED Display Panels Backlighting.

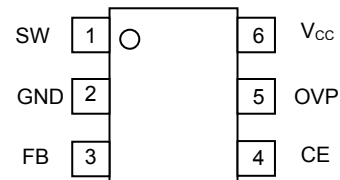
The PA5110 is a white LED constant current driver used for backlighting of digital photo frames or 3 to 5-inch LED screens.

It is a step-up DC/DC converter specifically designed to drive white LED's at a constant current. It can drive up to fifteen LED's.

It switches at 1.2MHz and uses minimal external components which provide cost and real estate saving over alternate solutions.

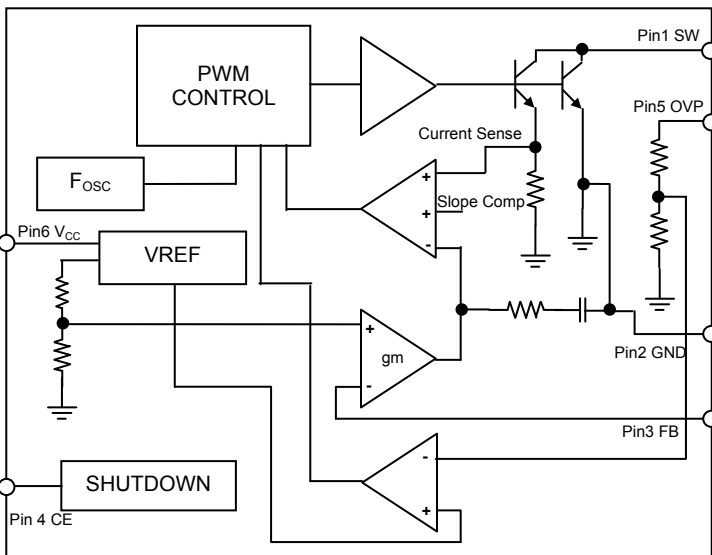
The output capacitor can be as low as 0.47uF, Feedback voltage is 95mV.

Pin Configurations



SOT23-6L

Block Diagram



Symbo	Description	Symbo	Description
SW	Switching Output	VCC	Power Supply In
GND	Ground	OVP	Over Voltage Protection
FB	Feedback	CE	Start-Up

Ordering Information		
Temperature Range	Package	Part Number
-40 to 85°C	SOT23-6L	PA5110-6L

Description



Absolute maximum ratings

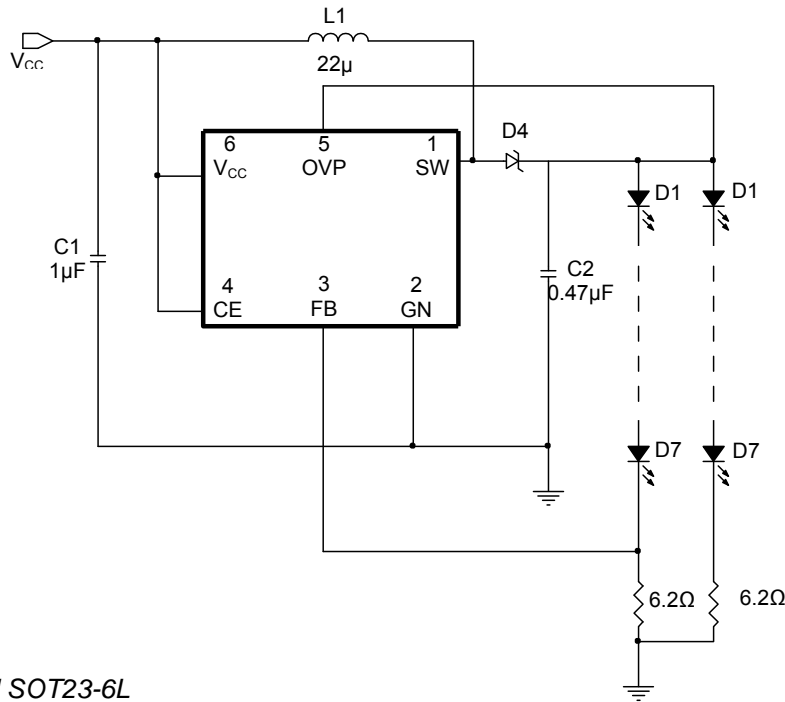
Parameter	Symbol	Value	Unit
Supply Voltage	VIN	20	V
Feedback Voltage	FB	10	V
Switch Voltage	SW	32	V
CE Voltage	VCE	20	V
Operating temperature range	Topr	-25 to +70	°C
Storage temperature range	Rstg	-65 to +150	°C
Junction temperature	Tj	125	°C

