

GT23SC55460

**Reader/Writer IC conform to ISO/IEC 14443A and widely used in
NFC payment environment**

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1. Features

- Conform to ISO/IEC 14443A
- Highly integrated analog circuitry to demodulate and decode responses
- 13.56MHz operating frequency
- 106 kbit/s data transfer rate
- I²C/SPI/UART bus interface for host connection
- Programmable Timer
- Internal oscillator
- FIFO buffer handles 64 byte send and receive
- Typically operating distance in Reader/Writer mode up to 50mm depending on the antenna size and tuning
- 2.5V to 3.3V power supply
- CRC coprocessor

2. General Description

GT23SC55460 is a highly integrated reader/writer IC for contactless communication at 13.56 MHz and supports ISO/IEC 14443 A mode.

GT23SC55460's internal transmitter is able to drive a reader/writer antenna designed to communicate with ISO/IEC 14443 A cards and transponders without additional active circuitry. The receiver module provides a robust and efficient implementation for demodulating and decoding signals from ISO/IEC 14443 A compatible cards and transponders. The digital module manages the complete ISO/IEC 14443 A framing and error detection (parity and CRC) functionality.

GT23SC55460 supports the lowest power supply minimum to 2.5V.

3. Block diagram

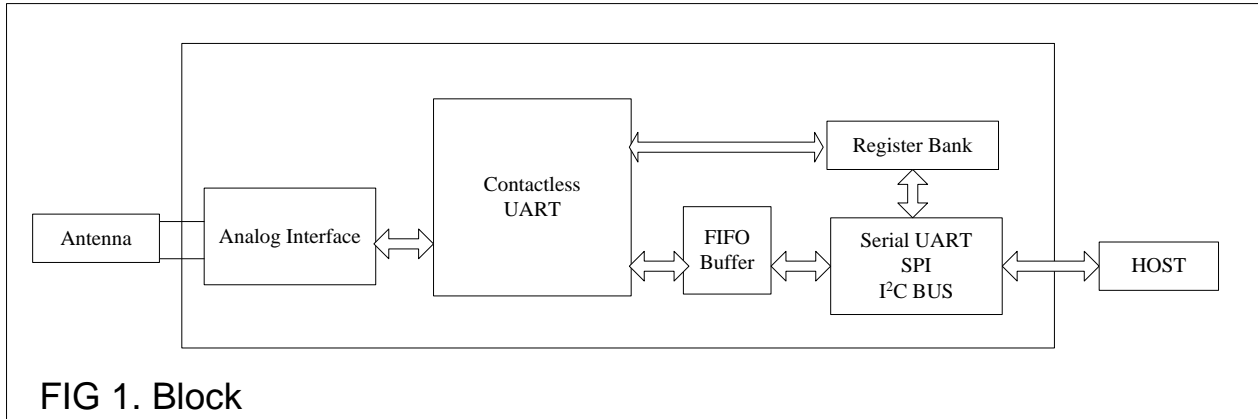


FIG 1. Block

4. Package

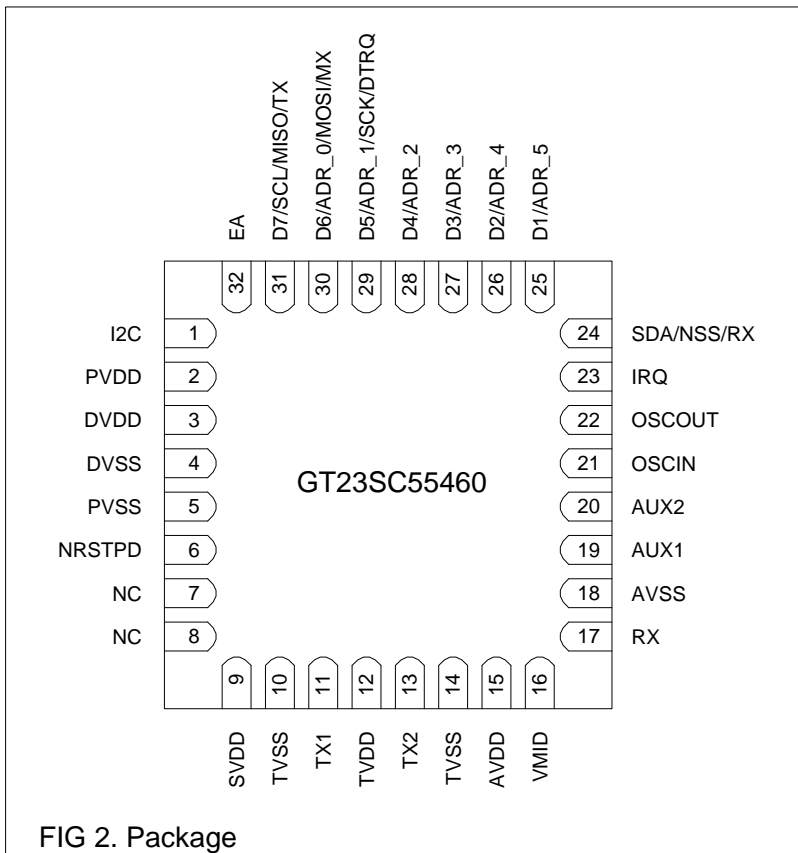
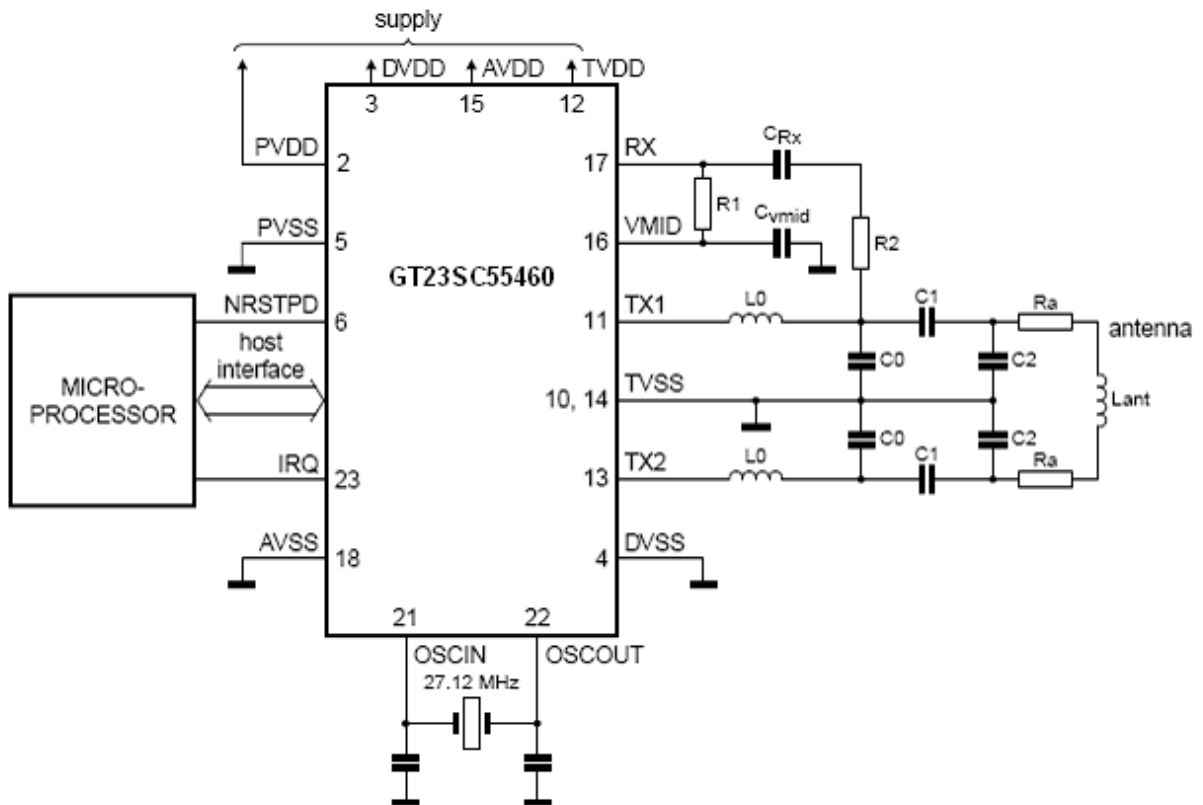


