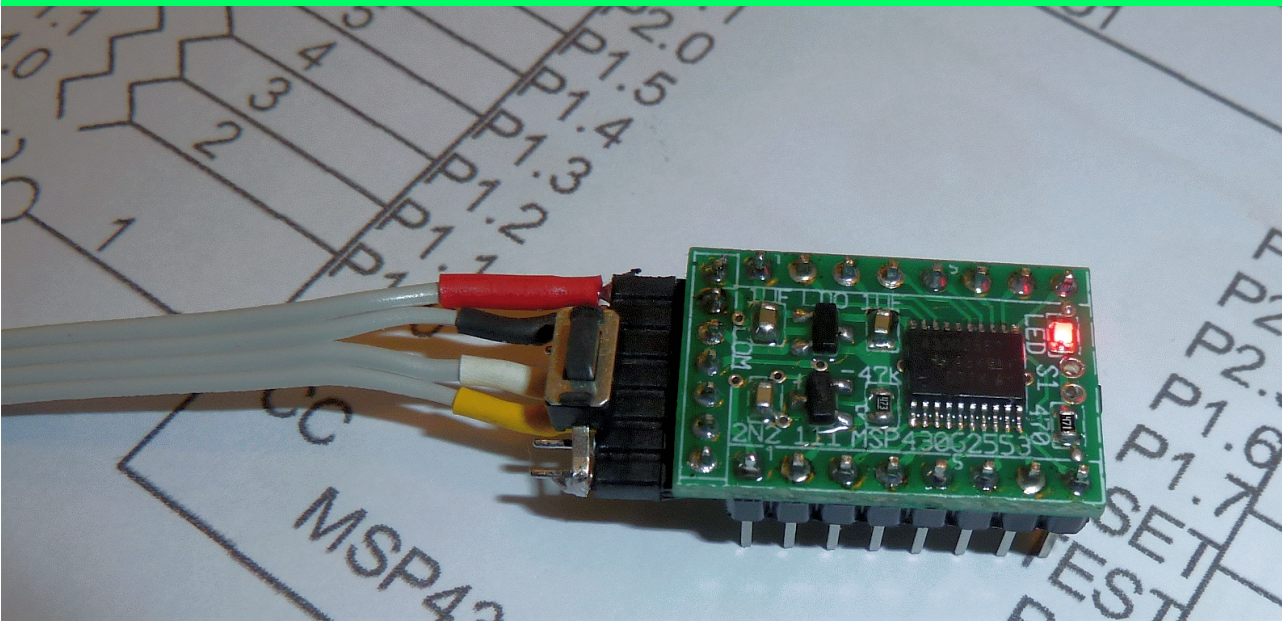


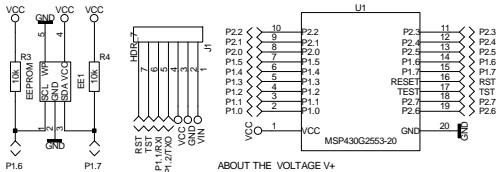
MLP vsn 2.0

Overview



and applications

ONE LED, 2 SWITCHES, EEPROM3V3 LDO, VOLTAGE SUPERVISOR 2V4 TO 3V



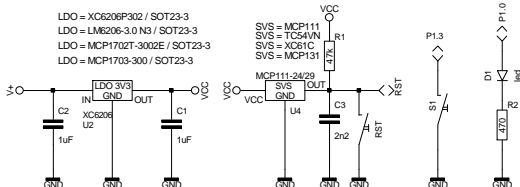
ABOUT THE VOLTAGE V+

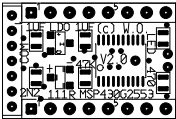
THE XC6206 & LM6206 ARE WORKING FROM 1.8 VOLT TO 6 VOLT

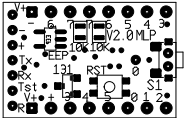
THE MCP1702 WORKS FROM 2.7 VOLT TO 13.2 VOLT,

