

2017/01/06

EWBS Receiving Module Specifications 1.00

Century

Revision history

Revision	Date	Changes	Remarks
1.00	2017/01/06	Initial Release.	

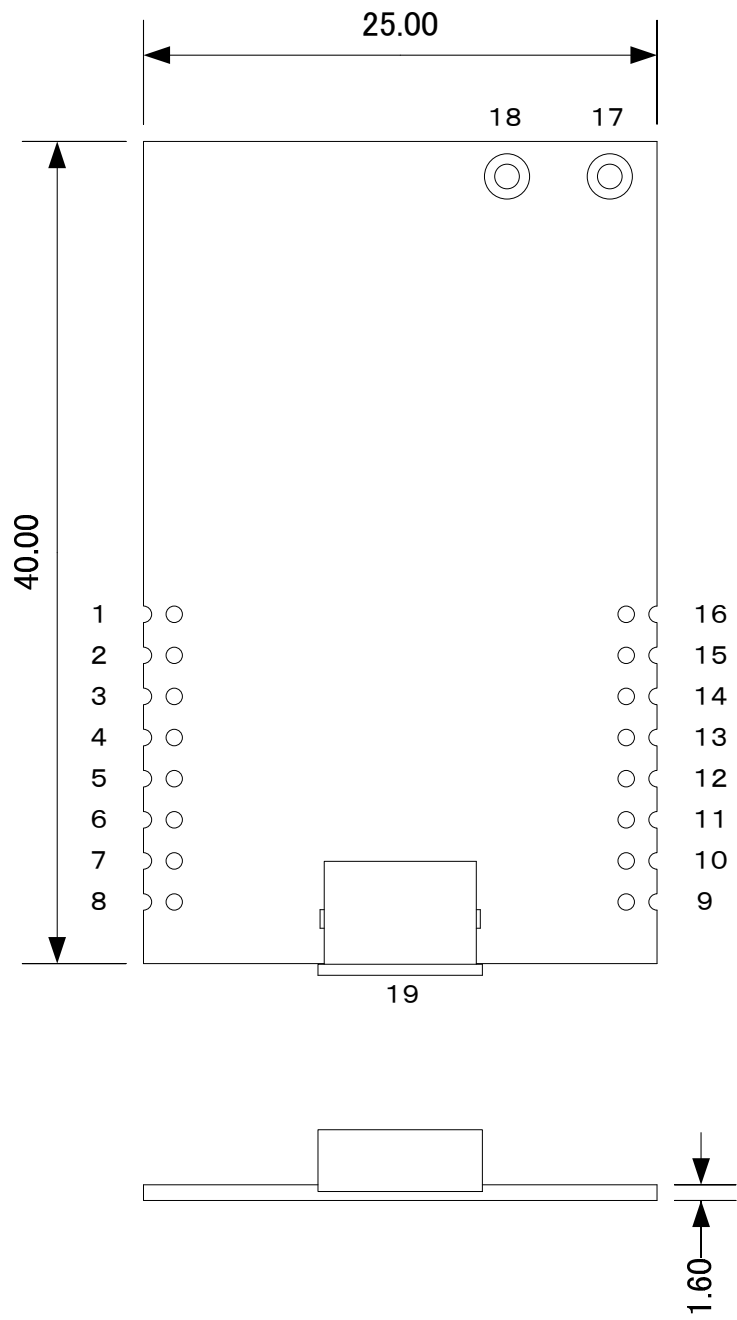
1. Overview

EWBS Receiving Module embed One-seg ISDB-T tuner and receive EWBS signals and output character code of Superimpose text message in EWBS signals.

2. Functions

- ① Embedded One-seg ISDB-T tuner and receive EWBS signals.
(Output character code of Superimpose text message in EWBS signals).
Maximum sizes of text data: 120bytes
- ② Supported frequency range: 470 to 806MHz(UHF-band)
Supported bandwidth system of ISDB-T 6MHz and 8MHz.
- ③ Rated input voltage : 3.3V DC +/-5%
- ④ Host interface : Asynchronous serial communication
- ⑤ Firmware update can be available through USB interface. Switching bandwidth system must be updated to the firmware.
- ⑥ Compatible with EWBS "Area code" function. When Area code is not set, module works every time of EWBS operation (regardless of Area code in EWBS signal)
- ⑦ Area code and Monitoring frequency need to be set either by PC through USB or by UART.
- ⑧ Output of "Sound-control" in EWBS signal.
- ⑨ Monitoring function of RF reception strength.