FIG 2. Package

5. Pin Description

Pin Id	Name	Function
1	I ² C	I2C-bus enable input
2	PVDD	pin power supply
3	DVDD	digital power supply
4	DVSS	digital ground
5	PVSS	pin power supply ground
6	NTSTPD	reset and power-down input
7	NC	NC
8	NC	NC
9	SVDD	Internal power supply
10	TVSS	transmitter output stage 1 ground
11	TX1	transmitter 1 modulated 13.56 MHz energy carrier output
12	TVDD	transmitter power supply
13	TX2	transmitter 2 modulated 13.56 MHz energy carrier output
14	TVSS	transmitter output stage 2 ground
15	AVDD	analog power supply
16	VMID	internal reference voltage
17	RX	RF signal input
18	AVSS	analog ground
19	AUX1	auxiliary outputs for test purposes
20	AUX2	auxiliary outputs for test purposes
21	OSCIN	crystal oscillator inverting amplifier input
22	OSCOUT	crystal oscillator inverting amplifier output
23	IRQ	interrupt request output
24	SDA	I2C-bus serial data line input/output
25	D1	test port
	ADR_5	I2C-bus address 5 input
26	D2	test port
	ADR_4	I2C-bus address 4 input
27	D3	test port
	ADR_3	I2C-bus address 3 input
28	D4	test port
	ADR_2	I2C-bus address 2 input
29	D5	test port
	ADR_1	I2C-bus address 1 input
30	D6	test port
	ADR_0	I2C-bus address 0 input
31	D7	test port
	SCL	I2C-bus clock input/output
32	EA	external address input for coding I2C-bus address

6. Typical Application



7. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DDA}	analog supply voltage	V_{DDA}	-0.5	+4.0	V
V_{DDD}	digital supply voltage	V_{DDD}	-0.5	+4.0	V
$V_{DD(PVDD)}$	PVDD supply voltage	$V_{DD(PVDD)}$	-0.5	+4.0	V
$V_{DD(TVDD)}$	TVDD supply voltage	$V_{DD(TVDD)}$	-0.5	+4.0	V
$V_{DD(SVDD)}$	SVDD supply voltage	$V_{DD(SVDD)}$	-0.5	+4.0	V
V_I	input voltage	all input pins except pin RX	$V_{SS(PVSS)}$ -0.5	$V_{DD(SVSS)}$ ⁺ 0.5	V
P_{tot}	total power dissipation	per package; and VDDD in shortcut mode		200	mW
T_j	junction temperature			100	°C
V_{ESD}	electrostatic discharge voltage	HBM;1500 Ω , 100pF; MM;0.75 μ H, 200pF;		2000	V

