

Product Catalog

Automotive ICs
(Memory ICs, Magnetic sensor ICs, Amplifiers, Timer ICs)

2023



Features	Series Name	Page
Serial E²PROM (SPI, I²C, Microwire) for Automotive Use		
FOR AUTOMOTIVE 150°C OPERATION 3-WIRE SERIAL E ² PROM	S-93S46A/56A/66A	9-3
FOR AUTOMOTIVE 125°C OPERATION 3-WIRE SERIAL E ² PROM	S-93A46B/56B/66B/76B/86B	9-3
FOR AUTOMOTIVE 105°C OPERATION 3-WIRE SERIAL E ² PROM	S-93C46C/56C/66C/76C/86C H Series	9-4
FOR AUTOMOTIVE 125°C OPERATION SPI SERIAL E ² PROM	S-25A010A/020A/040A	9-4
FOR AUTOMOTIVE 125°C OPERATION SPI SERIAL E ² PROM	S-25A080A/160A/320A, S-25A080B/160B/320B	9-5
FOR AUTOMOTIVE 125°C OPERATION SPI SERIAL E ² PROM	S-25A640A, S-25A640B	9-5
FOR AUTOMOTIVE 125°C OPERATION SPI SERIAL E ² PROM	S-25A128B	9-6
FOR AUTOMOTIVE 125°C OPERATION SPI SERIAL E ² PROM	S-25A256B	9-6
105°C OPERATION SPI SERIAL E ² PROM FOR AUTOMOTIVE	S-25C010A/020A/040A H Series	9-7
105°C OPERATION SPI SERIAL E ² PROM FOR AUTOMOTIVE	S-25C080A H Series	9-7
105°C OPERATION SPI SERIAL E ² PROM FOR AUTOMOTIVE	S-25C160A H Series	9-8
105°C OPERATION SPI SERIAL E ² PROM FOR AUTOMOTIVE	S-25C320A/640A H Series	9-8
105°C OPERATION SPI SERIAL E ² PROM FOR AUTOMOTIVE	S-25C128A H Series	9-9
FOR AUTOMOTIVE 105°C OPERATION 2-WIRE SERIAL E ² PROM	S-24CS01A/02A/04A H Series	9-9
FOR AUTOMOTIVE 105°C OPERATION 2-WIRE SERIAL E ² PROM	S-24C08C H Series	9-10
FOR AUTOMOTIVE 105°C OPERATION 2-WIRE SERIAL E ² PROM	S-24C16C H Series	9-10
FOR AUTOMOTIVE 105°C OPERATION 2-WIRE SERIAL E ² PROM	S-24C32C/64C H Series	9-11
FOR AUTOMOTIVE 105°C OPERATION 2-WIRE SERIAL E ² PROM	S-24C128C H Series	9-11

Features	Series Name	Page
Magnetic Sensor ICs (Hall Effect ICs) for Automotive Use		
AUTOMOTIVE, 150°C OPERATION, HIGH-WITHSTAND VOLTAGE, HIGH-SPEED, OMNIPOLAR DETECTION TYPE HALL EFFECT SWITCH IC	S-57GD S Series	9-12
AUTOMOTIVE, 150°C OPERATION, HIGH-WITHSTAND VOLTAGE, HIGH-SPEED, UNIPOLAR DETECTION TYPE HALL EFFECT SWITCH IC	S-57GS/57GN S Series	9-12
FOR AUTOMOTIVE 125°C OPERATION HIGH-WITHSTAND VOLTAGE HIGH-SPEED UNIPOLAR DETECTION TYPE HALL EFFECT SWITCH IC	S-57A1 A Series	9-13
AUTOMOTIVE, 150°C OPERATION, HIGH-WITHSTAND VOLTAGE, HIGH-SPEED, ZCL™ HALL EFFECT IC	S-57TZ S Series	9-13
AUTOMOTIVE, 150°C OPERATION, HIGH-WITHSTAND VOLTAGE, HIGH-SPEED, BIPOLAR HALL EFFECT LATCH IC	S-57RB S Series	9-14
FOR AUTOMOTIVE 150°C OPERATION HIGH-WITHSTAND VOLTAGE HIGH-SPEED BIPOLAR HALL EFFECT LATCH IC	S-57P1 S Series	9-14
FOR AUTOMOTIVE 125°C OPERATION HIGH-WITHSTAND VOLTAGE HIGH-SPEED BIPOLAR HALL EFFECT LATCH IC	S-57K1 A Series	9-15
Operational Amplifiers for Automotive Use		
AUTOMOTIVE, 125°C OPERATION, 2 circuits CMOS OPERATIONAL AMPLIFIER	S-19610A	9-16
AUTOMOTIVE, 105°C OPERATION, 2 circuits LOW INPUT OFFSET VOLTAGE CMOS OPERATIONAL AMPLIFIER	S-19611A	9-16
AUTOMOTIVE, 125°C OPERATION, 2 circuits LOW INPUT OFFSET VOLTAGE CMOS OPERATIONAL AMPLIFIER	S-19630A	9-16
Real-Time Clock ICs for Automotive Use		
FOR AUTOMOTIVE 105°C OPERATION 3-WIRE REAL-TIME CLOCK	S-35190A H Series	9-17
FOR AUTOMOTIVE 105°C OPERATION 2-WIRE REAL-TIME CLOCK	S-35390A H Series	9-17
Convenience Timers for Automotive Use		
CONVENIENCE TIMER AUTOMOTIVE, 125°C OPERATION, 2-WIRE TIMER WITH BUILT-IN QUARTZ CRYSTAL	S-35710M A Series	9-18
CONVENIENCE TIMER AUTOMOTIVE, 125°C OPERATION, 2-WIRE TIMER	S-35710 A Series	9-18
CONVENIENCE TIMER AUTOMOTIVE, 125°C OPERATION, TIMER WITH INTERRUPT TIME SETTING PIN	S-35720 A Series	9-18
CONVENIENCE TIMER AUTOMOTIVE, 125°C OPERATION, CLOCK PULSE OUTPUT, TIMER WITH FREQUENCY PIN SETTING	S-35730 A Series	9-18
CONVENIENCE TIMER AUTOMOTIVE, 125°C OPERATION, 2-WIRE INTERVAL TIMER	S-35740 A Series	9-19
CONVENIENCE TIMER AUTOMOTIVE, 125°C OPERATION, 2-WIRE COUNTER	S-35770 A Series	9-19
CMOS IC Packages		
Package List		9-20

S-93S46A/56A/66A

FOR AUTOMOTIVE 150°C OPERATION
3-WIRE SERIAL E²PROM

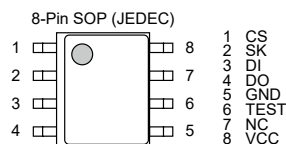
● Features

- Operation voltage range
 - Read: 4.0 V to 5.5 V (Ta = -40°C to +150°C)
 - Write: 4.0 V to 5.5 V (Ta = -40°C to +150°C)
- Operation frequency: 1 MHz (4.5 V to 5.5 V, Ta = -40°C to +150°C)
- Write time: 10.0 ms max.
- Sequential read
- Write protect function during the low power supply voltage
- Function to protect against write due to erroneous instruction recognition
- CMOS schmitt input (CS, SK)
- Endurance*1: 2 × 10⁵ cycle / word*2 (Ta = +150°C)
- Data retention: 100 years (Ta = +25°C)
50 years (Ta = +125°C)
20 years (Ta = +150°C)
- Memory capacity
 - S-93S46A: 1 K-bit
 - S-93S56A: 2 K-bit
 - S-93S66A: 4 K-bit
- Initial delivery state: FFFFh
- Burn-in specification: Wafer level burn-in
- Operation temperature range: Ta = -40°C to +150°C
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*3

*1. Refer to "■ Endurance" for details.

*2. For each address (Word: 16-bit)

*3. Contact our sales representatives for details.