3. Pin assignment



4. Pin functions

Pin No.	Symbol	Out/In	Function
1	SOUND CONTROL OUT	Out	It is a sound control terminal. It becomes High level when receiving the sound output signal included in the EWBS signal.
2	NC		
3	TX	Out	Serial output pin
4	RX	In	Serial input pin
5	NC		
6	NC		
7	NC		
8	Vss	In	Ground pin.Connect to the system power supply (0V).
9	NC		
10	NC		
11	EWBS OUT	Out	EWBS advertised pin.While receiving EWBS signal, it become high level.
12	/SLEEP	In	Power save mode pin.When this pin set to low level, module become power saving mode while the EWBS signal is not received.
13	/RESET	In	Reset Pin.When this pin is set to low level, reset state is entered.
14	NC		
15	NC		
16	Vcc	In	Power pin.Connect to the system power supply (3.3V).
17	Vss	In	Ground pin.Connect to the system power supply (0V).
18	ANT	In	Antenna input pin.
19	USB	In/Out	It is a USB terminal used for firmware update, setting, etc.

① SOUND CONTROL OUT pin

It becomes High level when receiving the sound output signal included in the EWBS signal.

② EWBS OUT Pin

Signal level becomes high when EWBS signal start receiving. If area code is set, it becomes high level only when area code is corresponded.

③ /SLEEP Pin

When it is set to the LOW level, it enters the power saving mode until it receives the EWBS signal. In the power saving mode, it does not respond to any commands in asynchronous serial from the host. When set to High level, it returns to normal state in power saving mode.

5. Host interface

The host system can acquire EWBS information by using this module.

① Serial communication specifications

Asynchronous serial 115,200bps, 8bit 1 Stop bit, Non Parity, no flow control, signal level TTL.

② Command specifications

Please refer to EWBS Receiving Module Communication specifications.

6. Electrical characteristics

① Absolute maximum ratings

Item	Symbol	Min	Max	Unit
Supply voltage	Vdd	-0.3	4	V
Input terminal supply voltage	Vin	-0.3	4	V
Ambient operating temperature	Ta	-40	85	°C

② Recommended operating conditions

Item	Symbol	Min	Typ	Max	Unit
Supply voltage	Vdd	2.5	3.3	3.6	V
Input terminal supply voltage	Vin	-0.3	3.3	3.6	V

③ Current consumption

(Ta=25°C, VCC=3.3V)

Item	Condition	Min	Typ	Max	Unit
Current consumption	EWBS receiving		75		mA
	Power saving mode		58		mA

④ DC characteristics

(Ta=25°C, VCC=3.3V)

Item		Symbol	Min	Max	Unit
Terminal input voltage	High	Vih	2.3		V
	Low	Vil		0.9	V
Terminal output voltage	High	Voh		0.4	V
	Low	Vol	2.4		V