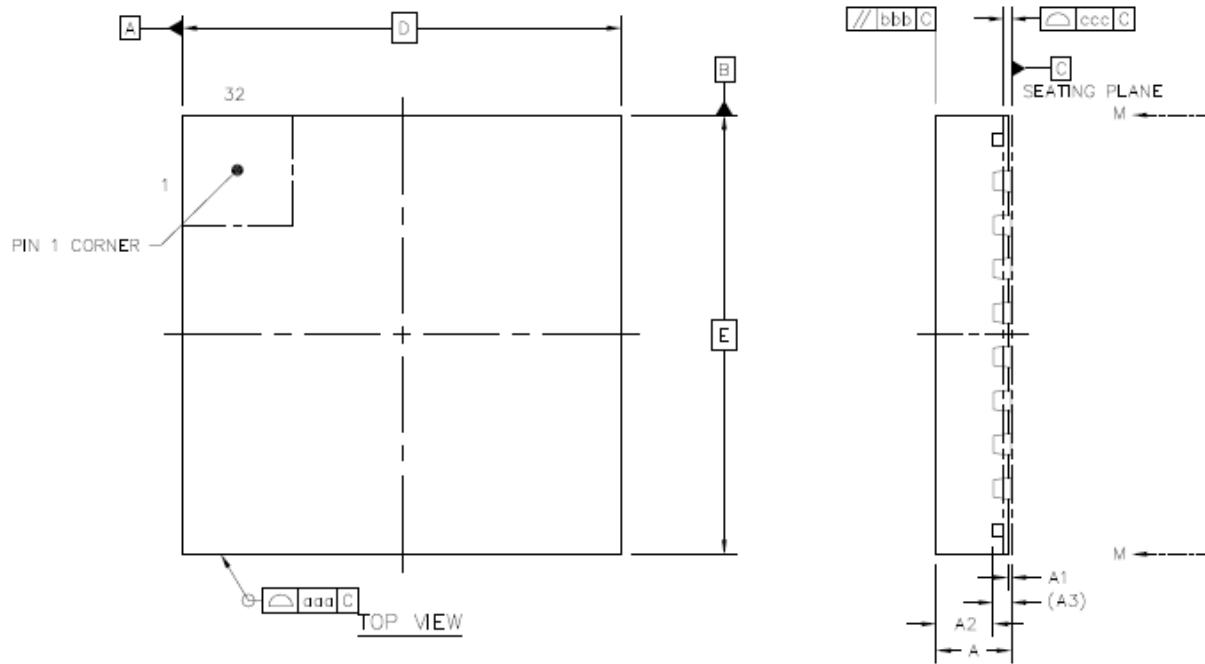
8. Operating Conditions

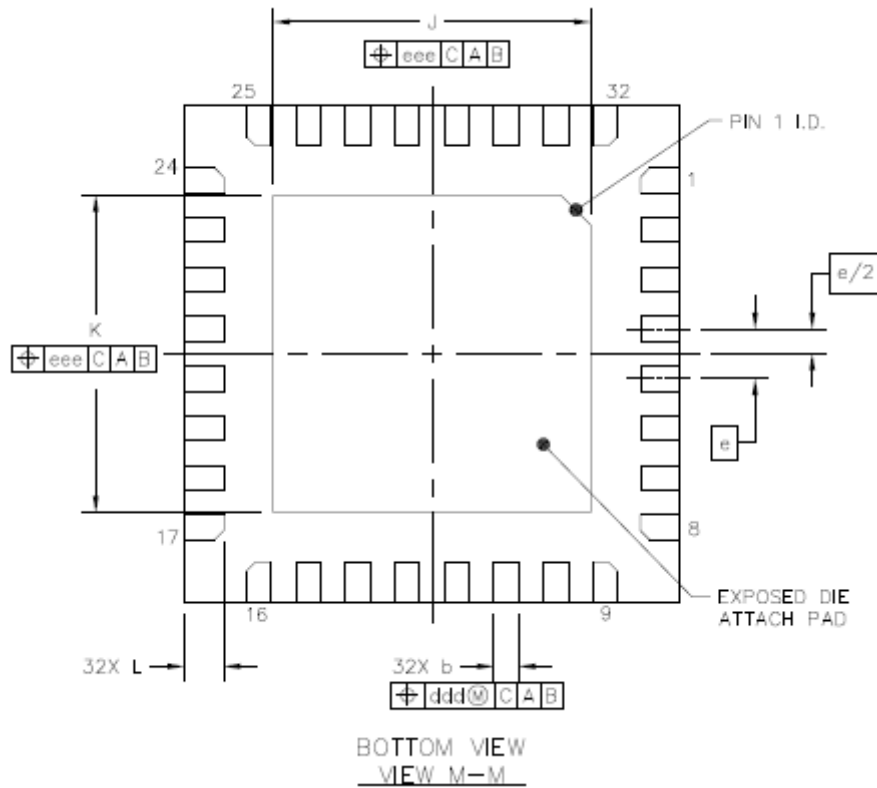
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{DDA}	analog supply voltage	$V_{DD(PVDD)} \leq V_{DDA} = V_{DDD} = V_{DD(TVDD)}$, $V_{SSA} = V_{SSD} = V_{SS(PVSS)} = V_{SS(TVSS)} = 0V$	2.5	3.3	3.6	V
V_{DDD}	digital supply voltage	$V_{DD(PVDD)} \leq V_{DDA} = V_{DDD} = V_{DD(TVDD)}$, $V_{SSA} = V_{SSD} = V_{SS(PVSS)} = V_{SS(TVSS)} = 0V$	2.5	3.3	3.6	V
$V_{DD(TVDD)}$	TVDD supply voltage	$V_{DD(PVDD)} \leq V_{DDA} = V_{DDD} = V_{DD(TVDD)}$, $V_{SSA} = V_{SSD} = V_{SS(PVSS)} = V_{SS(TVSS)} = 0V$	2.5	3.3	3.6	V
$V_{DD(PVDD)}$	PVDD supply voltage	$V_{DD(PVDD)} \leq V_{DDA} = V_{DDD} = V_{DD(TVDD)}$, $V_{SSA} = V_{SSD} = V_{SS(PVSS)} = V_{SS(TVSS)} = 0V$	1.6	1.8	3.6	V
$V_{DD(SVDD)}$	SVDD supply voltage	$V_{DD(PVDD)} \leq V_{DDA} = V_{DDD} = V_{DD(TVDD)}$, $V_{SSA} = V_{SSD} = V_{SS(PVSS)} = V_{SS(TVSS)} = 0V$	1.6	-	3.6	V
T_{amb}	ambient temperature	$V_{DD(PVDD)} \leq V_{DDA} = V_{DDD} = V_{DD(TVDD)}$, $V_{SSA} = V_{SSD} = V_{SS(PVSS)} = V_{SS(TVSS)} = 0V$	-25	-	+85	°C