S-93A46B/56B/66B/76B/86B

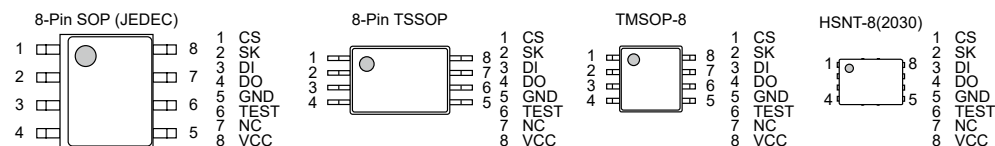
FOR AUTOMOTIVE 125°C OPERATION
3-WIRE SERIAL E²PROM

● Features

- Memory capacity
 - S-93A46B: 1 K-bit (64-word × 16-bit)
 - S-93A56B: 2 K-bit (128-word × 16-bit)
 - S-93A66B: 4 K-bit (256-word × 16-bit)
 - S-93A76B: 8 K-bit (512-word × 16-bit)
 - S-93A86B: 16 K-bit (1024-word × 16-bit)
- Operation voltage range
 - Read: 2.5 V to 5.5 V
 - Write: 2.5 V to 5.5 V
- Operation frequency: 2.0 MHz max.
- Write time: 4.0 ms max.
- Sequential read
- CMOS schmitt input (CS, SK, DI)
- Write protect function during the low power supply voltage
- Function to protect against write due to erroneous instruction recognition
- Endurance: 10⁶ cycle / word*1 (Ta = +85°C)
8 × 10⁵ cycle / word*1 (Ta = +105°C)
5 × 10⁵ cycle / word*1 (Ta = +125°C)
- Data retention: 100 years (Ta = +25°C)
50 years (Ta = +125°C)
- Initial delivery state: FFFFh
- Wafer level burn-in (standard specification)
- Operation temperature range: Ta = -40°C to +125°C
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified *2

*1. For each address (Word: 16-bit)

*2. Contact our sales representatives for details.



S-93C46C/56C/66C/76C/86C H Series

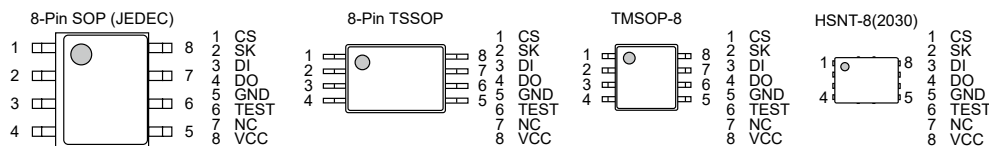
FOR AUTOMOTIVE 105°C OPERATION
3-WIRE SERIAL E²PROM

Features

- Memory capacity
 - S-93C46C: 1 K-bit (64-word × 16-bit)
 - S-93C56C: 2 K-bit (128-word × 16-bit)
 - S-93C66C: 4 K-bit (256-word × 16-bit)
 - S-93C76C: 8 K-bit (512-word × 16-bit)
 - S-93C86C: 16 K-bit (1024-word × 16-bit)
- Operation voltage range
 - Read: 1.6 V to 5.5 V
 - Write: 1.8 V to 5.5 V
- Operation frequency: 2.0 MHz max.
- Write time: 4.0 ms max.
- Sequential read
- Write protect function during the low power supply voltage
- Function to protect against write due to erroneous instruction recognition
- Endurance:
 - 10⁶ cycle / word*¹ (Ta = +85°C)
 - 8 × 10⁵ cycle / word*¹ (Ta = +105°C)
- Data retention:
 - 100 years (Ta = +25°C)
 - 50 years (Ta = +105°C)
- Initial delivery state: FFFFh
- Operation temperature range: Ta = -40°C to +105°C
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*²

*1. For each address (Word: 16-bit)

*2. Contact our sales representatives for details.



S-25A010A/020A/040A

FOR AUTOMOTIVE 125°C OPERATION
SPI SERIAL E²PROM

Features

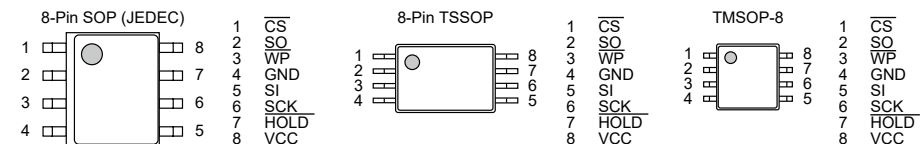
- Operating voltage range
 - Read: 2.5 V to 5.5 V
 - Write: 2.5 V to 5.5 V
- Operation frequency: 6.5 MHz max.
- Write time: 4.0 ms max.
- SPI mode (0, 0) and (1, 1)
- Page write: 16 bytes / page
- Sequential read
- Write protect: Software, Hardware
- Protect area: 25%, 50%, 100%
- Monitoring of a write memory state by the status register
- Function to prevent malfunction by monitoring clock pulse
- Write protect function during the low power supply voltage
- CMOS schmitt input (\overline{CS} , SCK, SI, \overline{WP} , \overline{HOLD})
- Endurance*¹:
 - 10⁶ cycle / word*² (Ta = +25 C)
 - 5 × 10⁵ cycle / word*² (Ta = +125 C)
- Data retention:
 - 100 years (Ta = +25 C)
 - 50 years (Ta = +125 C)
- Memory capacity
 - S-25A010A: 1 K-bit
 - S-25A020A: 2 K-bit
 - S-25A040A: 4 K-bit
- Initial delivery state: FFh, BP1 = 0, BP0 = 0
- Burn-in specification: Wafer level burn-in
- Operation temperature range: Ta = -40°C to +125°C
- Lead-free (Sn 100%), halogen-free*³
- AEC-Q100 qualified*⁴

*1. Refer to "■ Endurance" for details.

*2. For each address (Word: 8-bit)

*3. Refer to "■ Product Name Structure" for details.

*4. Contact our sales office for details.



S-25A080A/160A/320A, S-25A080B/160B/320B

FOR AUTOMOTIVE 125°C OPERATION
SPI SERIAL E²PROM

Features

- Operating voltage range
 - Read: 2.5 V ~ 5.5 V
 - Write: 2.5 V ~ 5.5 V
- Operation frequency: 6.5 MHz max.
- Write time
 - S-25A080A/160A/320A: 4.0 ms max.
 - S-25A080B/160B/320B: 5.0 ms max.
- SPI mode (0, 0) and (1, 1)
- Page write: 32 bytes / page
- Sequential read
- Write protect: Software, Hardware
- Protect area: 25%, 50%, 100%
- Monitoring of a write memory state by the status register
- Function to prevent malfunction by monitoring clock pulse
- Write protect function during the low power supply voltage
- CMOS schmitt input (CS, SCK, SI, WP, HOLD)
- Endurance¹
 - S-25A080A/160A/320A: 10⁵ cycle / word² (Ta = +25°C)
5 × 10⁵ cycle / word² (Ta = +125°C)
 - S-25A080B/160B/320B: 10⁵ cycle / word² (Ta = +25°C)
3 × 10⁵ cycle / word² (Ta = +125°C)
- Data retention: 100 years (Ta = +25°C)
50 years (Ta = +125°C)
- Memory capacity
 - S-25A080A, S-25A080B: 8 K-bit
 - S-25A160A, S-25A160B: 16 K-bit
 - S-25A320A, S-25A320B: 32 K-bit
- Initial delivery state: FFh, SRWD = 0, BP1 = 0, BP0 = 0
- Burn-in specification: Wafer level burn-in
- Operation temperature range: Ta = -40°C to +125°C
- Lead-free (Sn 100%), halogen-free³
- AEC-Q100 qualified⁴

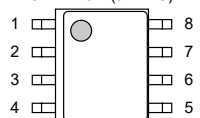
*1. Refer to "■ Endurance" for details.

*2. For each address (Word: 8-bit)

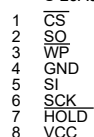
*3. Refer to "■ Product Name Structure" for details.

*4. Contact our sales office for details.

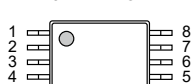
8-Pin SOP (JEDEC)



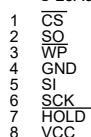
S-25A080A/160A/320A,
S-25A080B/160B/320B



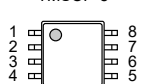
8-Pin TSSOP



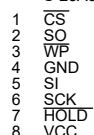
S-25A080A/160A,
S-25A080B/160B/320B



TMSOP-8



S-25A080B/160B/320B



S-25A640A, S-25A640B

FOR AUTOMOTIVE 125°C OPERATION
SPI SERIAL E²PROM

Features

- Operating voltage range
 - Read: 2.5 V ~ 5.5 V
 - Write: 2.5 V ~ 5.5 V
- Operation frequency
 - S-25A640A: 5.0 MHz max.
 - S-25A640B: 6.5 MHz max.
- Write time
 - S-25A640A: 4.0 ms max.
 - S-25A640B: 5.0 ms max.
- SPI mode (0, 0) and (1, 1)
- Page write: 32 bytes / page
- Sequential read
- Write protect: Software, Hardware
- Protect area: 25%, 50%, 100%
- Monitoring of a write memory state by the status register
- Function to prevent malfunction by monitoring clock pulse
- Write protect function during the low power supply voltage
- CMOS schmitt input (CS, SCK, SI, WP, HOLD)
- Endurance¹
 - S-25A640A: 10⁶ cycle / word² (Ta = +25°C)
5 × 10⁵ cycle / word² (Ta = +125°C)
 - S-25A640B: 10⁶ cycle / word² (Ta = +25°C)
3 × 10⁵ cycle / word² (Ta = +125°C)
- Data retention: 100 years (Ta = +25°C)
50 years (Ta = +125°C)
64 K-bit
- Memory capacity: 64 K-bit
- Initial delivery state: FFh, SRWD = 0, BP1 = 0, BP0 = 0
- Burn-in specification: Wafer level burn-in
- Operation temperature range: Ta = -40°C to +125°C
- Lead-free (Sn 100%), halogen-free³
- AEC-Q100 qualified⁴

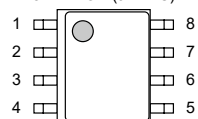
*1. Refer to "■ Endurance" for details.