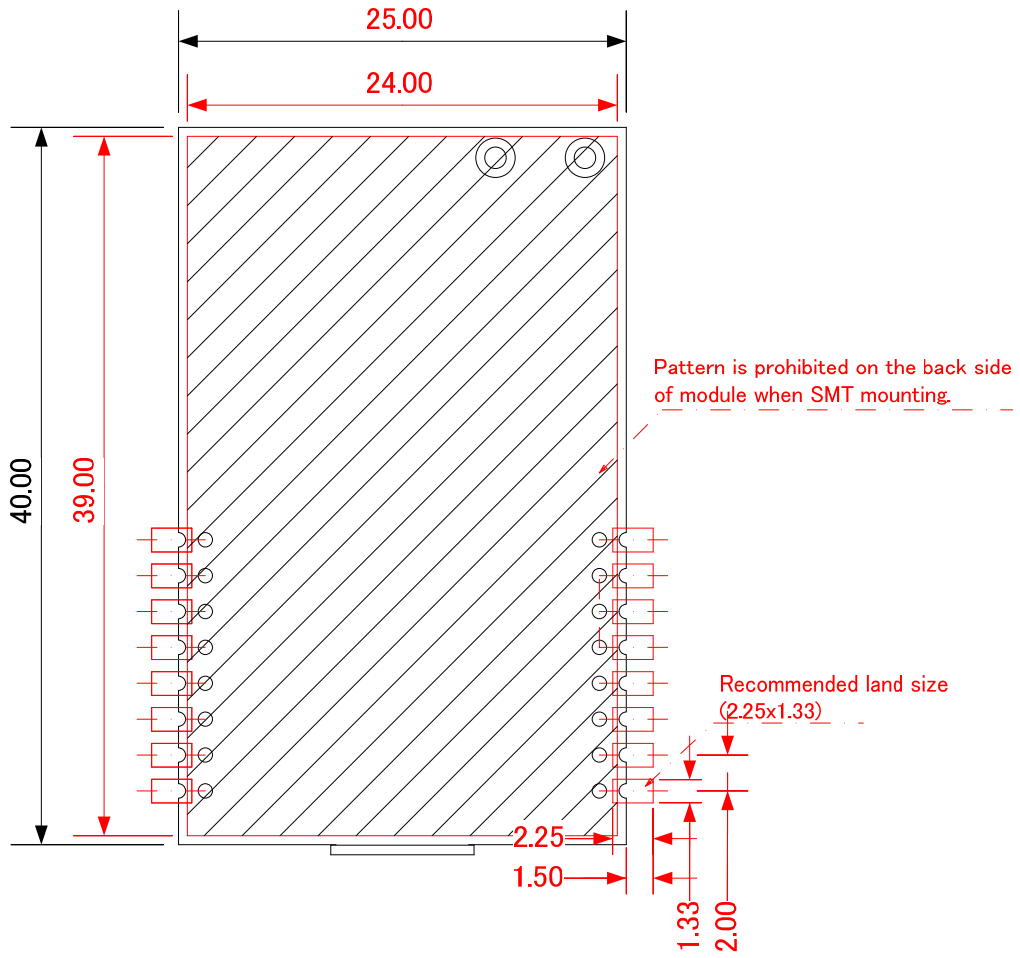
7. RF Characteristics

(Ta=25°C, VCC=3.3V)

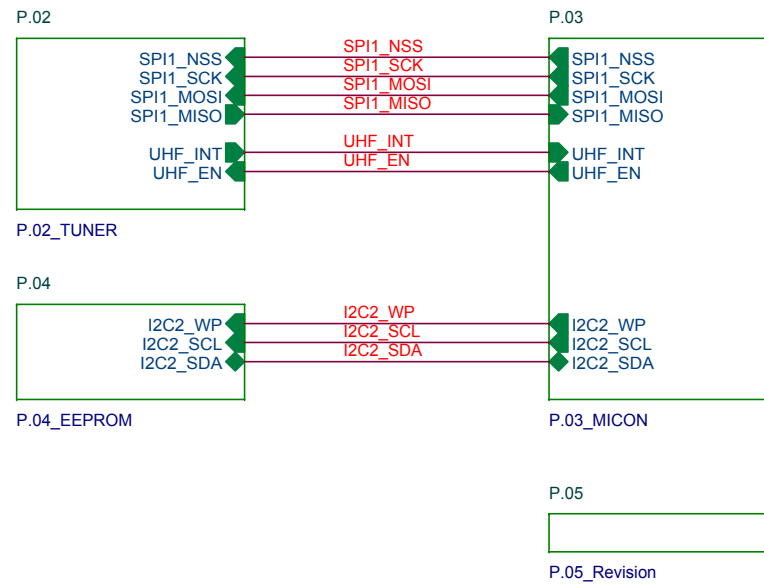
Item	Symbol	Min	Typ	Max	Unit
RF Frequency Range	fUHF	470		806	MHz
RF Input Impedance	Zin		50*		Ω
Input VSWR	VSWR		3:01		
Sensitivity	Pmin		-99		dBm
Max Input Level	Pmax		13		dBm
Lower Digital Adjacent Channel Selectivity	DACS N+1		51		dB
Upper Digital Adjacent Channel Selectivity	DACS N-1		51		dB
CNR Performance at AWGN condition	C/N		4.5		dB
Multipath Fading (Max Doppler frequency)				250	Hz

※ Impedance conversion is necessary when using 75Ω receiving antenna.