THE MCP1703 WORKS FROM 2.7 VOLT TO 16 VOLT

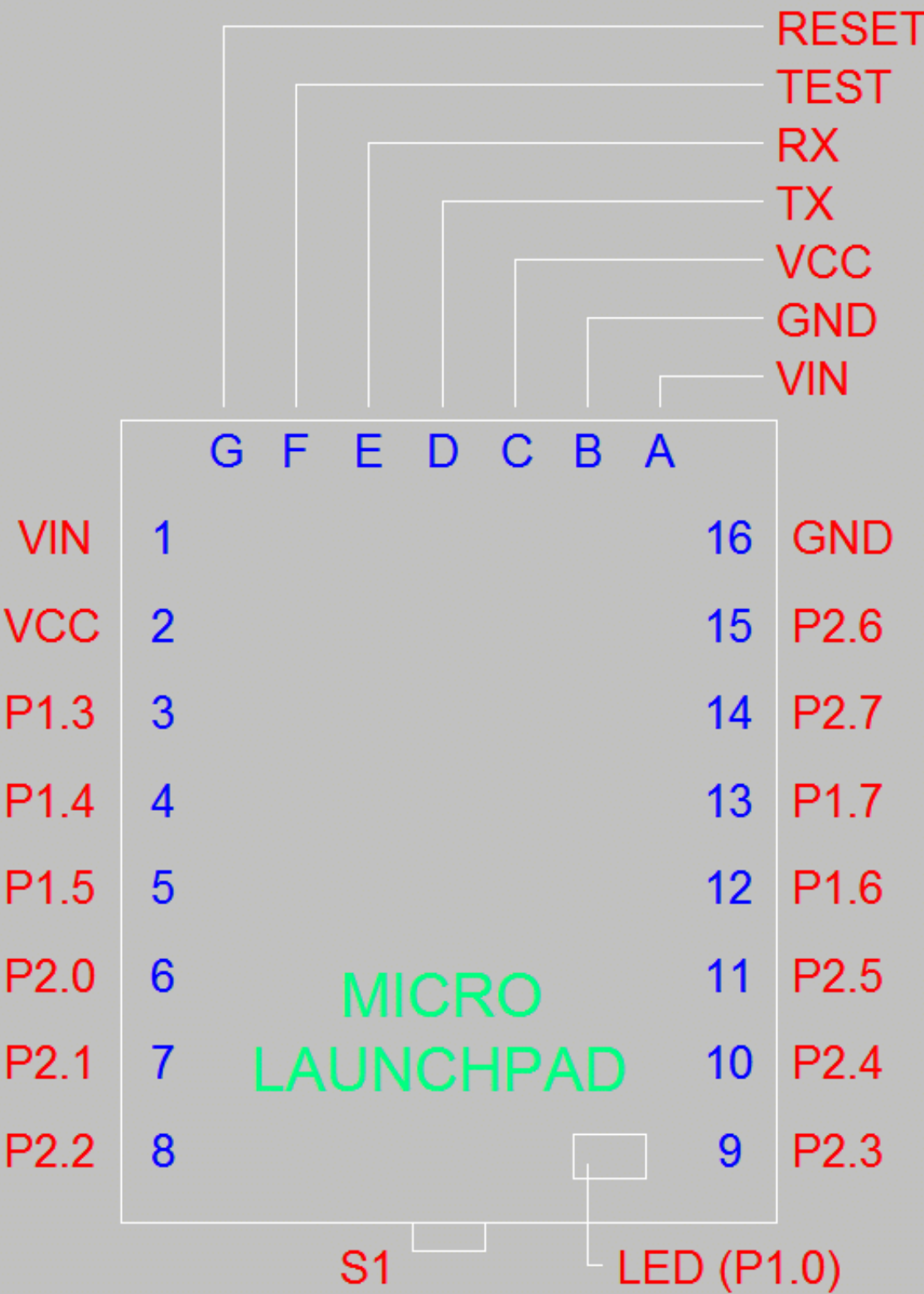
MICRO LAUNCHPAD VSN 2.0F







Micro MSP430 launchpad module connections



MIXED SIGNAL MICROCONTROLLER

FEATURES

- Low Supply-Voltage Range: 1.8 V to 3.6 V
- Ultra-Low Power Consumption
 - Active Mode: 230 μ A at 1 MHz, 2.2 V
 - Standby Mode: 0.5 μ A
 - Off Mode (RAM Retention): 0.1 μ A
- Five Power-Saving Modes
- Ultra-Fast Wake-Up From Standby Mode in Less Than 1 μ s
- 16-Bit RISC Architecture, 62.5-ns Instruction Cycle Time
- Basic Clock Module Configurations
 - Internal Frequencies up to 16 MHz With Four Calibrated Frequency
 - Internal Very-Low-Power Low-Frequency (LF) Oscillator
 - 32-kHz Crystal
 - External Digital Clock Source
- Two 16-Bit Timer_A With Three Capture/Compare Registers
- Up to 24 Touch-Sense-Enabled I/O Pins
- Universal Serial Communication Interface (USCI)
 - Enhanced UART Supporting Auto Baudrate Detection (LIN)
 - IrDA Encoder and Decoder
 - Synchronous SPI
 - I²C™
- On-Chip Comparator for Analog Signal Compare Function or Slope Analog-to-Digital (A/D) Conversion
- 10-Bit 200-ksps Analog-to-Digital (A/D) Converter With Internal Reference, Sample-and-Hold, and Autoscan (See [Table 1](#))
- Brownout Detector
- Serial Onboard Programming, No External Programming Voltage Needed, Programmable Code Protection by Security Fuse
- On-Chip Emulation Logic With Spy-Bi-Wire Interface
- Family Members are Summarized in [Table 1](#)
- Package Options
 - TSSOP: 20 Pin, 28 Pin
 - PDIP: 20 Pin
 - QFN: 32 Pin
- For Complete Module Descriptions, See the *MSP430x2xx Family User's Guide (SLAU144)*

DESCRIPTION

The Texas Instruments MSP430 family of ultra-low-power microcontrollers consists of several devices featuring different sets of peripherals targeted for various applications. The architecture, combined with five low-power modes, is optimized to achieve extended battery life in portable measurement applications. The device features a powerful 16-bit RISC CPU, 16-bit registers, and constant generators that contribute to maximum code efficiency. The digitally controlled oscillator (DCO) allows wake-up from low-power modes to active mode in less than 1 μ s.