*2. For each address (Word: 8-bit)

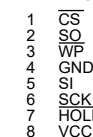
*3. Refer to "■ Product Name Structure" for details.

*4. Contact our sales office for details.

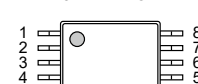
8-Pin SOP (JEDEC)



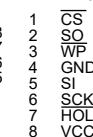
S-25A640A/B



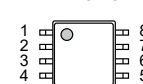
8-Pin TSSOP



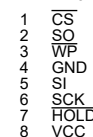
S-25A640B



TMSOP-8



S-25A640B



S-25A128B**FOR AUTOMOTIVE 125°C OPERATION
SPI SERIAL E²PROM****● Features**

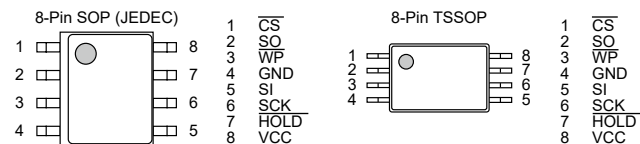
- Operating voltage range
 - Read: 2.5 V ~ 5.5 V
 - Write: 2.5 V ~ 5.5 V
- Operation frequency: 6.5 MHz max.
- Write time: 5.0 ms max.
- SPI mode (0, 0) and (1, 1)
- Page write: 64 bytes / page
- Sequential read
- Write protect: Software, Hardware
- Protect area: 25%, 50%, 100%
- Monitoring of a write memory state by the status register
- Function to prevent malfunction by monitoring clock pulse
- Write protect function during the low power supply voltage
- CMOS schmitt input (\overline{CS} , SCK, SI, \overline{WP} , \overline{HOLD})
- Endurance^{*1}:
 - 10^6 cycle / word^{*2} (Ta = +25 C)
 - 3×10^5 cycle / word^{*2} (Ta = +125 C)
- Data retention:
 - 100 years (Ta = +25 C)
 - 50 years (Ta = +125 C)
- Memory capacity: 128 K-bit
- Initial delivery state: FFh, SRWD = 0, BP1 = 0, BP0 = 0
- Burn-in specifications: Wafer level burn-in
- Operation temperature range: Ta = -40°C to +125°C
- Lead-free (Sn 100%), halogen-free^{*3}
- AEC-Q100 qualified^{*4}

*1. Refer to "■ Endurance" for details.

*2. For each address (Word: 8-bit)

*3. Refer to "■ Product Name Structure" for details.

*4. Contact our sales office for details.

**S-25A256B****FOR AUTOMOTIVE 125°C OPERATION
SPI SERIAL E²PROM****● Features**

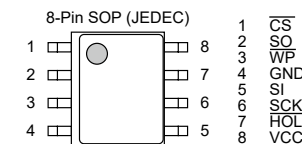
- Operating voltage range
 - Read: 2.5 V ~ 5.5 V
 - Write: 2.5 V ~ 5.5 V
- Operation frequency: 5.0 MHz max.
- Write time: 5.0 ms max.
- SPI mode (0, 0) and (1, 1)
- Page write: 64 bytes / page
- Sequential read
- Write protect: Software, Hardware
- Protect area: 25%, 50%, 100%
- Monitoring of a write memory state by the status register
- Function to prevent malfunction by monitoring clock pulse
- Write protect function during the low power supply voltage
- CMOS schmitt input (\overline{CS} , SCK, SI, \overline{WP} , \overline{HOLD})
- Endurance^{*1}:
 - 10^6 cycle / word^{*2} (Ta = +25 C)
 - 3×10^5 cycle / word^{*2} (Ta = +125 C)
- Data retention:
 - 100 years (Ta = +25 C)
 - 50 years (Ta = +125 C)
- Memory capacity: 256 K-bit
- Initial delivery state: FFh, SRWD = 0, BP1 = 0, BP0 = 0
- Burn-in specifications: Wafer level burn-in
- Operation temperature range: Ta = -40°C to +125°C
- Lead-free (Sn 100%), halogen-free^{*3}
- AEC-Q100 qualified^{*4}

*1. Refer to "■ Endurance" for details.

*2. For each address (Word: 8-bit)

*3. Refer to "■ Product Name Structure" for details.

*4. Contact our sales office for details.



S-25C010A/020A/040A H Series

105°C OPERATION
SPI SERIAL E²PROM FOR AUTOMOTIVE

Features

- Operating voltage range:

Read	2.5 V to 5.5 V
Write	2.5 V to 5.5 V
- Operation frequency: 6.5 MHz (4.5 V to 5.5 V)
- Write time: 4.0 ms max.
- SPI mode (0, 0) and (1, 1)
- Page write: 16 bytes / page
- Sequential read
- Monitors write to the memory by a status register
- Write protect: Software, Hardware
- Protect area: 25%, 50%, 100%
- Function to prevent malfunction by monitoring clock pulse
- Write protect function during the low power supply voltage
- CMOS schmitt input (\overline{CS} , SCK, SI, \overline{WP} , HOLD)
- Endurance:

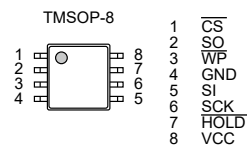
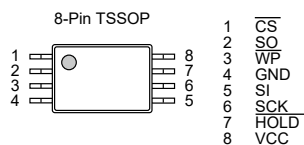
10^6 cycles/word ^{*1}	(Ta = +85°C)
8×10^5 cycles/word ^{*1}	(Ta = +105°C)
- Data retention:

100 years	(Ta = +25°C)
50 years	(Ta = +105°C)
- Memory capacitance:

S-25C010A	1 K-bit
S-25C020A	2 K-bit
S-25C040A	4 K-bit
- Initial delivery state: FFh, BP1 = 0, BP0 = 0
- Operation temperature range: Ta = -40°C to +105°C
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified^{*2}

*1. For each address (Word: 8-bit)

*2. Contact our sales office for details.



S-25C080A H Series

105°C OPERATION
SPI SERIAL E²PROM FOR AUTOMOTIVE

Features

- Operating voltage range:

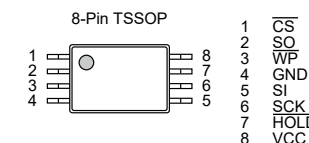
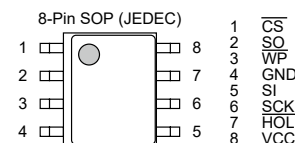
Read	2.5 V to 5.5 V
Write	2.5 V to 5.5 V
- Operation frequency: 6.5 MHz (4.5 V to 5.5 V)
- Write time: 4.0 ms max.
- SPI mode (0, 0) and (1, 1)
- Page write: 32 bytes / page
- Sequential read
- Monitors write to the memory by a status register
- Write protect: Software, Hardware
- Protect area: 25%, 50%, 100%
- Function to prevent malfunction by monitoring clock pulse
- Write protect function during the low power supply voltage
- CMOS schmitt input (\overline{CS} , SCK, SI, \overline{WP} , HOLD)
- Endurance:

10^6 cycles/word ^{*1}	(Ta = +85°C)
8×10^5 cycles/word ^{*1}	(Ta = +105°C)
- Data retention:

100 years	(Ta = +25°C)
50 years	(Ta = +105°C)
- Memory capacitance: 8 K-bit
- Initial delivery state: FFh, SRWD = 0, BP1 = 0, BP0 = 0
- Operation temperature range: Ta = -40°C to +105°C
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified^{*2}

*1. For each address (Word: 8-bit)

*2. Contact our sales office for details.



