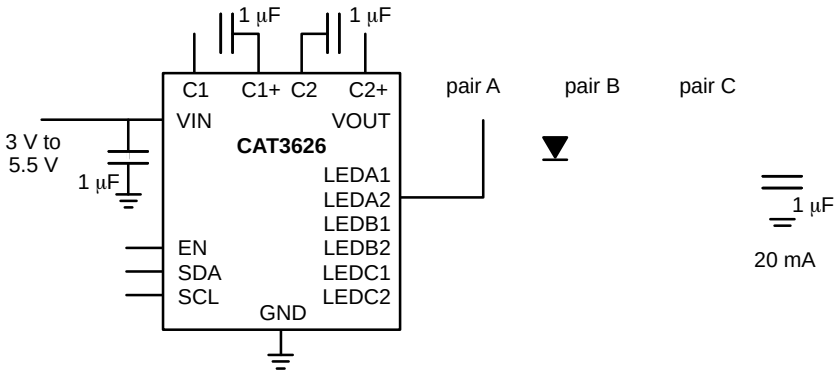

1 μF
1 μF
C1
C1+
C2
C2+
pair A
pair B
pair C
VIN
VOUT
3 V to
5.5 V
CAT3626
1 μF
LEDA1
LEDA2
LEDB1
EN
LEDB2
SDA
LEDC1
SCL
LEDC2
GND
1 μF
20 mA

Table 4. A.C. CHARACTERISTICS For 3 V ≤ V_{IN} ≤ 5.5 V, over full ambient temperature range 40°C to +125°C (over recommended operating conditions unless specified otherwise).

Symbol	Parameter	Min	Typ	Max	Unit
f_{SCL}	Clock Frequency				

TYPICAL CHARACTERISTICS

(V_{IN} = 3.6 V, I_{OUT} = 90 MA (6 LEDS AT 15 MA), EN = V_{IN}, C_{IN} = C_1 = C_2 = C_{OUT} = 1 MF, T_{AMB} = 25°C, UNLESS OTHERWISE

TYPICAL CHARACTERISTICS

(V_{IN} = 3.6 V, I_{OUT} = 90 MA (6 LEDS AT 15 MA), EN = V_{IN}, C_{IN} = C_1 = C_2 = C_{OUT} = 1 MF, T_{AMB} = 25°C, UNLESS OTHERWISE SPECIFIED.)

