

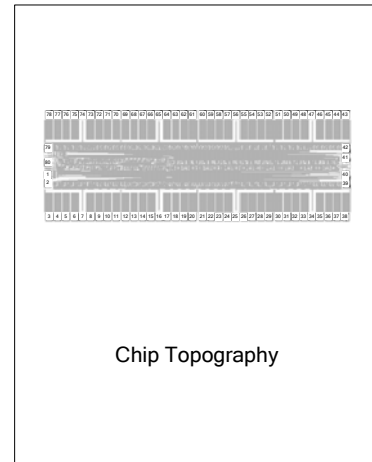
64-BIT LED STATIC DRIVER

DESCRIPTION

SC16426 is a LED driver circuit. It features in few communication ports (4 ports are used for interaction communication with the single-chip microcomputer), strong anti-interference capability (automatic error correction for communication data), heavy current drive (driving 64 LED all together at most, each is 22mA), good uniformity of drive current and so on.

FEATURES

- * Few communication ports
- * Strong anti-interference capability
- * 22mA heavy current drive
- * Good uniformity of drive current



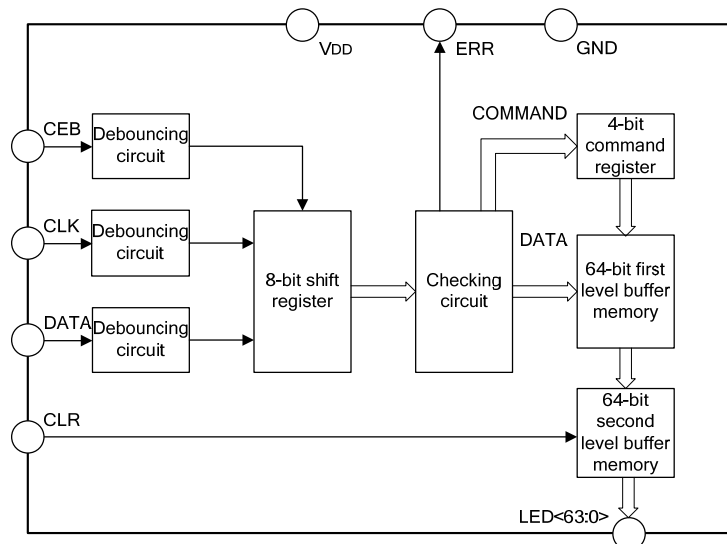
APPLICATIONS

- * Peripheral equipment for microcomputers
- * Driver circuit matching with CD system

ORDERING INFORMATIONS

Device	Package
SC16426	CHIP

BLOCK DIAGRAM

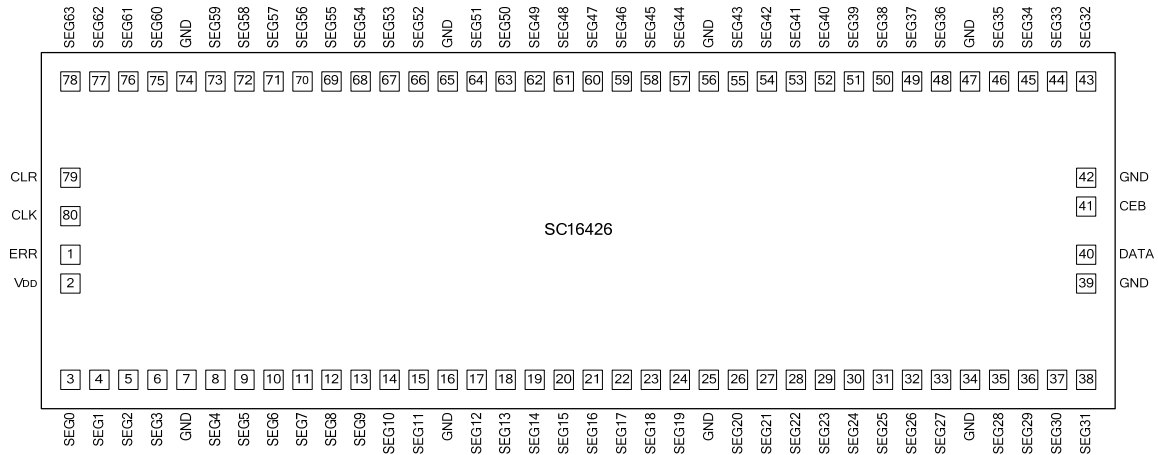


ABSOLUTE MAXIMUM RATING (Tamb=25°C, VSS=0V)