S-25C160A H Series

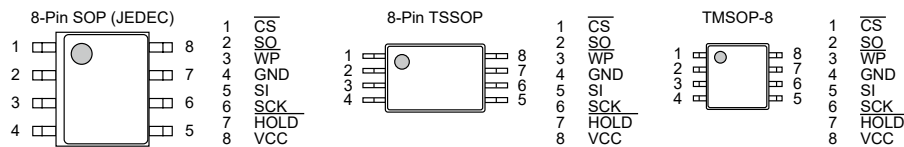
105°C OPERATION
SPI SERIAL E²PROM FOR AUTOMOTIVE

Features

- Operating voltage range: Read 2.5 V to 5.5 V
Write 2.5 V to 5.5 V
- Operation frequency: 5.0 MHz (2.5 V to 5.5 V)
- Write time: 5.0 ms max.
- SPI mode (0, 0) and (1, 1)
- Page write: 32 bytes / page
- Sequential read
- Monitors write to the memory by a status register
- Write protect: Software, Hardware
- Protect area: 25%, 50%, 100%
- Function to prevent malfunction by monitoring clock pulse
- Write protect function during the low power supply voltage
- CMOS schmitt input (\overline{CS} , SCK, SI, \overline{WP} , \overline{HOLD})
- Endurance: 10^6 cycles/word^{*1} (Ta = +25°C)
 3×10^5 cycles/word^{*1} (Ta = +85°C)
 2×10^5 cycles/word^{*1} (Ta = +105°C)
- Data retention: 100 years (Ta = +25°C)
30 years (Ta = +85°C)
25 years (Ta = +105°C)
- Memory capacitance: 16 K-bit
- Initial delivery state: FFh, SRWD = 0, BP1 = 0, BP0 = 0
- Operation temperature range: Ta = -40°C to +105°C
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified^{*2}

*1. For each address (Word: 8-bit)

*2. Contact our sales office for details.



S-25C320A/640A H Series

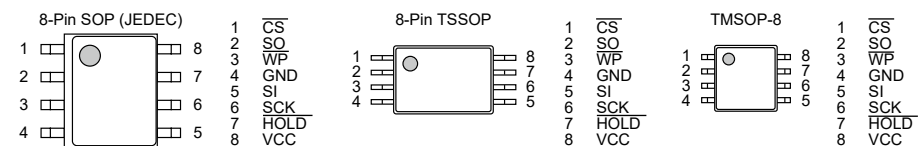
105°C OPERATION
SPI SERIAL E²PROM FOR AUTOMOTIVE

Features

- Operating voltage range: Read 2.5 V to 5.5 V
Write 2.5 V to 5.5 V
- Operation frequency: 5.0 MHz (2.5 V to 5.5 V)
- Write time: 5.0 ms max.
- SPI mode (0, 0) and (1, 1)
- Page write: 32 bytes / page
- Sequential read
- Monitors write to the memory by a status register
- Write protect: Software, Hardware
- Protect area: 25%, 50%, 100%
- Function to prevent malfunction by monitoring clock pulse
- Write protect function during the low power supply voltage
- CMOS schmitt input (\overline{CS} , SCK, SI, \overline{WP} , \overline{HOLD})
- Endurance: 10^6 cycles/word^{*1} (Ta = +25°C)
 3×10^5 cycles/word^{*1} (Ta = +85°C)
 2×10^5 cycles/word^{*1} (Ta = +105°C)
- Data retention: 100 years (Ta = +25°C)
30 years (Ta = +85°C)
25 years (Ta = +105°C)
- Memory capacitance: S-25C320A 32 K-bit
S-25C640A 64 K-bit
- Initial delivery state: FFh, SRWD = 0, BP1 = 0, BP0 = 0
- Operation temperature range: Ta = -40°C to +105°C
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified^{*2}

*1. For each address (Word: 8-bit)

*2. Contact our sales office for details.



S-25C128A H Series

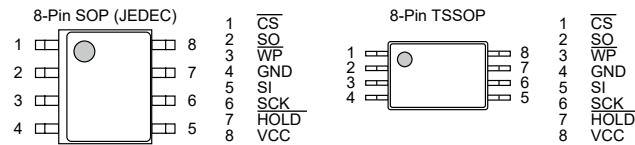
105°C OPERATION
SPI SERIAL E²PROM FOR AUTOMOTIVE

Features

- Operating voltage range: Read 2.5 V to 5.5 V
Write 2.5 V to 5.5 V
- Operation frequency: 5.0 MHz (2.5 V to 5.5 V)
- Write time: 5.0 ms max.
- SPI mode (0, 0) and (1, 1)
- Page write: 64 bytes / page
- Sequential read
- Monitors write to the memory by a status register
- Write protect: Software, Hardware
Protect area: 25%, 50%, 100%
- Function to prevent malfunction by monitoring clock pulse
- Write protect function during the low power supply voltage
- CMOS schmitt input (\overline{CS} , SCK, SI, \overline{WP} , \overline{HOLD})
- Endurance: 10^6 cycles/word^{*1} (Ta = +25°C)
 3×10^5 cycles/word^{*1} (Ta = +85°C)
 2×10^5 cycles/word^{*1} (Ta = +105°C)
- Data retention: 100 years (Ta = +25°C)
30 years (Ta = +85°C)
25 years (Ta = +105°C)
- Memory capacitance: 128 K-bit
- Initial delivery state: FFh, SRWD = 0, BP1 = 0, BP0 = 0
- Operation temperature range: Ta = -40°C to +105°C
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified^{*2}

*1. For each address (Word: 8-bit)

*2. Contact our sales office for details.



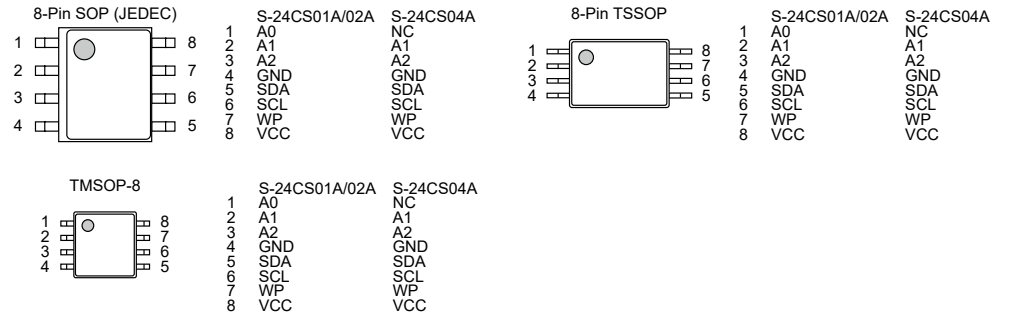
S-24CS01A/02A/04A H Series

FOR AUTOMOTIVE 105°C OPERATION
2-WIRE SERIAL E²PROM

Features

- Operating voltage range: Read 2.55 V to 5.5 V (Ta = -40°C to +105°C)
Write 2.55 V to 5.5 V (Ta = -40°C to +105°C)
- Page write: 8 bytes / page (S-24CS01A/02A)
16 bytes / page (S-24CS04A)
- Sequential read
- Operating Frequency: 400 kHz (V_{CC} = 2.55 V to 5.5 V, Ta = -40°C to +85°C)
350 kHz (V_{CC} = 2.55 V to 5.5 V, Ta = +85°C to +105°C)
- Write time: 10.0 ms max.
- Write protect function during the low power supply voltage
- Endurance: 10^6 cycles/word^{*1} (Ta = +85°C)
 5×10^5 cycles/word^{*1} (Ta = +105°C)
- Data retention: 100 years (Ta = +25°C)
20 years (Ta = +105°C)
- Memory capacity: S-24CS01A 1 Kbit
S-24CS02A 2 Kbit
S-24CS04A 4 Kbit
- Write protect: 100%
- Initial delivery state: FFh
- Operation temperature range: Ta = -40°C to +105°C
- Lead-free (Sn 100%), halogen-free

*1. For each address (Word: 8-bit)



S-24C08C H Series

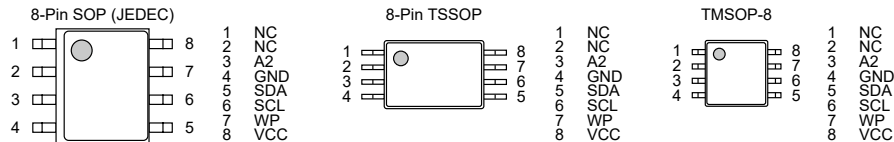
FOR AUTOMOTIVE 105°C OPERATION
2-WIRE SERIAL E²PROM

Features

- Operation voltage range: Read 2.5 V to 5.5 V
Write 2.5 V to 5.5 V
- Page write: 16 bytes / page
- Sequential read
- Operation frequency: 400 kHz ($V_{CC} = 2.5\text{ V to }5.5\text{ V}$)
- Write time: 5.0 ms max.
- Noise suppression: Schmitt trigger and noise filter on input pins (SCL, SDA)
- Write protect function during the low power supply voltage
- Endurance: 10^6 cycles / word^{*1} ($T_a = +25^\circ\text{C}$)
 3×10^5 cycles / word^{*1} ($T_a = +85^\circ\text{C}$)
 2×10^5 cycles / word^{*1} ($T_a = +105^\circ\text{C}$)
- Data retention: 100 years ($T_a = +25^\circ\text{C}$)
30 years ($T_a = +85^\circ\text{C}$)
25 years ($T_a = +105^\circ\text{C}$)
- Memory capacity: 8 K-bit
- Write protect: 100%
- Initial delivery state: FFh
- Operation temperature range: $T_a = -40^\circ\text{C to }+105^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified^{*2}

*1. For each address (Word: 8-bit)

*2. Contact our sales office for details.