The MSP430G2x13 and MSP430G2x53 series are ultra-low-power mixed signal microcontrollers with built-in 16-bit timers, up to 24 I/O touch-sense-enabled pins, a versatile analog comparator, and built-in communication capability using the universal serial communication interface. In addition the MSP430G2x53 family members have a 10-bit analog-to-digital (A/D) converter. For configuration details see [Table 1](#).

Typical applications include low-cost sensor systems that capture analog signals, convert them to digital values, and then process the data for display or for transmission to a host system.



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

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250 mA, 16V, Low Quiescent Current LDO Regulator

Features:

- 2.0 μ A Typical Quiescent Current
- Input Operating Voltage Range: 2.7V to 16.0V
- 250 mA Output Current for Output Voltages ≥ 2.5 V
- 200 mA Output Current for Output Voltages < 2.5 V
- Low Dropout Voltage, 625 mV typical @ 250 mA for $V_R = 2.8$ V
- 0.4% Typical Output Voltage Tolerance
- Standard Output Voltage Options:
 - 1.2V, 1.5V, 1.8V, 2.5V, 2.8V, 3.0V, 3.3V, 4.0V, 5.0V
- Output Voltage Range: 1.2V to 5.5V in 0.1V Increments (50 mV increments available upon request)
- Stable with 1.0 μ F to 22 μ F Ceramic Output Capacitance
- Short-Circuit Protection
- Overtemperature Protection

Applications:

- Battery-Powered Devices
- Battery-Powered Alarm Circuits
- Smoke Detectors
- CO² Detectors
- Pagers and Cellular Phones
- Smart Battery Packs
- Low Quiescent Current Voltage Reference
- PDAs
- Digital Cameras
- Microcontroller Power
- Solar-Powered Instruments
- Consumer Products
- Battery-Powered Data Loggers

Related Literature:

- AN765, "Using Microchip's Micropower LDOs", DS00765, Microchip Technology Inc., 2002
- AN766, "Pin-Compatible CMOS Upgrades to Bipolar LDOs", DS00766, Microchip Technology Inc., 2002
- AN792, "A Method to Determine How Much Power a SOT23 Can Dissipate in an Application", DS00792, Microchip Technology Inc., 2001

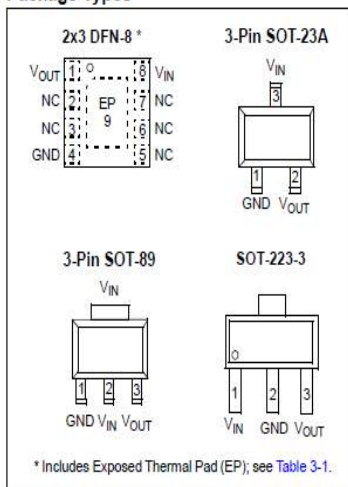
Description:

The MCP1703 is a family of CMOS low dropout (LDO) voltage regulators that can deliver up to 250 mA of current while consuming only 2.0 μ A of quiescent current (typical). The input operating range is specified from 2.7V to 16.0V, making it an ideal choice for two to six primary cell battery-powered applications, 9V alkaline and one or two cell Li-Ion-powered applications.