Parameter	Symbol	Rating	Unit
Power Supply (pin17)	VDD	6.0	V
Input /Output Voltage	VIN, VOUT	VSS-0.3V~VDD+0.3V	V
Operating Temperature	Tamb	-20 ~ +75	°C
Storage Temperature	Tstg	-55~+125	°C

DC ELECTRICAL CHARACTERISTICS (Unless otherwise specified, T_{amb}=25°C, V_{DD}=3V)

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Operating Voltage	VDD	Normal working	2.0	3.0	5.0	V
Quiescent Current	IDS	no load		0.8	1.0	μA
SEG Output Low Level Current	IOL	VDD=3V, VOL=0.3V	--	22	--	mA

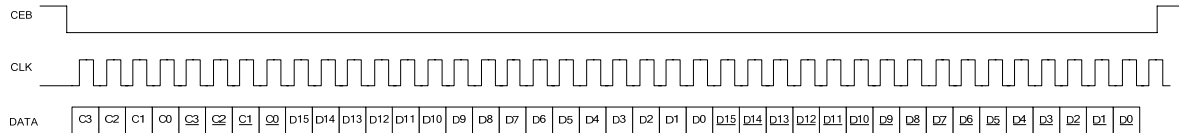
PIN CONFIGURATION

PIN DESCRIPTIONS

Pin no.	Name	Descriptions
1	ERR	Communication checking error, when CEB is at the falling edge, it is high level, while the rising edge is low level.
2	VDD	Power supply, operating voltage is 2~5V
3~6	SEG0~3	Segment drive, drive current is 22mA; When DATA is 0, LED output low level; when DATA is 1, output is high impedance state
7	GND	Ground
8~15	SEG4~11	Segment drive, drive current is 22mA; When DATA is 0, LED output low level; when DATA is 1, output is high impedance state
16	GND	Ground
17~24	SEG12~19	Segment drive, drive current is 22mA; When DATA is 0, LED output low level; when DATA is 1, output is high impedance state
25	GND	Ground
26~33	SEG20~27	Segment drive, drive current is 22mA; When DATA is 0, LED output low level; when DATA is 1, output is high impedance state
34	GND	Ground
35~38	SEG28~31	Segment drive, drive current is 22mA; When DATA is 0, LED output low level; when DATA is 1, output is high impedance state
39	GND	Ground
40	DATA	Communication data

Pin no.	Name	Descriptions
41	CEB	Serial enable which is low active
42	GND	Ground
43~46	SEG32~35	Segment drive, drive current is 22mA; When DATA is 0, LED output low level; when DATA is 1, output is high impedance state
47	GND	Ground
48~55	SEG36~43	Segment drive, drive current is 22mA; When DATA is 0, LED output low level; when DATA is 1, output is high impedance state
56	GND	Ground
57~64	SEG44~51	Segment drive, drive current is 22mA; When DATA is 0, LED output low level; when DATA is 1, output is high impedance state
65	GND	Ground
66~73	SEG52~59	Segment drive, drive current is 22mA; When DATA is 0, LED output low level; when DATA is 1, output is high impedance state
74	GND	Ground
75~78	SEG60~63	Segment drive, drive current is 22mA; When DATA is 0, LED output low level; when DATA is 1, output is high impedance state
79	CLR	Clear display (do not clear display memory), and low active
80	CLK	Communication clock which is rising edge active (the maximum operating frequency is 500KHz).