S-24C16C H Series

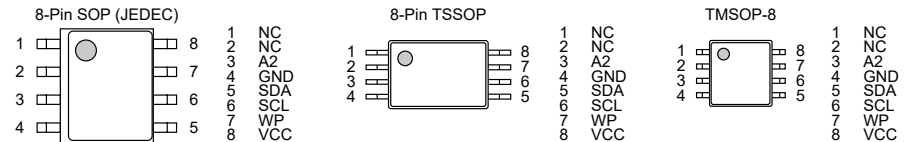
FOR AUTOMOTIVE 105°C OPERATION
2-WIRE SERIAL E²PROM

Features

- Operation voltage range: Read 2.5 V to 5.5 V
Write 2.5 V to 5.5 V
- Page write: 16 bytes / page
- Sequential read
- Operation frequency: 400 kHz ($V_{CC} = 2.5\text{ V to }5.5\text{ V}$)
- Write time: 5.0 ms max.
- Noise suppression: Schmitt trigger and noise filter on input pins (SCL, SDA)
- Write protect function during the low power supply voltage
- Endurance: 10^6 cycles / word^{*1} ($T_a = +25^\circ\text{C}$)
 3×10^5 cycles / word^{*1} ($T_a = +85^\circ\text{C}$)
 2×10^5 cycles / word^{*1} ($T_a = +105^\circ\text{C}$)
- Data retention: 100 years ($T_a = +25^\circ\text{C}$)
30 years ($T_a = +85^\circ\text{C}$)
25 years ($T_a = +105^\circ\text{C}$)
- Memory capacity: 16 K-bit
- Write protect: 100%
- Initial delivery state: FFh
- Operation temperature range: $T_a = -40^\circ\text{C to }+105^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified^{*2}

*1. For each address (Word: 8-bit)

*2. Contact our sales office for details.



S-24C32C/64C H Series

FOR AUTOMOTIVE 105°C OPERATION
2-WIRE SERIAL E²PROM

Features

- Operating voltage range:

Read	2.5 V to 5.5 V
Write	2.5 V to 5.5 V
- Page write: 32 bytes / page
- Sequential read
- Operation frequency: 400 kHz ($V_{CC} = 2.5\text{ V to }5.5\text{ V}$)
- Write time: 5.0 ms max.
- Noise suppression: Schmitt trigger and noise filter on input pins (SCL, SDA)
- Write protect function during the low power supply voltage
- Endurance:

10^6 cycles/word ^{*1}	($T_a = +25^\circ\text{C}$)
3×10^5 cycles/word ^{*1}	($T_a = +85^\circ\text{C}$)
2×10^5 cycles/word ^{*1}	($T_a = +105^\circ\text{C}$)
- Data retention:

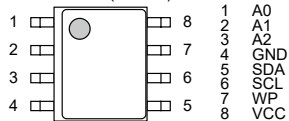
100 years	($T_a = +25^\circ\text{C}$)
30 years	($T_a = +85^\circ\text{C}$)
25 years	($T_a = +105^\circ\text{C}$)
- Memory capacity:

S-24C32C	32 K-bit
S-24C64C	64 K-bit
- Write protect: 100%
- Initial delivery state: FFh
- Operation temperature range: $T_a = -40^\circ\text{C to }+105^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified^{*2}

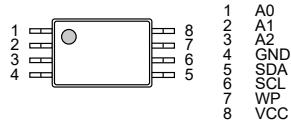
*1. For each address (Word: 8-bit)

*2. Contact our sales office for details.

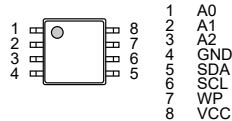
8-Pin SOP (JEDEC)



8-Pin TSSOP



TMSOP-8



S-24C128C H Series

FOR AUTOMOTIVE 105°C OPERATION
2-WIRE SERIAL E²PROM

Features

- Operating voltage range:

Read	2.5 V to 5.5 V
Write	2.5 V to 5.5 V
- Page write: 64 bytes / page
- Sequential read
- Operation frequency: 400 kHz ($V_{CC} = 2.5\text{ V to }5.5\text{ V}$)
- Write time: 5.0 ms max.
- Noise suppression: Schmitt trigger and noise filter on input pins (SCL, SDA)
- Write protect function during the low power supply voltage
- Endurance:

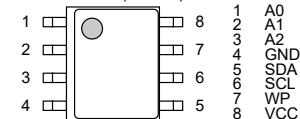
10^6 cycles/word ^{*1}	($T_a = +25^\circ\text{C}$)
3×10^5 cycles/word ^{*1}	($T_a = +85^\circ\text{C}$)
2×10^5 cycles/word ^{*1}	($T_a = +105^\circ\text{C}$)
- Data retention:

100 years	($T_a = +25^\circ\text{C}$)
30 years	($T_a = +85^\circ\text{C}$)
25 years	($T_a = +105^\circ\text{C}$)
- Memory capacity: 128 K-bit
- Write protect: 100%
- Initial delivery state: FFh
- Operation temperature range: $T_a = -40^\circ\text{C to }+105^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified^{*2}

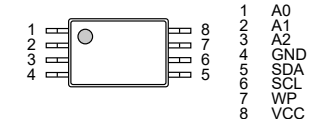
*1. For each address (Word: 8-bit)

*2. Contact our sales office for details.

8-Pin SOP (JEDEC)



8-Pin TSSOP



S-57GD S Series

**AUTOMOTIVE, 150°C OPERATION,
HIGH-WITHSTAND VOLTAGE, HIGH-SPEED,
OMNIPOLAR DETECTION TYPE HALL EFFECT SWITCH IC**

Features

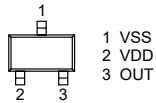
- Pole detection: Omnipolar detection
- Output logic*1: Active "L"
Active "H"
- Output form*1: Nch open-drain output
Nch driver + built-in pull-up resistor (1.2 kΩ typ.)
- Magnetic sensitivity*1: $B_{OP} = 3.0$ mT typ.
 $B_{OP} = 6.0$ mT typ.
 $B_{OP} = 10.0$ mT typ.
 $B_{OP} = 15.0$ mT typ.
- Chopping frequency: $f_c = 500$ kHz typ.
- Output delay time: $t_D = 16.0$ μs typ.
- Power supply voltage range*2: $V_{DD} = 2.7$ V to 26.0 V
- Built-in regulator
- Built-in reverse voltage protection circuit
- Built-in output current limit circuit
- Operation temperature range: $T_a = -40^\circ\text{C}$ to $+150^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*3

*1. The option can be selected.

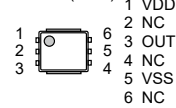
*2. $V_{DD} = 2.7$ V to 5.5 V when output form is Nch driver + built-in pull-up resistor (1.2 kΩ typ.)

*3. Contact our sales representatives for details.

TSOT-23-3S



HSNT-6(2025)



S-57GS/GN S Series

**AUTOMOTIVE, 150°C OPERATION,
HIGH-WITHSTAND VOLTAGE, HIGH-SPEED,
UNIPOLAR DETECTION TYPE HALL EFFECT SWITCH IC**

Features

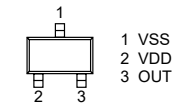
- Pole detection: Unipolar detection
- Output logic*1: Active "L"
Active "H"
- Output form*1: Nch open-drain output
Nch driver + built-in pull-up resistor (1.2 kΩ typ.)
- Magnetic sensitivity*1: $B_{OP} = 3.0$ mT typ.
 $B_{OP} = 6.0$ mT typ.
 $B_{OP} = 10.0$ mT typ.
 $B_{OP} = 15.0$ mT typ.
- Chopping frequency: $f_c = 500$ kHz typ.
- Output delay time: $t_D = 8.0$ μs typ.
- Power supply voltage range*2: $V_{DD} = 2.7$ V to 26.0 V
- Built-in regulator
- Built-in reverse voltage protection circuit
- Built-in output current limit circuit
- Operation temperature range: $T_a = -40^\circ\text{C}$ to $+150^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*3

*1. The option can be selected.

