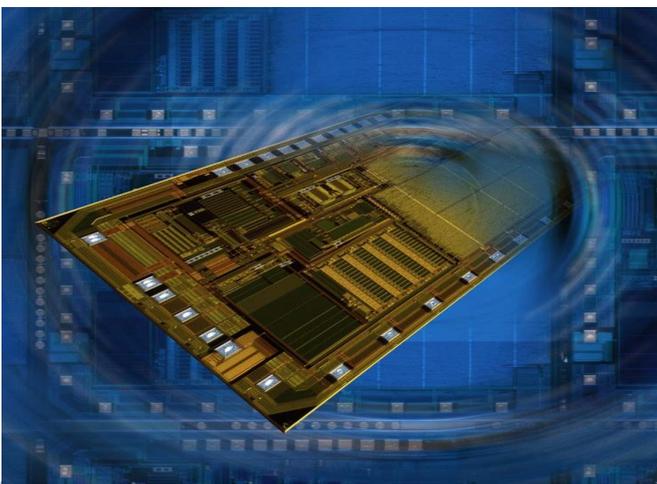


Product Information Occupancy Classification IC - CG642B



BOSCH

Invented for life



Occupancy Classification IC

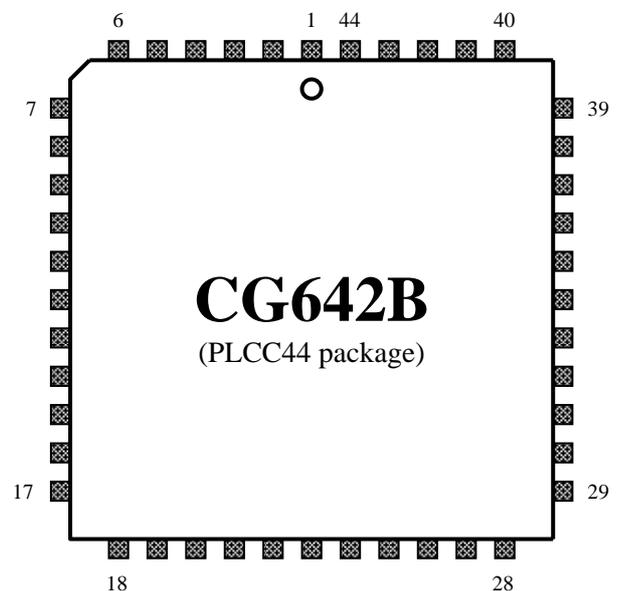
- ▶ Measurement and diagnosis IC for OC systems with seat mats
- ▶ System supply: 5V regulator with reset and power-on delay
- ▶ Window watchdog
- ▶ 23 I/Os for precise resistor measurement with low current capability
- ▶ 2 I/Os for precise resistor measurement with high current capability
- ▶ Seat matrix overvoltage detection and circuit protection
- ▶ Measurement matrix for selection of rows and columns
- ▶ 2 analog outputs for current and voltage measurement results
- ▶ ISO diagnosis interfaces for baud rates up to 50kbaud
- ▶ All functions controlled via 8 bit bi-directional SPI, 4 MHz
- ▶ PLCC44 package

Customer benefits:

- ▶ Excellent system know-how
- ▶ Smart concepts for system safety
- ▶ Secured supply
- ▶ Long-term availability of manufacturing processes and products
- ▶ QS9000 and ISO/TS16949 certified

Today, BOSCH Automotive Electronics introduces a completely new IC supporting occupant detection and classification in automobiles. This highly integrated IC enables system designers to interface between seat mats and microcontroller based system control with a single chip. The CG642B integrates 25 independent measurement channels for seat mat resistor matrix evaluation by utilizing leading-edge automotive ASIC processes. The superior performance with respect to precision and reliability of this process will be combined with a variety of features like on-chip power supply and system supervision as required by today's compatible systems.

PIN configuration



Pin description

No	Name	Description
1	C9	V-force/i-measure C9
2	C10	V-force/i-measure C10
3	C11	V-force/i-measure C11
4	C12	V-force/i-measure C12
5	COS	V-force/i-measure security column
6	ECLK	Clock input (4MHz)
7	VMS	Supply voltage v/c - sense
8	VZP	Battery supply
9	GVR	Driver output external regulator
10	RC	Internal oscillator adjust
11	VST	5.0V regulator output
12	/IRS	Impulse reset (low active)
13	WDS	Watchdog trigger
14	GND	Ground
15	/CS	Chip select (low active)
16	CHP	Charge pump capacitor
17	K	Diagnosis driver output
18	T1	V-force/i-measure T1
19	T2	V-force/i-measure T2
20	ROS	V-force/i-measure security row
21	R9	V-force/i-measure R9
22	R8	V-force/i-measure R8
23	R7	V-force/i-measure R7
24	R6	V-force/i-measure R6
25	RxD	Diagnosis receiver output
26	TxD	Diagnosis driver input
27	SCK	SPI clock
28	MOSI	Master out slave in
29	R5	V-force/i-measure R5
30	R4	V-force/i-measure R4
31	R3	V-force/i-measure R3
32	R2	V-force/i-measure R2
33	R1	V-force/i-measure R1
34	C1	V-force/i-measure C1
35	C2	V-force/i-measure C2
36	C3	V-force/i-measure C3
37	C4	V-force/i-measure C4
38	C5	V-force/i-measure C5
39	C6	V-force/i-measure C6
40	IM	Output current value
41	VM	Output voltage value
42	MISO	Master in slave out
43	C7	V-force/i-measure C7
44	C8	V-force/i-measure C8

Voltage range

www.DataSheet4U.com

The CG642B features direct battery supply ranged from 6.0V to 16.5V at pin VZP. A reverse diode for internal protection is recommended.

Reset

The reset signal is generated CG642B internally.

Pin/IRS is an open collector output driven by the internal reset signal. Reset is activated during power-on, under voltage and over voltage conditions and watchdog errors. Power-on delay takes 34ms after supply ramp-up guaranteeing stable system supply and internal timing consistency.

Measurement timing

A seat resistance measurement can be started by SPI command. All timings are controlled CG642B internally. A single seat resistance measurement takes less than 1ms allowing a sample rate of 1 KHz.

Measurement range

The CG642B features different measurement ranges for resistor measurement between 1kΩ and 500kΩ. The appropriate measurement range is selected automatically during active measurement.

Measurement precision:

Voltage measurement (pin VM) is performed with a precision of typ. 1% (max 2%), current measurement (pin IM) of typ. 5% (max. 20%, depending on the selected measurement range).

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