The MCP1703 is capable of delivering 250 mA with only 625 mV (typical) of input to output voltage differential ($V_{OUT} = 2.8$ V). The output voltage tolerance of the MCP1703 is typically $\pm 0.4\%$ at $+25^\circ\text{C}$ and $\pm 3\%$ maximum over the operating junction temperature range of -40°C to $+125^\circ\text{C}$. Line regulation is $\pm 0.1\%$ typical at $+25^\circ\text{C}$.

Output voltages available for the MCP1703 range from 1.2V to 5.5V. The LDO output is stable when using only 1 μ F of output capacitance. Ceramic, tantalum, or aluminum electrolytic capacitors can all be used for input and output. Overcurrent limit and overtemperature shutdown provide a robust solution for any application. Package options include the SOT-223-3, SOT-23A, 2x3 DFN-8, and SOT-89-3.

Package Types





MICROCHIP MCP102/103/121/131

Micropower Voltage Supervisors

Features

- Ultra low supply current: 1.75 μ A (steady-state max.)
- Precision monitoring options of:
 - 1.90V, 2.32V, 2.63V, 2.93V, 3.08V, 4.38V and 4.63V
- Resets microcontroller in a power-loss event
- $\overline{\text{RST}}$ pin (Active-low):
 - **MCP121**: Active-low, open-drain
 - **MCP131**: Active-low, open-drain with internal pull-up resistor
 - **MCP102** and **MCP103**: Active-low, push-pull
- Reset Delay Timer (120 ms delay, typ.)
- Available in SOT23-3, TO-92 and SC-70 packages
- Temperature Range:
 - Extended: -40°C to +125°C (except MCP1XX-195)
 - Industrial: -40°C to +85°C (**MCP1XX-195** only)
- Pb-free devices

Applications

- Critical Microcontroller and Microprocessor Power-monitoring Applications
- Computers
- Intelligent Instruments
- Portable Battery-powered Equipment

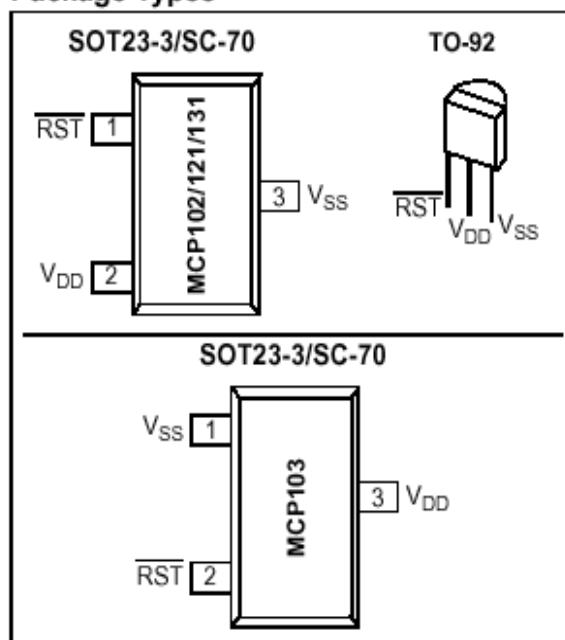
General Description

The MCP102/103/121/131 are voltage supervisor devices designed to keep a microcontroller in reset until the system voltage has reached and stabilized at the proper level for reliable system operation. Table 1 shows the available features for these devices.