Electrical Characteristics

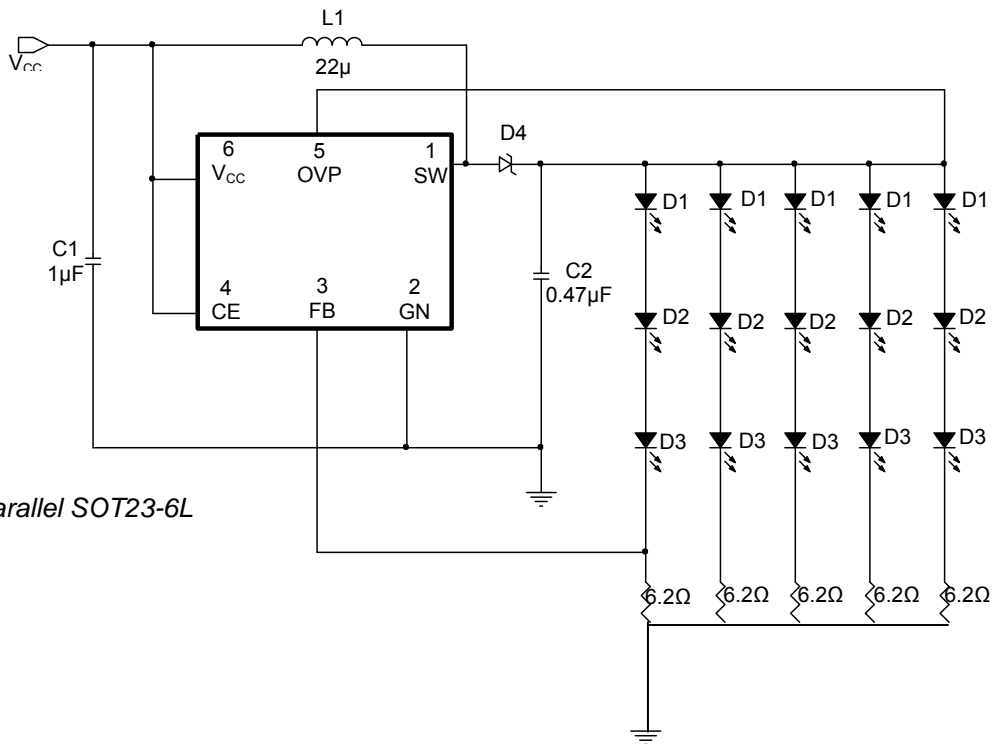
$T_{amb} = 25^{\circ}\text{C}$, $V_{IN}=5\text{V}$, $V_{CE}=5\text{V}$, unless otherwise specified.

Parameter	Test Conditions / Pins	Min	Type	Max	Unit
Minimum Operating Voltage		4.5			V
Maximum Operating Voltage				20	V
Feedback Voltage	$I_{SW}=100\text{mA}$, Duty Cycle=66%	86	95	104	mV
FB Pin Bias Current		50	100	200	nA
Supply Current	$V_{CE}=0\text{V}$		1.9 0.1	2.5 1	mA μA
Switching Frequency		0.8	1.2	1.6	MHz
Maximum Duty Cycle		85	90		%
Switch Current Limit			320		mA
Switch VCESAT	$I_{SW} = 250\text{mA}$		350		mV
Switch Leakage Current	$V_{SW}=5\text{V}$		0.01	5	μA
CE Voltage High		1.5			V
CE Voltage Low				0.4	V
CE Pin Bias Current			65		μA
OVP Protection		27	30	33	V