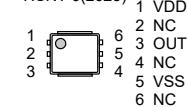
*2. $V_{DD} = 2.7$ V to 5.5 V when output form is Nch driver + built-in pull-up resistor (1.2 kΩ typ.)

*3. Contact our sales representatives for details.

TSOT-23-3S



HSNT-6(2025)



S-57A1 A Series

FOR AUTOMOTIVE 125°C OPERATION
HIGH-WITHSTAND VOLTAGE HIGH-SPEED
UNIPOLAR DETECTION TYPE HALL EFFECT SWITCH IC

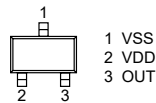
Features

- Pole detection*¹: Detection of S pole
Detection of N pole
- Output logic*¹: Active "L"
Active "H"
- Output form*¹: Nch open-drain output
Nch driver + built-in pull-up resistor
- Magnetic sensitivity*¹: $B_{OP} = 3.0 \text{ mT typ.}$
 $B_{OP} = 6.0 \text{ mT typ.}$
 $f_C = 250 \text{ kHz typ.}$
 $t_D = 16.0 \mu\text{s typ.}$
 $V_{DD} = 3.5 \text{ V to } 26.0 \text{ V}$
- Chopping frequency:
- Output delay time:
- Power supply voltage range:
- Built-in regulator
- Built-in reverse voltage protection circuit
- Built-in output current limit circuit
- Operation temperature range: $T_a = -40^\circ\text{C to } +125^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*²

*1. The option can be selected.

*2. Contact our sales office for details.

SOT-23-3



S-57TZ S Series

AUTOMOTIVE, 150°C OPERATION,
HIGH-WITHSTAND VOLTAGE, HIGH-SPEED,
ZCL™ HALL EFFECT IC

Features

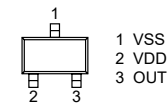
- Pole detection: ZCL detection
- Output logic*¹: $V_{OUT} = \text{"L"}$ at S pole detection
 $V_{OUT} = \text{"H"}$ at S pole detection
- Output form*¹: Nch open-drain output
Nch driver + built-in pull-up resistor (1.2 kΩ typ.)
- Zero crossing latch point: $B_Z = 0.0 \text{ mT typ.}$
- Release point (S pole)*¹: $B_{RS} = 3.0 \text{ mT typ.}$
 $B_{RS} = 6.0 \text{ mT typ.}$
- Chopping frequency: $f_C = 500 \text{ kHz typ.}$
- Output delay time: $t_D = 8.0 \mu\text{s typ.}$
- Power supply voltage range*²: $V_{DD} = 2.7 \text{ V to } 26.0 \text{ V}$
- Built-in regulator
- Built-in reverse voltage protection circuit
- Built-in output current limit circuit
- Operation temperature range: $T_a = -40^\circ\text{C to } +150^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*³

*1. The option can be selected.

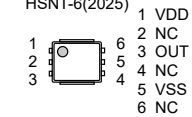
*2. $V_{DD} = 2.7 \text{ V to } 5.5 \text{ V}$ when output form is Nch driver + built-in pull-up resistor (1.2 kΩ typ.)

*3. Contact our sales representatives for details.

TSOT-23-3S



HSNT-6(2025)



S-57RB S Series

**AUTOMOTIVE, 150°C OPERATION,
HIGH-WITHSTAND VOLTAGE, HIGH-SPEED,
BIPOLAR HALL EFFECT LATCH IC**

● Features

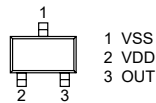
- Pole detection: Bipolar latch
- Output logic^{*1}: $V_{OUT} = "L"$ at S pole detection
 $V_{OUT} = "H"$ at S pole detection
- Output form^{*1}: Nch open-drain output
Nch driver + built-in pull-up resistor (1.2 kΩ typ.)
- Magnetic sensitivity^{*1}: $B_{OP} = 0.5$ mT typ.
 $B_{OP} = 2.2$ mT typ.
 $B_{OP} = 3.0$ mT typ.
 $B_{OP} = 6.0$ mT typ.
 $B_{OP} = 10.0$ mT typ.
- Chopping frequency: $f_C = 500$ kHz typ.
- Output delay time: $t_D = 8.0$ μs typ.
- Power supply voltage range^{*2}: $V_{DD} = 2.7$ V to 26.0 V
- Built-in regulator
- Built-in reverse voltage protection circuit
- Built-in output current limit circuit
- Operation temperature range: $T_a = -40^\circ\text{C}$ to $+150^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified^{*3}

*1. The option can be selected.

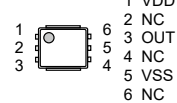
*2. $V_{DD} = 2.7$ V to 5.5 V when output form is Nch driver + built-in pull-up resistor (1.2 kΩ typ.)

*3. Contact our sales representatives for details.

TSOT-23-3S



HSNT-6(2025)



S-57P1 S Series

**FOR AUTOMOTIVE 150°C OPERATION
HIGH-WITHSTAND VOLTAGE
HIGH-SPEED BIPOLAR HALL EFFECT LATCH IC**

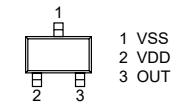
● Features

- Pole detection: Bipolar latch
- Output logic^{*1}: $V_{OUT} = "L"$ at S pole detection
 $V_{OUT} = "H"$ at S pole detection
- Output form: Nch open-drain output
- Magnetic sensitivity^{*1}: $B_{OP} = 0.5$ mT typ.
 $B_{OP} = 1.5$ mT typ.
 $B_{OP} = 2.2$ mT typ.
 $B_{OP} = 3.0$ mT typ.
- Chopping frequency: $f_C = 500$ kHz typ.
- Output delay time: $t_D = 8.0$ μs typ.
- Power supply voltage range: $V_{DD} = 2.7$ V to 26.0 V
- Built-in regulator
- Built-in reverse voltage protection circuit
- Built-in output current limit circuit
- Operation temperature range: $T_a = -40^\circ\text{C}$ to $+150^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified^{*2}

*1. The option can be selected.

*2. Contact our sales office for details.

SOT-23-3S



S-57K1 A Series

FOR AUTOMOTIVE 125°C OPERATION
HIGH-WITHSTAND VOLTAGE
HIGH-SPEED BIPOLAR HALL EFFECT LATCH IC

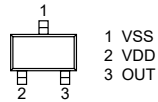
● Features

- Pole detection:
- Output logic*1: Bipolar latch
 $V_{OUT} = "L"$ at S pole detection
 $V_{OUT} = "H"$ at S pole detection
- Output form*1: Nch open-drain output,
Nch driver + built-in pull-up resistor
 $B_{OP} = 3.0 \text{ mT typ.}$
 $B_{OP} = 6.0 \text{ mT typ.}$
- Magnetic sensitivity*1: $f_c = 500 \text{ kHz typ.}$
 $t_D = 8.0 \mu\text{s typ.}$
 $V_{DD} = 3.5 \text{ V to } 26.0 \text{ V}$
- Chopping frequency:
- Output delay time:
- Power supply voltage range:
- Built-in regulator
- Built-in reverse voltage protection circuit
- Built-in output current limit circuit
- Operation temperature range: $T_a = -40^\circ\text{C to } +125^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*2

*1. The option can be selected.

*2. Contact our sales office for details.

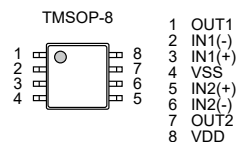
SOT-23-3



S-19610A**AUTOMOTIVE, 125°C OPERATION,
2 circuits
CMOS OPERATIONAL AMPLIFIER****Features**

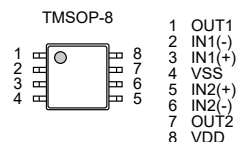
- Low input offset voltage: $V_{IO} = +6.0$ mV max. ($T_a = -40$ C to $+125$ C)
- Operation power supply voltage range: $V_{DD} = 2.70$ V to 5.50 V
- Low current consumption (Per circuit): $I_{DD} = 1.00$ mA typ.
- Internal phase compensation: No external parts required
- Operation temperature range: $T_a = -40$ C to $+125$ C
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*1

*1. Contact our sales office for details.