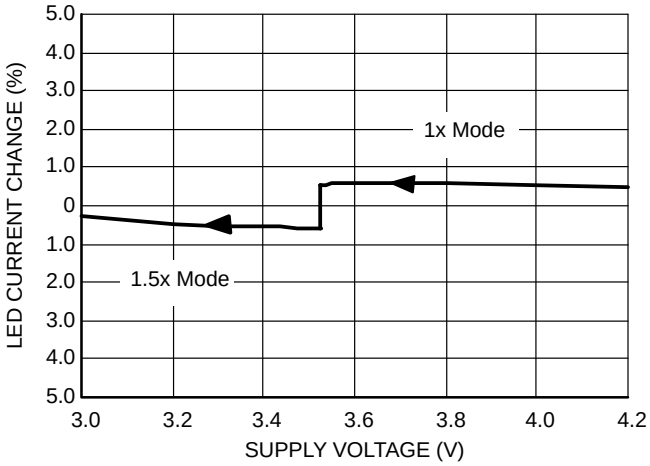


Figure 9. LED Current Change vs. Supply Voltage

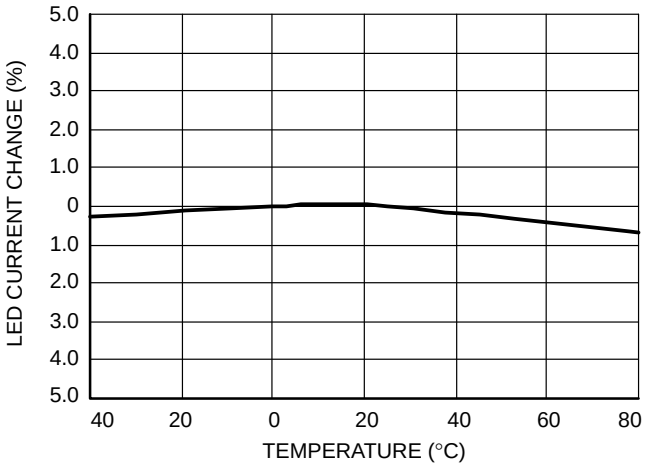


Figure 10. LED Current Change vs. Temperature

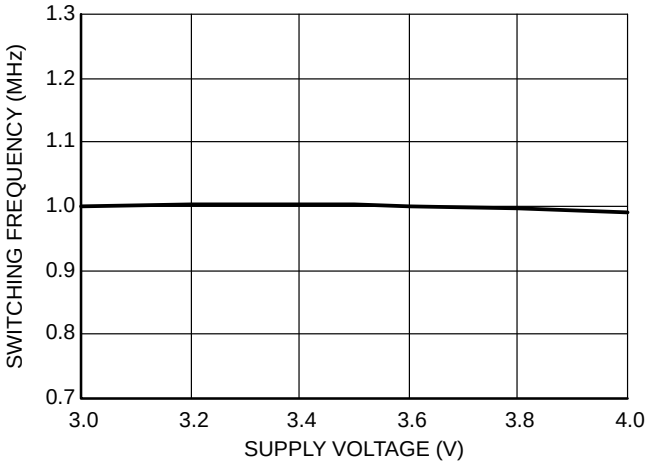


Figure 11. Switching Frequency vs. Supply Voltage

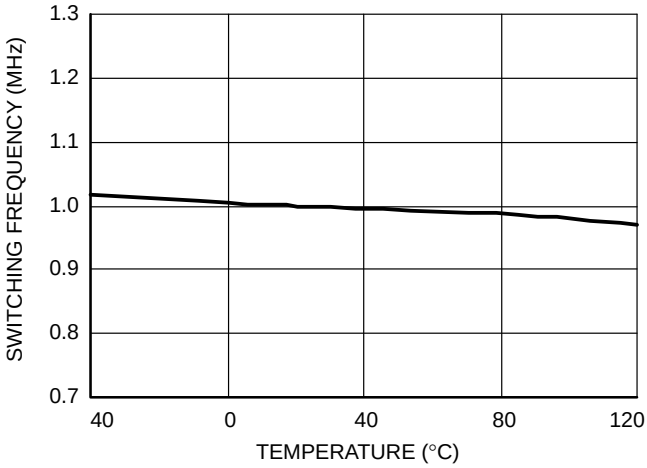


Figure 12. Switching Frequency vs. Temperature

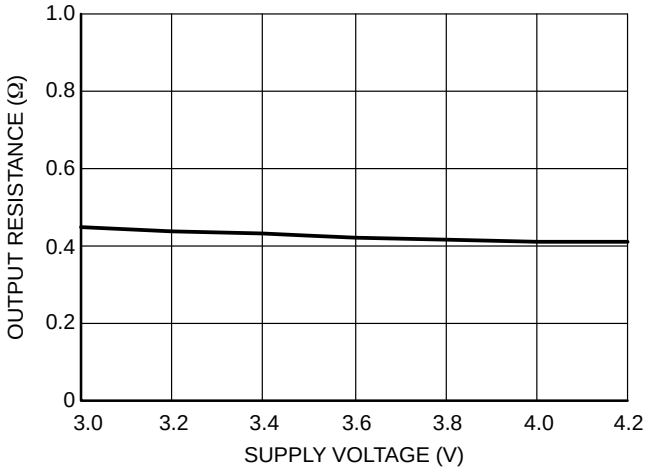


Figure 13. Output Resistance vs. Supply Voltage (1x Mode)

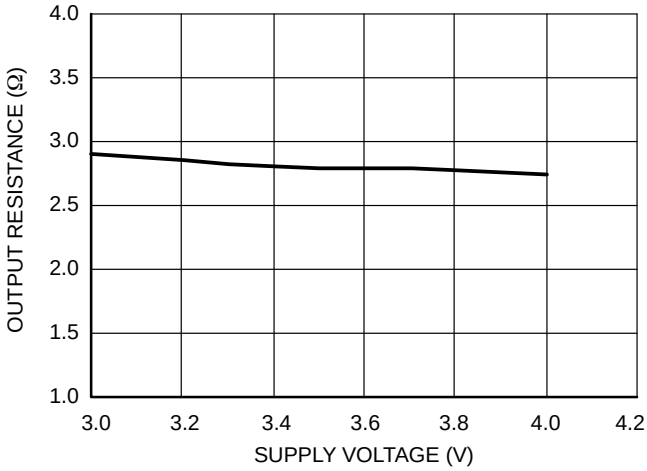


Figure 14. Output Resistance vs. Supply Voltage (1.5x Mode)