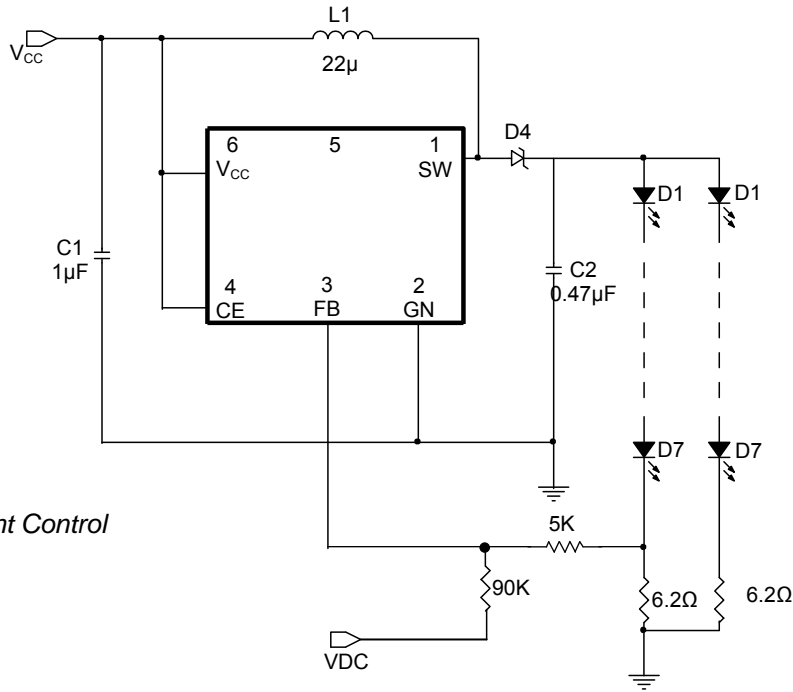
Typical Applications



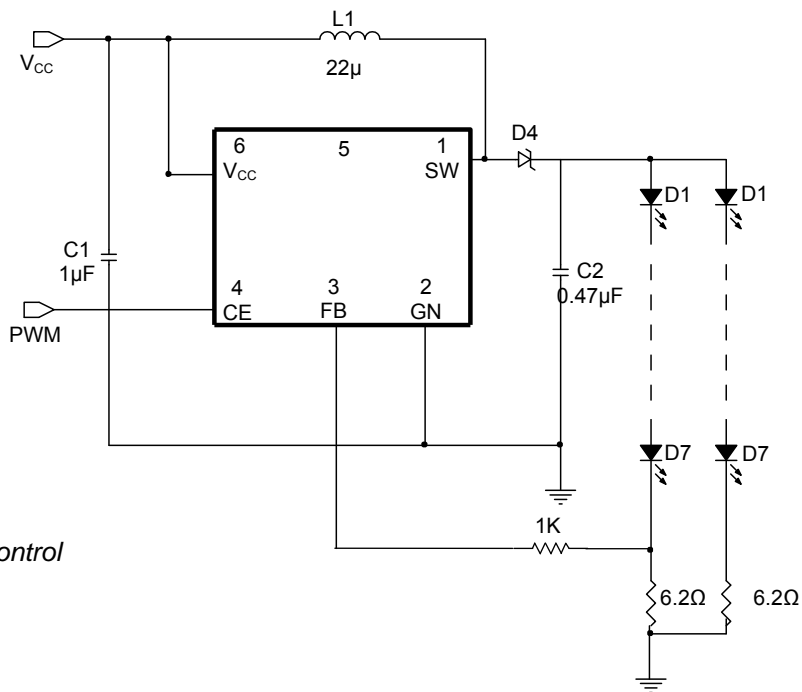
7 Series 2 Parallel SOT23-6L



3 Series 5 Parallel SOT23-6L