FUNCTION DESCRIPTIONS

64 SEG outputs are divided into 4 groups, and each group includes 16 SEG output ports. The structure of communication data is 4-bit command code+4-bit b1s complement of command code+16-bit data code+16-bit b1s complement of data code, as the following figure:

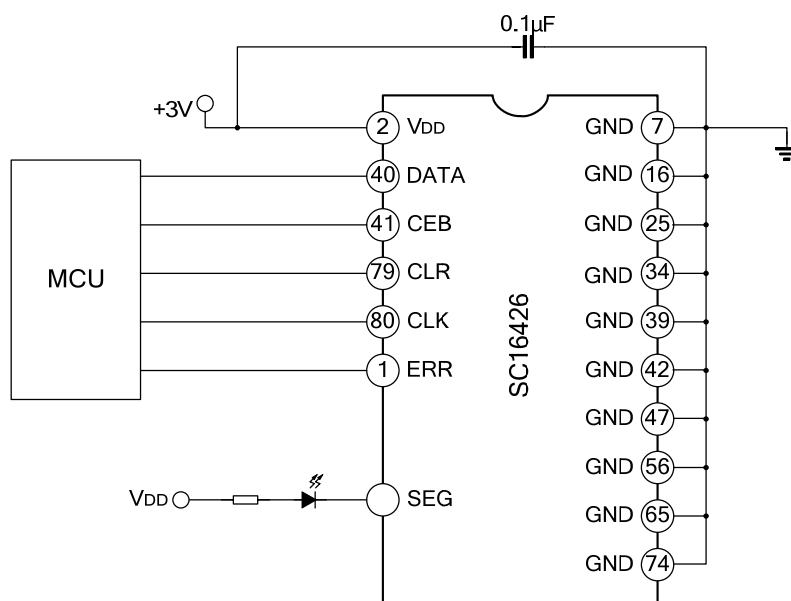


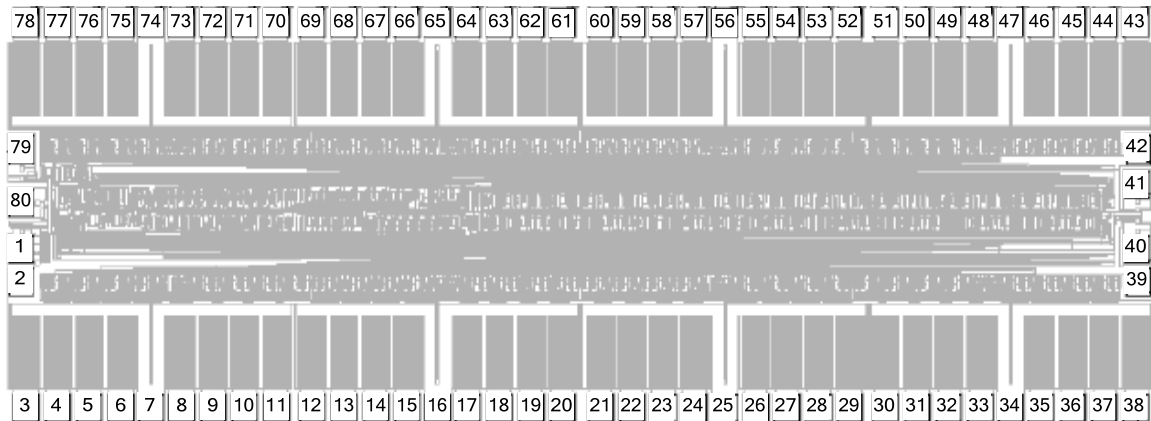
Command code description:

Command code (C3-C0)	Description
0000	Clear display & Clear display memory
0001	Transmit the first data
0010	Transmit the second data
0011	Transmit the third data
0100	Transmit the forth data
1111	Display data

Begin to transmit data when CEB is low level. If the command code is 0000 or 1111, only the former 8-bit code is transmitted(that is to say no need to check the data code, if the command code is correct, it will be carried out); If the command code is 0001, 0010, 0011, and 0100, a complete code needs to be transmitted. The ERR is low at the rising edge of CEB when the command code is wrong (not the above 6 kinds of command) or the checking is wrong (checking of command code, b1s complement of command code, data code and b1s complement of data code); When the checking is correct, ERR is high, and carry out the command at the same time: if the data code is 0, the corresponding SEG outputs low level; while the data code is 1, that outputs high impedance state.

TYPICAL APPLICATION CIRCUIT



CHIP TOPOGRAPHY

 Chip size: 4.32x1.51 (mm²)

Note: The substrate is connected with power supply.