TYPICAL CHARACTERISTICS

(V_{IN} = 3.6 V, I_{OUT} = 90 MA (6 LEDS AT 15 MA), EN = V_{IN}, C_{IN} = C_1 = C_2 = C

TYPICAL CHARACTERISTICS

(V_{IN} = 3.6 V, I_{OUT} = 90 MA (6 LEDS AT 15 MA), EN = V_{IN}, C_{IN} = C_1 = C_2 = C_{OUT} = 1 MF, T_{AMB} = 25°C, UNLESS OTHERWISE SPECIFIED.)

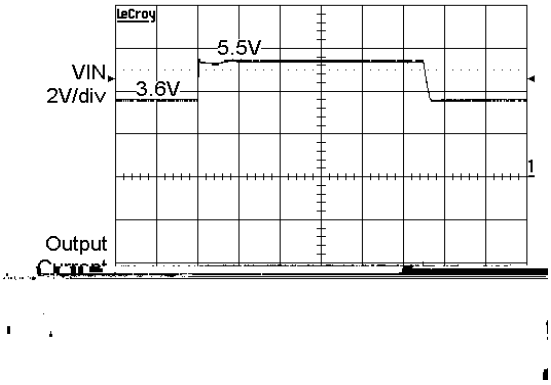


Figure 21. Line Transient Response in 1x Mode

CAT3626

BLOCK DIAGRAM

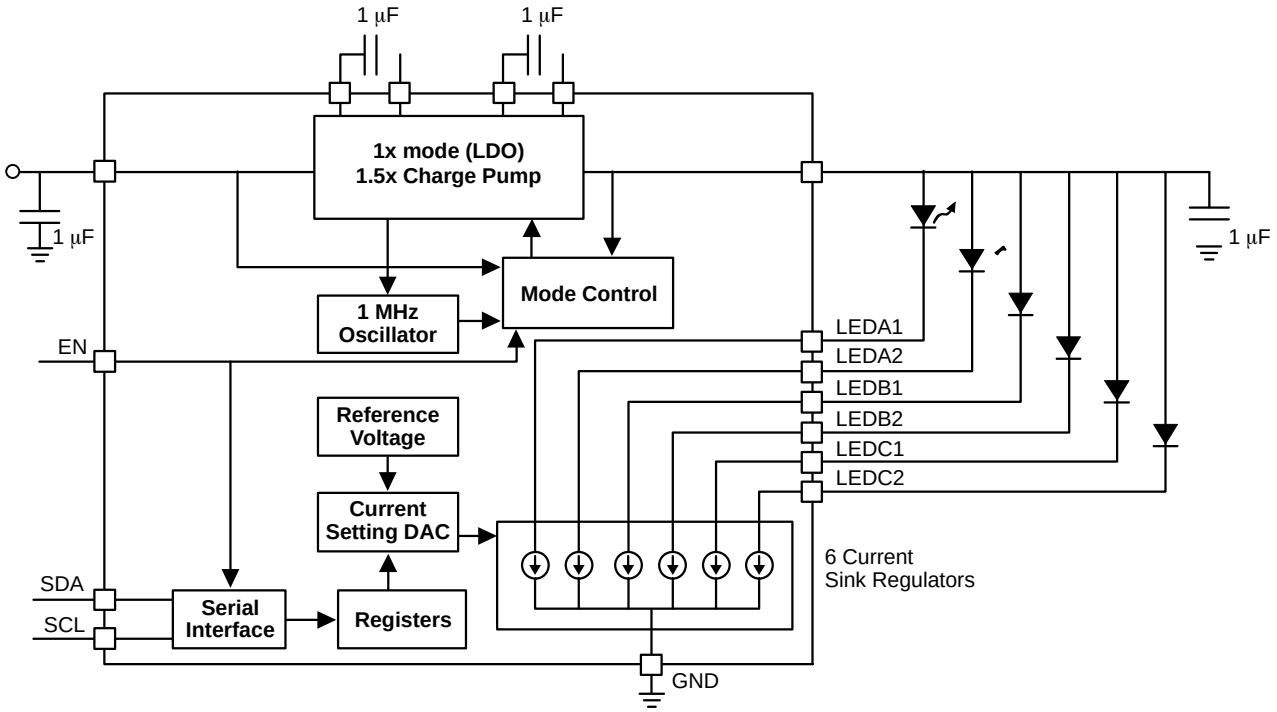


Figure 25. CAT3626 Functional Block Diagram

The Table 7 lists the various LED currents with the associated RegA, RegB, and RegC register values.

Table 7. LED CURRENT SELECTION AND REGISTER VALUE (Note 5)

LED Current (mA)	D7	D6	D5	D4	D3	D2	D1	D0

I²C INTERFACE

The LED driver is interfaced through a 2−wire serial I²C−bus in order to control the state and the current in each of the six LED channels. The SDA and SCL lines comply with the I²C electrical specification and should be terminated with pull−up resistors. When the bus is not used, both lines are high. The device supports the maximum bus speed of 400 kbit/s. The serial bit sequence is shown below for read and write operations