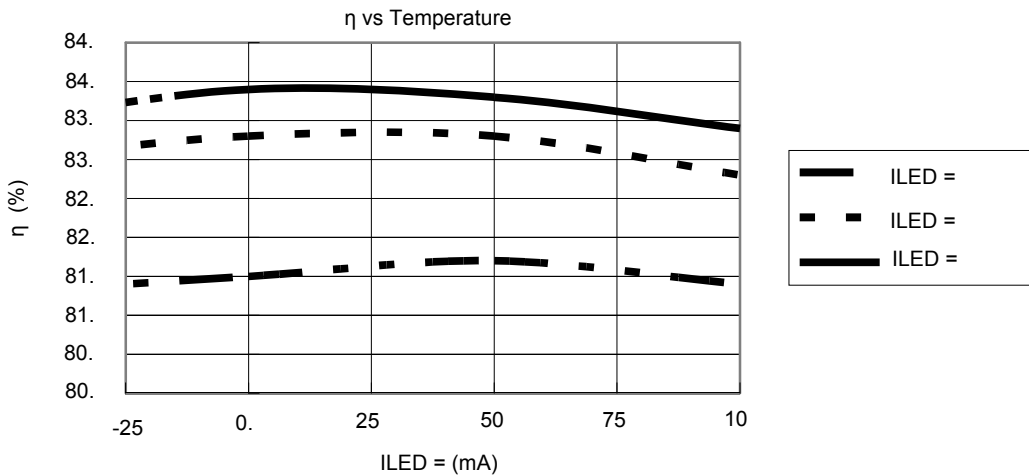
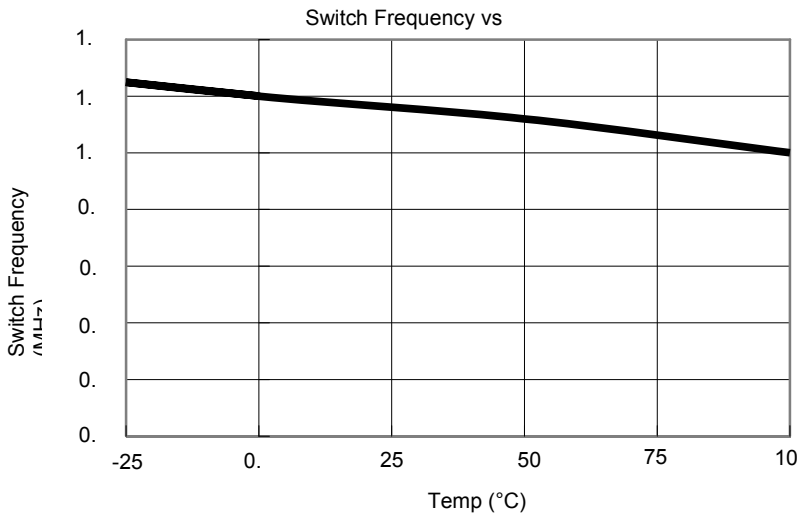
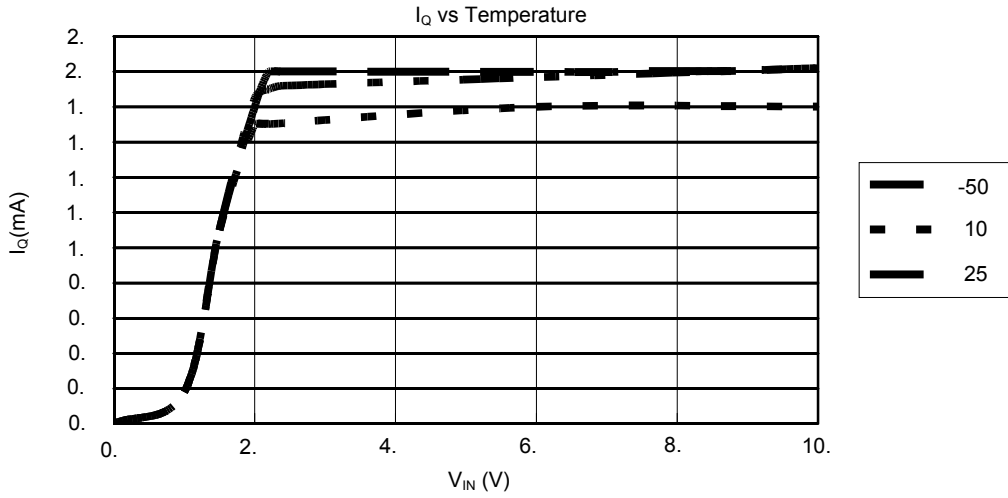
Analog Voltage Backlight Control