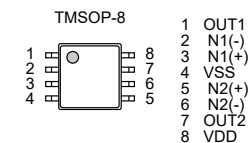
**S-19611A****AUTOMOTIVE, 105°C OPERATION,
2 circuits
LOW INPUT OFFSET VOLTAGE CMOS OPERATIONAL AMPLIFIER****Features**

- Low input offset voltage: $V_{IO} = +17$ μ V max. ($T_a = +25^\circ$ C)
 $V_{IO} = +100$ μ V max. ($T_a = -40^\circ$ C to $+105^\circ$ C)
- Operation power supply voltage range: $V_{DD} = 2.65$ V to 5.50 V
- Low current consumption (Per circuit): $I_{DD} = 200$ μ A typ.
- Internal phase compensation: No external parts required
- Rail-to-Rail input and output
- Operation temperature range: $T_a = -40^\circ$ C to $+105^\circ$ C
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*1

*1. Contact our sales representatives for details.

**S-19630A****AUTOMOTIVE, 125°C OPERATION,
2 circuits
LOW INPUT OFFSET VOLTAGE CMOS OPERATIONAL AMPLIFIER****Features**

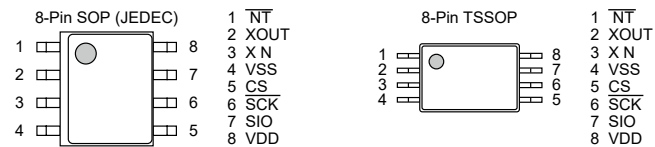
- Low input offset voltage: $V_{IO} = +50$ μ V max. ($T_a = -40^\circ$ C to $+125^\circ$ C)
- Low input offset voltage drift: $\frac{\Delta V_{IO}}{\Delta T_a} = \pm 25$ nV/ $^\circ$ C typ. ($V_{DD} = 30.0$ V, $T_a = -40^\circ$ C to $+125^\circ$ C)
- Operation power supply voltage range: $V_{DD} = 4.0$ V to 36.0 V
- Low current consumption (Per circuit): $I_{DD} = 250$ μ A typ.
- Low input noise voltage: $V_{NOISE_pp} = 0.8$ μ Vpp typ. ($f = 0.1$ Hz to 10 Hz)
- Low input noise voltage density: $V_{NOISE} = 25$ nV/ $\sqrt{\text{Hz}}$ typ. ($f = 1$ kHz)
- Built-in output current limit circuit: Overcurrent limit when output pin is short-circuited
- Internal phase compensation: No external parts required
- Rail-to-Rail input and output
- Operation temperature range: $T_a = -40^\circ$ C to $+125^\circ$ C
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*1



S-35190A H Series**FOR AUTOMOTIVE 105°C OPERATION
3-WIRE REAL-TIME CLOCK****● Features**

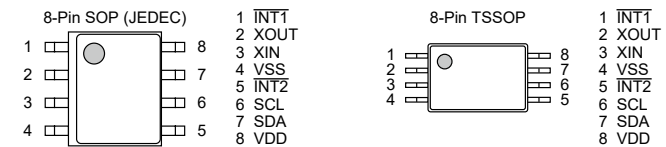
- Low current consumption: 0.25 μ A typ. ($V_{DD} = 3.0$ V, $T_a = +25$ C)
- Wide range of operating voltage: 1.3 V to 5.5 V
- Built-in clock correction function
- Built-in free user register
- 3-wire (MICROWIRE) CPU interface
- Built-in alarm interrupter
- Built-in flag generator during detection of low power voltage or at power-on
- Auto calendar up to the year 2099, automatic leap year calculation function
- Built-in constant-voltage circuit
- Built-in 32.768 kHz crystal oscillation circuit (built-in C_d , external C_g)
- Operating temperature range: $T_a = -40$ C to $+105$ C
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified^{*1}

*1. Contact our sales office for details.

**S-35390A H Series****FOR AUTOMOTIVE 105°C OPERATION
2-WIRE REAL-TIME CLOCK****● Features**

- Low current consumption: 0.25 μ A typ. ($V_{DD} = 3.0$ V, $T_a = +25$ C)
- Wide range of operating voltage: 1.3 V to 5.5 V
- Built-in clock correction function
- Built-in free user register
- 2-wire (I²C-bus) CPU interface
- Built-in alarm interrupter
- Built-in flag generator during detection of low power voltage or at power-on
- Auto calendar up to the year 2099, automatic leap year calculation function
- Built-in constant voltage circuit
- Built-in 32.768 kHz crystal oscillation circuit (built-in C_d , external C_g)
- Operating temperature range: $T_a = -40$ C to $+105$ C
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified^{*1}

*1. Contact our sales office for details.



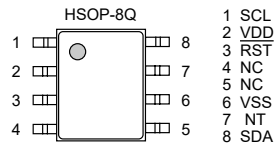
S-35710M A Series

CONVENIENCE TIMER AUTOMOTIVE, 125°C OPERATION, 2-WIRE TIMER WITH BUILT-IN QUARTZ CRYSTAL

Features

- Built-in 32.768 kHz quartz crystal
- Alarm interrupt function: Settable on the second time scale from 1 second to 194 days (Approximately half a year)
- Low current consumption: 0.25 μ A typ. ($V_{DD} = 3.0$ V, $T_a = +25^\circ\text{C}$)
- Wide range of operation voltage: 1.8 V to 5.5 V
- 2-wire (I²C-bus) CPU interface
- Operation temperature range: $T_a = -40^\circ\text{C}$ to $+125^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC Q100/Q200 qualified*1

*1. Contact our sales representatives for details.



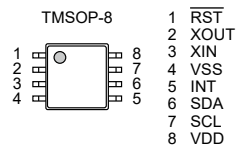
S-35710 A Series

CONVENIENCE TIMER AUTOMOTIVE, 125°C OPERATION, 2-WIRE TIMER

Features

- Alarm interrupt function: Settable on the second time scale from 1 second to 194 days (Approximately half a year)
- Low current consumption: 0.2 μ A typ. (Quartz crystal: $C_L = 6.0$ pF, $V_{DD} = 3.0$ V, $T_a = +25^\circ\text{C}$)
- Wide range of operation voltage: 1.8 V to 5.5 V
- 2-wire (I²C-bus) CPU interface
- Built-in 32.768 kHz crystal oscillation circuit
- Operation temperature range: $T_a = -40^\circ\text{C}$ to $+125^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*1

*1. Contact our sales representatives for details.



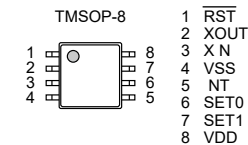
S-35720 A Series

CONVENIENCE TIMER AUTOMOTIVE, 125°C OPERATION, TIMER WITH INTERRUPT TIME SETTING PIN

Features

- Alarm interrupt function: Settable interrupt time
Selectable as the option on the second time scale from 1 second to 194 days (Approximately half a year)
- Low current consumption: 0.2 μ A typ. (Quartz crystal: $C_L = 6.0$ pF, $V_{DD} = 3.0$ V, $T_a = +25^\circ\text{C}$)
- Wide range of operation voltage: 1.8 V to 5.5 V
- Built-in 32.768 kHz crystal oscillation circuit
- Operation temperature range: $T_a = -40^\circ\text{C}$ to $+125^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*1

*1. Contact our sales representatives for details.



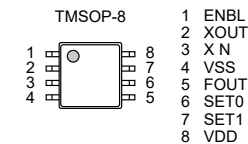
S-35730 A Series

CONVENIENCE TIMER AUTOMOTIVE, 125°C OPERATION, CLOCK PULSE OUTPUT, TIMER WITH FREQUENCY SETTING PIN

Features

- Clock pulse output function: Settable clock pulse frequency, with an output control pin
- Low current consumption: 0.7 μ A typ. (Quartz crystal: $C_L = 6.0$ pF, $V_{DD} = 3.0$ V, ENBL pin = "H", $T_a = +25^\circ\text{C}$, FOUT pin = Nch open-drain output)
- Wide range of operation voltage: 1.8 V to 5.5 V
- Built-in 32.768 kHz crystal oscillation circuit
- Operation temperature range: $T_a = -40^\circ\text{C}$ to $+125^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*1

*1. Contact our sales office for details.