into the registers. Read and write instructions are initiated by the master controller/CPU and acknowledged by the slave LED driver. The I²C address of the driver is internally fixed to the binary value 1100110. The protocol requires that the start bit and the device address are both repeated. For further details on the I²C protocol, please refer to the I²C−Bus Specification, document number 9398 393 40011, from Philips Semiconductors.

- Read operation:

S	Slave address	W	A	Register address	A	S	Slave address	R	A	Data	A*	P

- Write operation:

S	Slave address	W	A	Register address	A	Data	A	P

S: Start condition

TYPICAL APPLICATION

The CAT3626 is ideal for driving RGB (red green blue) LEDs with common anode configuration. The individual LED currents associated with the red, green and blue LEDs are programmable independently through the I^2C interface, allowing to generate an accurate color mixing. Dimming while maintaining the same color can be done by reprogramming the RegEn register on and off with the appropriate duty cycle (PWM mode).

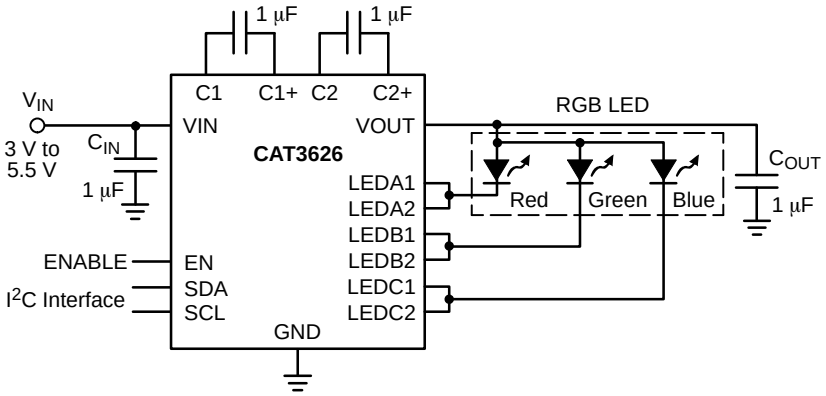
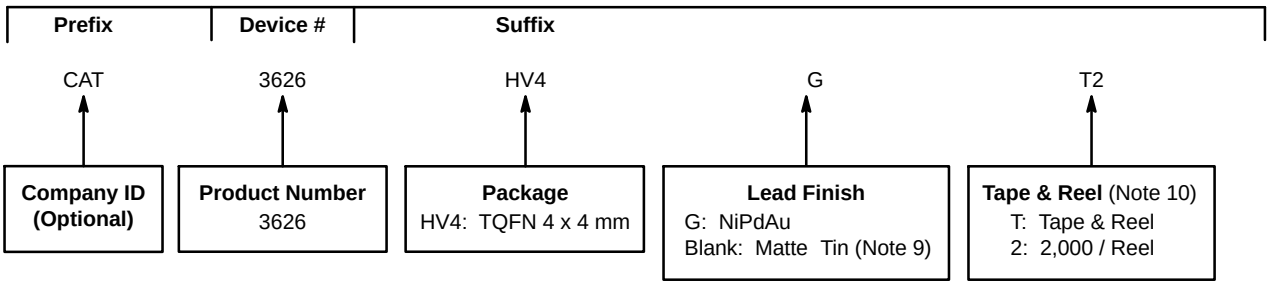