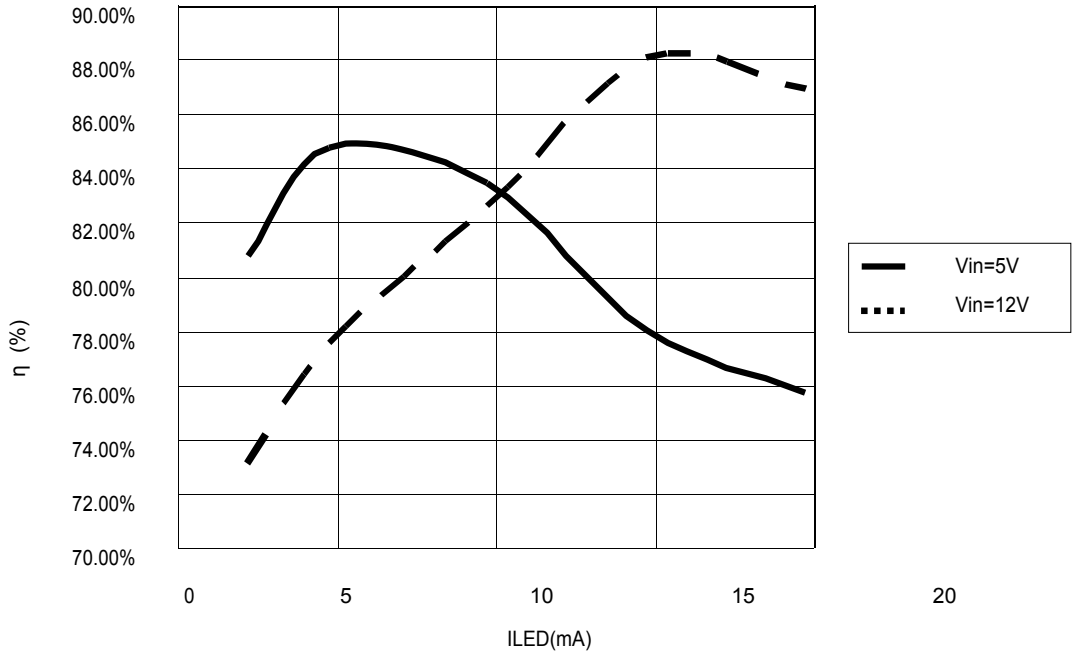
Logic Voltage Backlight Control



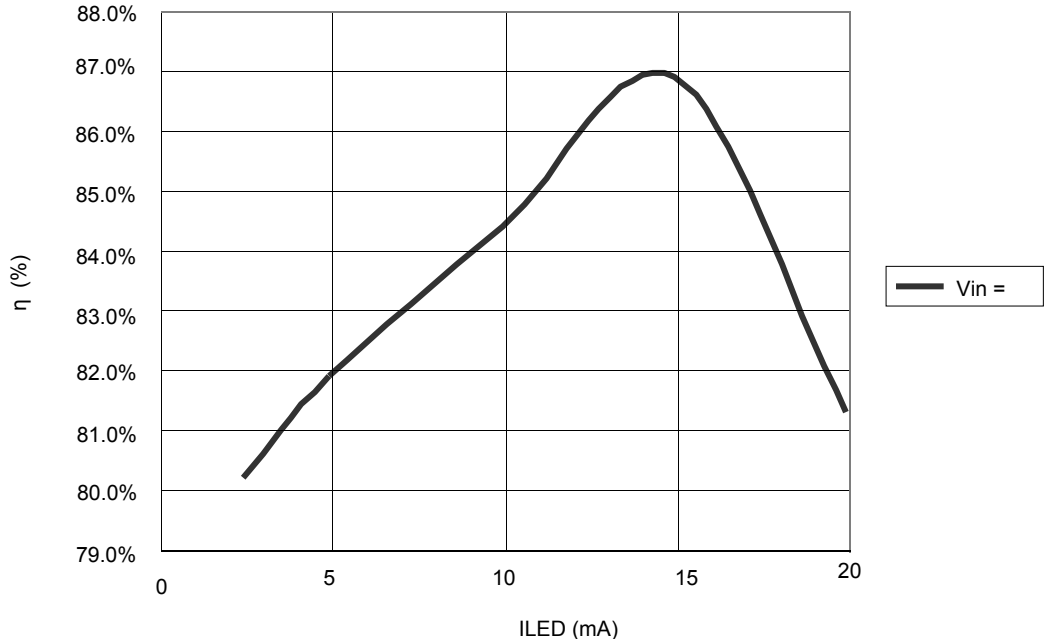
Waveforms



Drive 7 Series 2 Parallel LED's



Drive 3 Series 5 Parallel



SOT-23-6 PACKAGE OUTLINE & DIMENSIONS

PACKAGE OUTLINE

SOT23-6

PACKAGE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.05	0.110	0.120
B	1.50	1.75	0.059	0.070
C	0.90	1.30	0.036	0.051
D	0.30	0.40	0.012	0.016
E	0.85	1.05	0.033	0.040
G	0.90	1.45	0.036	0.057
J	0.09	0.20	0.003	0.008
K	2.60	3.00	0.102	0.118
L	0.0	0.15	0.0	0.006
M	0.30	0.60	0.012	0.024

MOUNTING PAD

TYPICAL		
DIM	Millimeters	Inches
1	0.70	0.028
2	1.90	0.074
3	0.95	0.037
4	2.40	0.094
5	1.00	0.039

NOTES