9. Power Consumption

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_{hpd}	Hard power down current	$V_{DDA} = V_{DDD} = V_{DD(TVDD)} = V_{DD(PVDD)} = 3V$ hard power down	-	0.6	-	μ A
I_{spd}	Soft power down current	$V_{DDA} = V_{DDD} = V_{DD(TVDD)} = V_{DD(PVDD)} = 3V$ soft power down	-	3.4	-	μ A
I_{idle}	Idle mode current	$V_{DDA} = V_{DDD} = V_{DD(TVDD)} = V_{DD(PVDD)} = 3V$		7.7		mA

10. Package Outline





		SYMBOL	MIN	NOM	MAX
TOTAL THICKNESS		A	0.8	0.85	0.9
STAND OFF		A1	0	0.035	0.05
MOLD THICKNESS		A2	---	0.65	---
L/F THICKNESS		A3	0.203 REF		
LEAD WIDTH		b	0.2	0.25	0.3
BODY SIZE	X	D	5 BSC		
	Y	E	5 BSC		
LEAD PITCH		e	0.5 BSC		
EP SIZE	X	J	3.1	3.2	3.3
	Y	K	3.1	3.2	3.3
LEAD LENGTH		L	0.35	0.4	0.45
PACKAGE EDGE TOLERANCE		aaa	0.1		
MOLD FLATNESS		bbb	0.1		
COPLANARITY		ccc	0.08		
LEAD OFFSET		ddd	0.1		
EXPOSED PAD OFFSET		eee	0.1		

11. Ordering Information

Part Number	Package
GT23SC55460	QFN,32Pin

12. Revision History

<i>REV</i>	<i>History</i>	<i>Page</i>	<i>Date</i>
1.0	Initial Version	8	12/01/2013

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