Figure 29. RGB LED

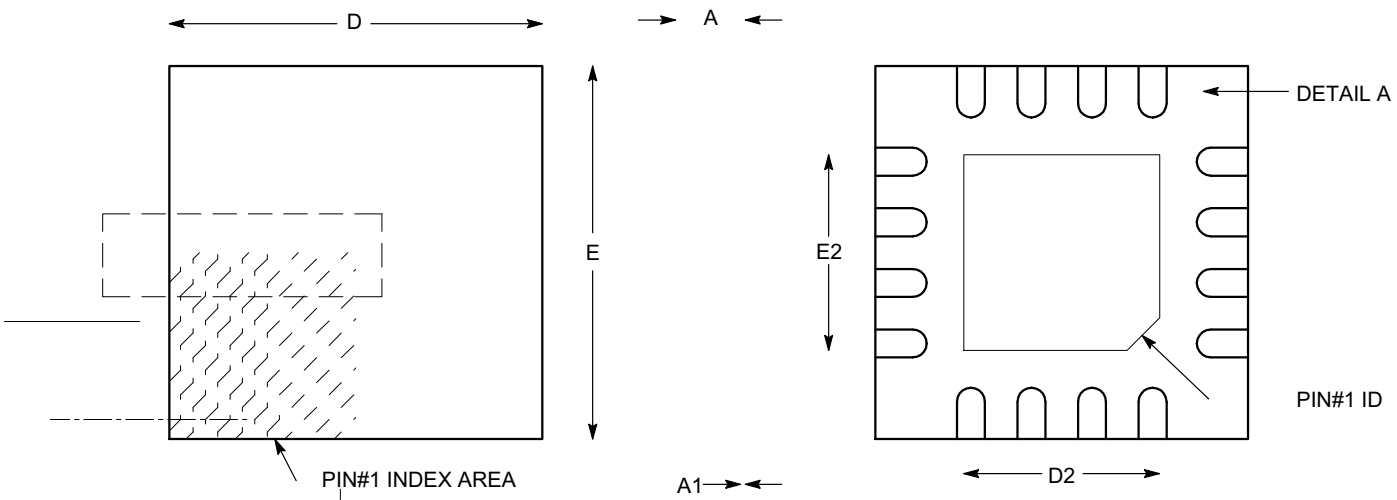
EXAMPLE OF ORDERING INFORMATION (NOTE 8)



6. All packages are RoHS compliant (Lead free, Halogen free).
7. The standard lea finish is NiPdAu.
8. The device used in the above example is a CAT3626HV4 GT2 (TQFN, NiPdAu Plated Finish, Tape & Reel, 2,000/Reel).
9. For Matte Tin package option, please contact your nearest **onsemi** Sales office.
10. 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.

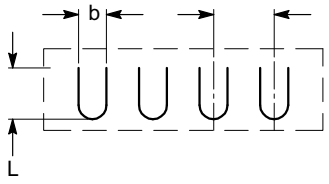
TQFN16, 4x4
CASE 510AE
ISSUE A

DATE 18 MAR 2009

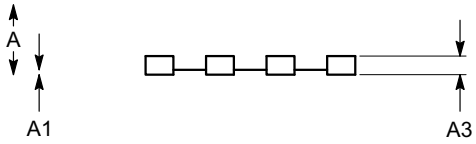


TOP VIEW **SIDE VIEW** **BOTTOM VIEW**

SYMBOL	MIN	NOM	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A3		0.20 REF	
b	0.25	0.30	0.35
D	3.90	4.00	4.10
D2	2.00	−−−	2.25
E	3.90	4.00	4.10
E2	2.00	−−−	2.25
e		0.65 BSC	
L	0.45	−−−	0.65



DETAIL A



FRONT VIEW

Notes:
(1) A d . . a . . .
(2) C . . JEDEC MO-220.