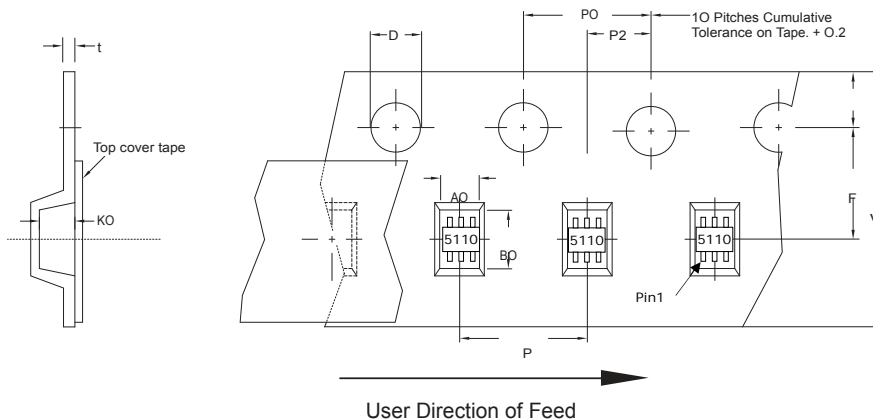
- Dimensioning and tolerances per ANSI Y14.5M, 1985.
- Controlling Dimension: Inches
- Dimensions are exclusive of mold flash and metal burrs.

- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix -T7 = 7 Inch Reel - 3,000 pieces per 8mm tape.

Outline & Dimensions: Rev 3 - 3/08, 06013

Tape & Reel Specifications (Dimensions in millimeters)

Reel Dia.	Tape Width	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")	8mm	3.20 ± 0.10	3.20 ± 0.10	1.65 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	3.50 ± 0.05	8.00 ± 0.30	4.00 ± 0.10	2.00 ± 0.05	4.00 ± 0.10	0.25



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