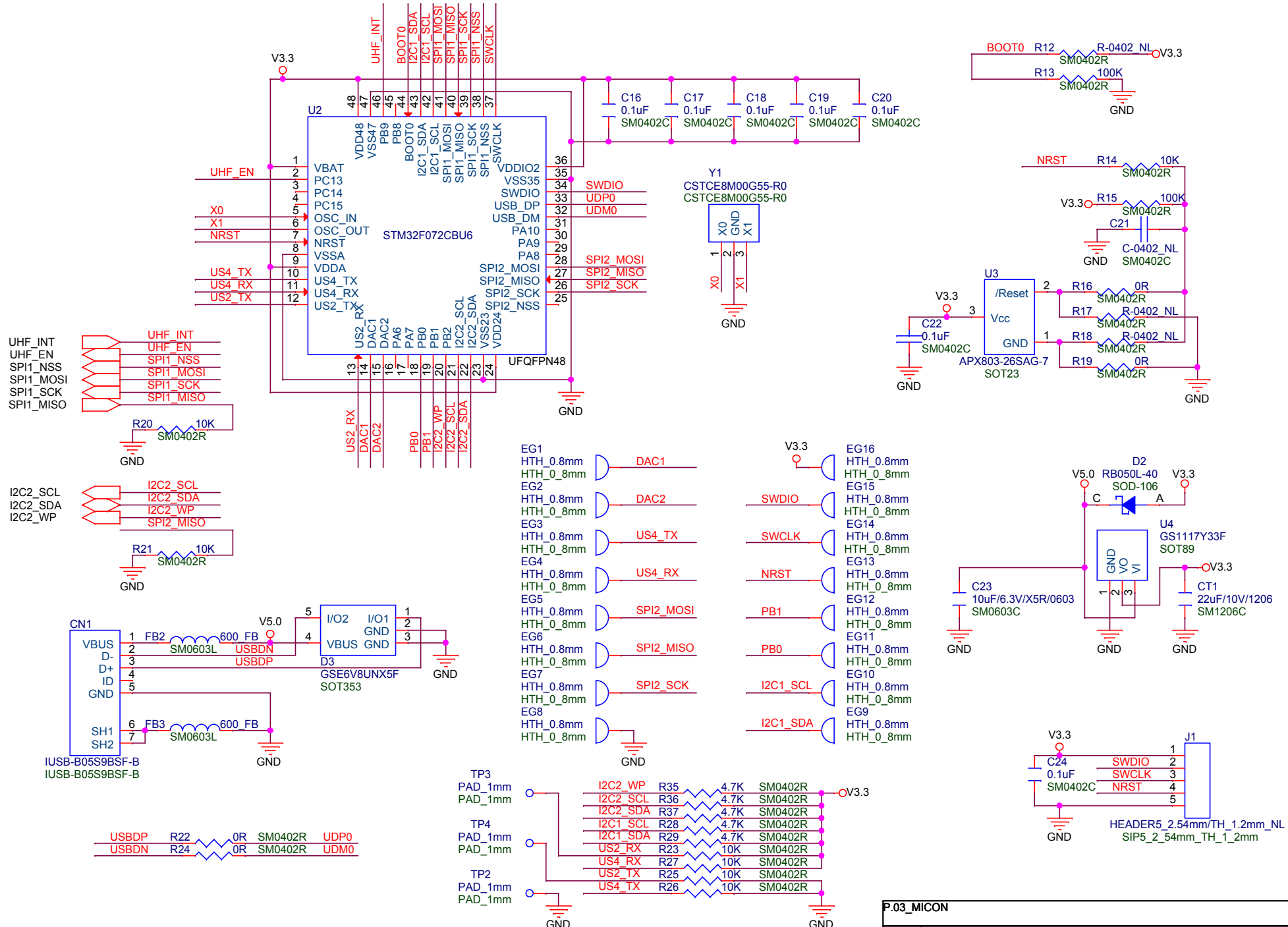
8. Recommended pad pattern



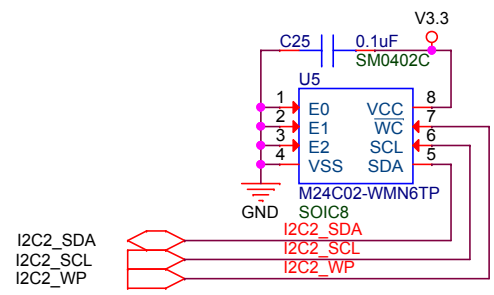
9. Circuit



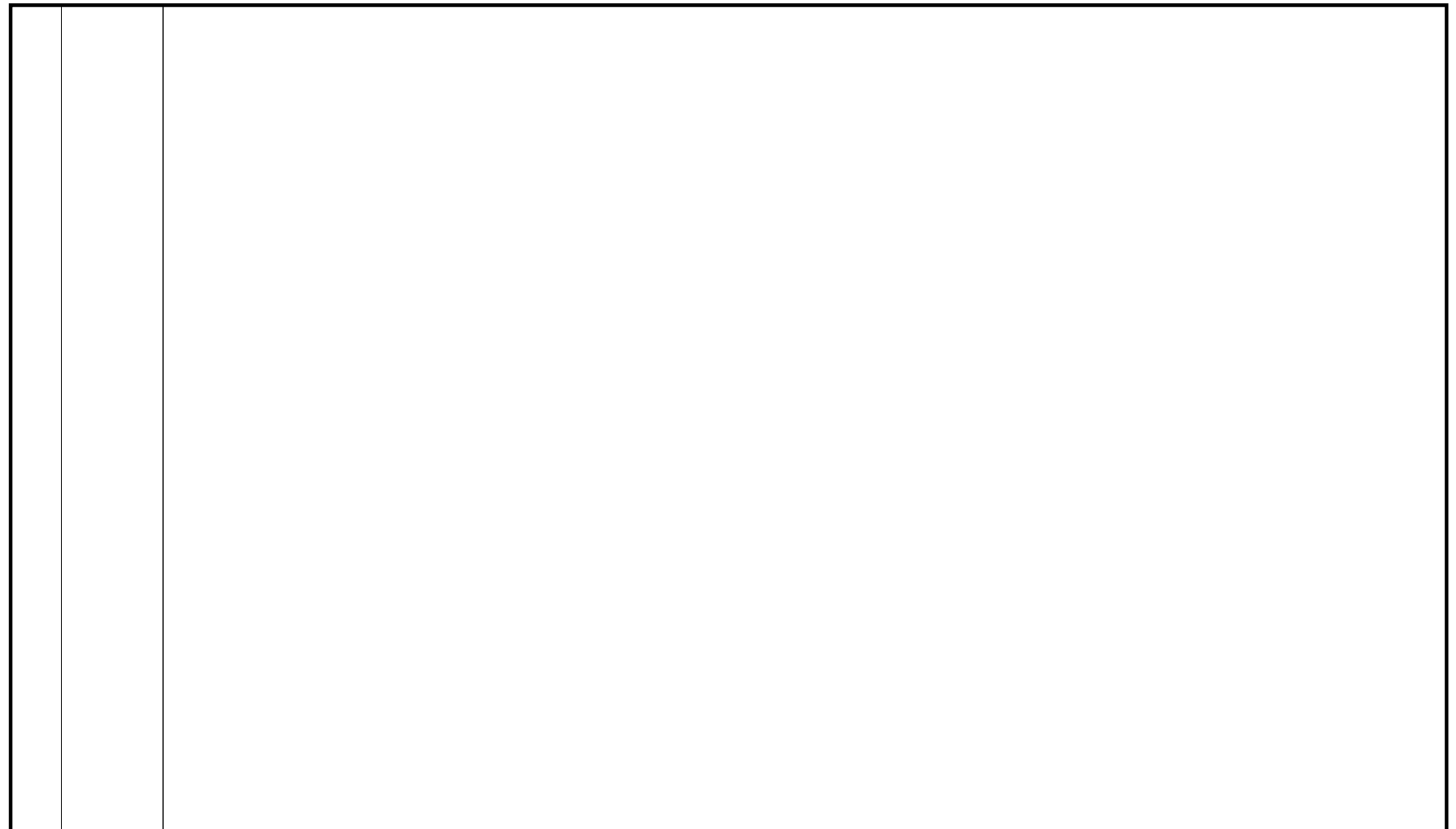
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P.03_MICON		
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P.04_EEPROM		
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0.03	Oct. 24, 2016	EG1, EG2, EG3, EG4, EG5, EG6, EG7, EG8, EG9, EG10, EG11, EG12, EG13, EG14, EG15, EG16 : HTH_1.2mm ---> HTH_0.8mm, HTH_0_8mm, P.03 J1 : HEADERS 2.54mm NL ---> HEADERS 2.54mm/TH 1.2mm NL, SIP5 2 54mm TH 1 2mm, P.03
0.02	Oct. 24, 2016	R35, R36, R37 : Added 4.7K, SM0402R, P.03 R26, R27, R28 : Removed 10K, SM0402R, P.04 R29, R30, R31, R32 : Removed 22R, SM0402R, P.04 R33, R34 : Removed 100K, SM0402R, P.04 U5 : CAT25040VI-GT3 ---> M24C02-WMN6TP, SOIC8, P.04
Rev.	Date	Description

P.05_Revision		
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