PAD COORDINATES

Pad No.	Symbol	X	Y	Pad No.	Symbol	X	Y
1	ERR	-2043.10	-107.40	41	CEB	2036.05	107.40
2	VDD	-2043.10	-218.40	42	GND	2043.00	218.10
3	SEG0	-2026.95	-640.40	43	SEG32	2033.25	640.40
4	SEG1	-1911.15	-640.40	44	SEG33	1917.45	640.40
5	SEG2	-1795.35	-640.40	45	SEG34	1801.65	640.40
6	SEG3	-1679.55	-640.40	46	SEG35	1685.85	640.40
7	GND	-1568.55	-640.40	47	GND	1574.85	640.40
8	SEG4	-1457.55	-640.40	48	SEG36	1463.85	640.40
9	SEG5	-1341.75	-640.40	49	SEG37	1348.05	640.40
10	SEG6	-1225.95	-640.40	50	SEG38	1232.25	640.40
11	SEG7	-1110.15	-640.40	51	SEG39	1116.45	640.40
12	SEG8	-979.65	-640.40	52	SEG40	985.95	640.40
13	SEG9	-863.85	-640.40	53	SEG41	870.15	640.40
14	SEG10	-748.05	-640.40	54	SEG42	754.35	640.40
15	SEG11	-632.25	-640.40	55	SEG43	638.55	640.40
16	GND	-521.25	-640.40	56	GND	527.55	640.40
17	SEG12	-410.25	-640.40	57	SEG44	416.55	640.40
18	SEG13	-294.45	-640.40	58	SEG45	300.75	640.40
19	SEG14	-178.65	-640.40	59	SEG46	184.95	640.40
20	SEG15	-62.85	-640.40	60	SEG47	69.15	640.40
21	SEG16	69.15	-640.40	61	SEG48	-62.85	640.40

Pad No.	Symbol	X	Y	Pad No.	Symbol	X	Y
22	SEG17	184.95	-640.40	62	SEG49	-178.65	640.40
23	SEG18	300.75	-640.40	63	SEG50	-294.45	640.40
24	SEG19	416.55	-640.40	64	SEG51	-410.25	640.40
25	GND	527.55	-640.40	65	GND	-521.25	640.40
26	SEG20	638.55	-640.40	66	SEG52	-632.25	640.40
27	SEG21	754.35	-640.40	67	SEG53	-748.05	640.40
28	SEG22	870.15	-640.40	68	SEG54	-863.85	640.40
29	SEG23	985.95	-640.40	69	SEG55	-979.65	640.40
30	SEG24	1116.45	-640.40	70	SEG56	-1110.15	640.40
31	SEG25	1232.25	-640.40	71	SEG57	-1225.95	640.40
32	SEG26	1348.05	-640.40	72	SEG58	-1341.75	640.40
33	SEG27	1463.85	-640.40	73	SEG59	-1457.55	640.40
34	GND	1574.85	-640.40	74	GND	-1568.55	640.40
35	SEG28	1685.85	-640.40	75	SEG60	-1679.55	640.40
36	SEG29	1801.65	-640.40	76	SEG61	-1795.35	640.40
37	SEG30	1917.45	-640.40	77	SEG62	-1911.15	640.40
38	SEG31	2033.25	-640.40	78	SEG63	-2026.95	640.40
39	GND	2043.00	-218.40	79	CLR	-2044.20	218.40
40	DATA	2036.05	-107.40	80	CLK	-2043.10	44.95

Note: the original point of the coordinate is the die center.



MOS DEVICES OPERATE NOTES:

Electrostatic charges may exist in many things. Please take following preventive measures to prevent effectively the MOS electric circuit as a result of the damage which is caused by discharge:

- The operator must put on wrist strap which should be earthed to against electrostatic.
- Equipment cases should be earthed.
- All tools used during assembly, including soldering tools and solder baths, must be earthed.
- MOS devices should be packed in antistatic/conductive containers for transportation.

Note: Silan reserves the right to make changes without notice in this specification for the improvement of the design and performance.
 Silan will supply the best possible product for customers.