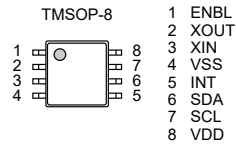
S-35740 A Series

**CONVENIENCE TIMER
AUTOMOTIVE, 125°C OPERATION,
2-WIRE INTERVAL TIMER**

● Features

- Fixed-cycle interrupt signal output function: Settable frequency and duty ratio, with an output control pin
- Low current consumption: 0.2 μ A typ.
(Quartz crystal: $C_L = 6.0$ pF, $V_{DD} = 3.0$ V, ENBL pin = "H", $T_a = +25^\circ\text{C}$)
- Wide range of operation voltage: 1.8 V to 5.5 V
- 2-wire (I²C-bus) CPU interface
- Built-in 32.768 kHz crystal oscillation circuit
- Operation temperature range: $T_a = -40^\circ\text{C}$ to $+125^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*1

*1. Contact our sales office for details.



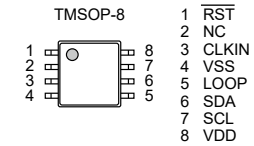
S-35770 A Series

**CONVENIENCE TIMER
AUTOMOTIVE, 125°C OPERATION,
2-WIRE COUNTER**

● Features

- External clock signal count function: Countable from 0 to 16,777,215, with output pin for counter loop flag
- Low current consumption: 0.01 μ A typ. ($V_{DD} = 3.0$ V, $T_a = +25^\circ\text{C}$, out of communication (CLKIN pin = 0 V))
- Wide range of operation voltage: 1.5 V to 5.5 V
- 2-wire (I²C-bus) CPU interface
- Operation temperature range: $T_a = -40^\circ\text{C}$ to $+125^\circ\text{C}$
- Lead-free (Sn 100%), halogen-free
- AEC-Q100 qualified*1

*1. Contact our sales office for details.

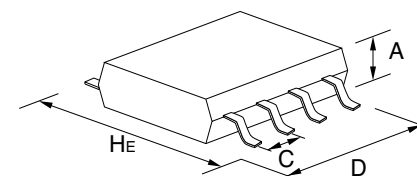


Package List

Package Type	Pin Count	Package Name	Package Size (mm)			Pitch (mm)
			H _E	D	A (max.)	C
Lead insertion type	3	TO-92	7.0	5.2	4.2	2.5/1.27
	3	TO-92S	4.95	4.1	1.62	2.5/1.27
Flat-lead type	3	SOT-89-3	4.0	4.5	1.6	1.5
	5	SOT-89-5	4.5	4.5	1.6	1.5
Gull-wing type	4	SC-82AB	2.1	2.0	1.1	1.3
	5	SC-88A	2.1	2.0	1.1	0.65
	3	SOT-23-3	2.8	2.9	1.3	1.9
	3	SOT-23-3S	2.8	2.9	1.2	1.9
	3	TSOT-23-3S	2.85	2.9	0.8	1.9
	5	SOT-23-5	2.8	2.9	1.3	0.95
	6	SOT-23-6	2.8	2.9	1.35	0.95
	6	SOT-23-6W	2.8	2.9	1.3	0.95
	8	8-Pin SOP (JEDEC)	6.0	5.02	1.75	1.27
	8	8-Pin TSSOP	6.4	3.0	1.1	0.65
	8	8-Pin TSSOP	6.4	3.0	1.1	0.65
	16	16-Pin TSSOP	6.4	5.1	1.1	0.65
	20	20-Pin TSSOP	6.4	6.5	1.2	0.65
	24	24-Pin SSOP	7.6	7.9	1.4	0.65
	8	TMSOP-8	4.0	2.9	0.8	0.65
	8	HTMSOP-8	4.0	2.9	0.8	0.65
	16	HTSSOP-16	6.4	5.12	1.1	0.65
	6	HSOP-6	6.0	5.02	1.75	1.91
	8	HSOP-8A	6.0	5.02	1.68	1.27
	8	HSOP-8A	6.0	5.02	1.65	1.27
	8	HSOP-8Q	6.0	5.02	1.68	1.27
	5	TO-252-5S(A)	6.5	6.5	1.4	1.27
	9	TO-252-9S	6.5	6.5	1.4	0.65

Package Type	Pin Count	Package Name	Package Size (mm)			Pitch (mm)
			H _E	D	A (max.)	C
Non-lead type	6	6-Pin HSON(A)	3.0	2.9	0.9	0.95
	6	SON-6C	2.55	1.56	0.65	0.5
	4	SNT-4A	1.6	1.2	0.5	0.65
	6	SNT-6A SNT-6A(H)	1.8	1.57	0.5	0.5
	8	SNT-8A	2.46	1.97	0.5	0.5
	4	HSNT-4(0808)	0.8	0.8	0.4	0.4
	4	HSNT-4(0808)B	0.8	0.8	0.41	0.4
	4	HSNT-4(1010)	1.0	1.0	0.4	0.65
	4	HSNT-4(1010)B	1.0	1.0	0.41	0.65
	6	HSNT-6A	2.46	1.96	0.5	0.5
	6	HSNT-6(1212)	1.2	1.2	0.4	0.4
	6	HSNT-6D (HSNT-6(1618))	1.8	1.6	0.4	0.5
	6	HSNT-6(2025)	2.46	1.96	0.5	0.5
	8	HSNT-8(1616)	1.6	1.6	0.4	0.4
	8	HSNT-8(2030)	3.0	2.0	0.5	0.5
	6	DFN-6(1414)A	1.4	1.4	0.6	0.5
	6	DFN-6(1518)A	1.8	1.5	0.33	0.5
	8	DFN-8(1616)A	1.6	1.6	0.6	0.4
	8	DFN-8(2030)	3.0	2.0	0.5	0.5
	8	DFN-8(2030)A	3.0	2.0	0.6	0.5
	8	DFN-8(2030)B	3.0	2.0	0.8	0.5

Remark Please contact our sales representatives regarding WLP package products.



- The information herein is subject to change without notice.
- Neither reproduction, duplication nor unauthorized use of this catalog in whole or part is allowed without the prior written approval of ABLIC Inc.
- The colors of the products reproduced herein (“Products”) may be different from the actual colors. Check colors on actual products before using the Products.
- Circuits and respective application methods described herein are for reference only. ABLIC Inc. shall not be liable for any damages or losses resulting from any claim by third parties that any Products or application methods described herein infringe any right intellectual property right. All intellectual property rights with respect to the Products belong exclusively to ABLIC Inc. ABLIC Inc. does not grant users of the Products any right or license to the Products hereunder.
- When Products include Strategic Products (or Services) stipulated in the Foreign Exchange and Trade Control Law, they shall not be exported without permission of governmental authorities.
- The Products cannot be used as part of any device or equipment which influences the human body or requires a significantly high reliability, such as physical exercise equipment, medical equipment, disaster prevention equipment, gas related equipment, vehicles, in-vehicle equipment, aviation equipment, aerospace equipment, and nuclear-related equipment.
- The products described herein are not designed to be radiation-proof.
- Although ABLIC Inc. exerts the greatest possible effort to ensure high quality and reliability, the failure or malfunction of semiconductor products may occur. The user of these products should therefore give thorough consideration to safety design, including redundancy, fire-prevention measures, and malfunction prevention, to prevent any accidents, fires, or community damage that may ensue.



Smaller footprint. Energy efficiency. Safe, reliable, dependable.

ABLIC world class watch manufacturing yielded ultra low current consumption, low voltage operation, and super-small package technology for ABLIC's solutions.

Fine craftsmanship delivering the highest quality and reliability semiconductor products meeting and exceeding industry standards for automotive, consumer, and other demanding applications. ABLIC's solutions - moving technology forward.



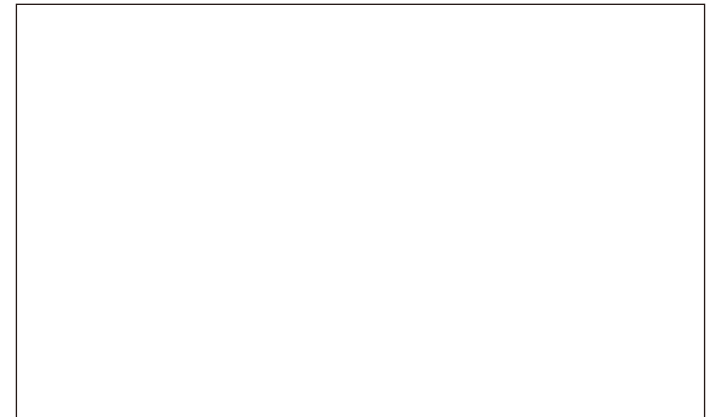
ABLIC Inc.
www.ablic.com

Contact us
www.ablic.com/en/semicon/sales



Released in March 2023

ABLIC Inc. is a group company of MinebeaMitsumi Inc.



(Specifications are subject to change without notice.)