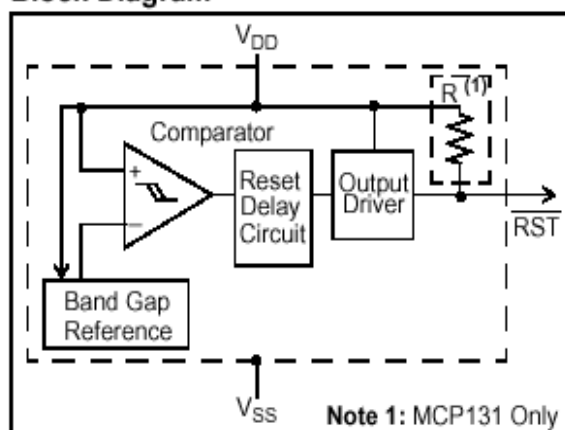
TABLE 1: DEVICE FEATURES

Device	Output		Reset Delay (typ)	Package Pinout (Pin # 1, 2, 3)	Comment
	Type	Pull-up Resistor			
MCP102	Push-pull	No	120 ms	$\overline{\text{RST}}$, V_{DD} , V_{SS}	
MCP103	Push-pull	No	120 ms	V_{SS} , $\overline{\text{RST}}$, V_{DD}	
MCP121	Open-drain	External	120 ms	$\overline{\text{RST}}$, V_{DD} , V_{SS}	
MCP131	Open-drain	Internal (~95 k Ω)	120 ms	$\overline{\text{RST}}$, V_{DD} , V_{SS}	
MCP111	Open-drain	External	No	V_{OUT} , V_{SS} , V_{DD}	See MCP111/112 Data Sheet (DS21889)
MCP112	Push-Pull	No	No	V_{OUT} , V_{SS} , V_{DD}	See MCP111/112 Data Sheet (DS21889)

Package Types



Block Diagram



64K I²C™ Serial EEPROM with Quarter-Array Write-Protect

Device Selection Table

Part Number	Vcc Range	Max. Clock Frequency	Temp. Ranges
24AA64F	1.7-5.5	400 kHz ⁽¹⁾	I
24LC64F	2.5-5.5	400 kHz	I, E
24FC64F	1.7-5.5	1 MHz ⁽²⁾	I

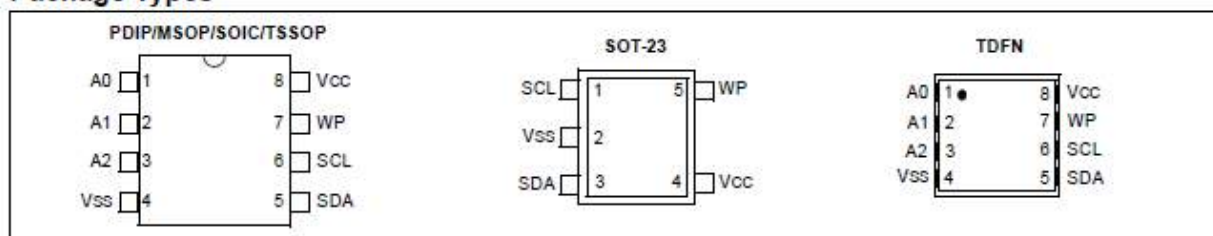
Note 1: 100 kHz for Vcc < 2.5V.

2: 400 kHz for Vcc < 2.5V.

Features:

- Single-Supply with Operation down to 1.7V for 24AA64F/24FC64F Devices, 2.5V for 24LC64F Devices
- Low-Power CMOS Technology:
 - Read current 400 μ A, max.
 - Standby current 1 μ A, max. (I-temp)
- 2-Wire Serial Interface, I²C™ Compatible
- Packages with Three Address Pins are Cascadable up to Eight Devices
- Schmitt Trigger Inputs for Noise Suppression
- Output Slope Control to Eliminate Ground Bounce
- 100 kHz and 400 kHz Clock Compatibility
- 1 MHz Clock for FC Versions
- Page Write Time 5 ms, typical
- Self-timed Erase/Write Cycle
- 32-Byte Page Write Buffer
- Hardware Write-Protect for 1/4 Array (1800h-1FFFh)
- ESD Protection > 4,000V
- More than One Million Erase/Write Cycles
- Data Retention > 200 Years
- Factory Programming Available
- Packages include 8-Lead PDIP, SOIC, TSSOP, MSOP, TDFN, 5-Lead SOT-23
- Pb-Free and RoHS Compliant

Package Types



*24XX64F is used in this document as a generic part number for the 24AA64F/24LC64F/24FC64F devices.

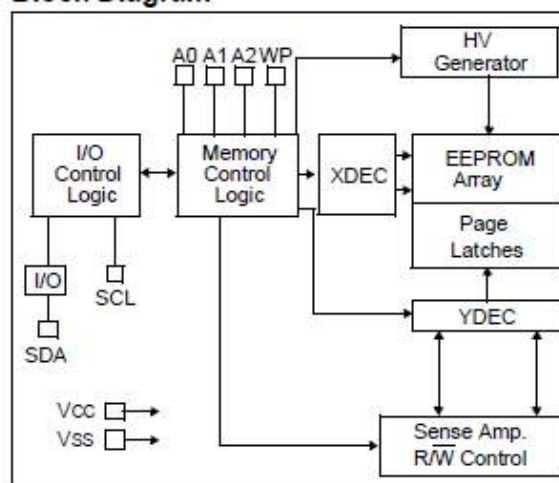
Temperature Ranges:

- Industrial (I): -40°C to +85°C
- Automotive (E): -40°C to +125°C

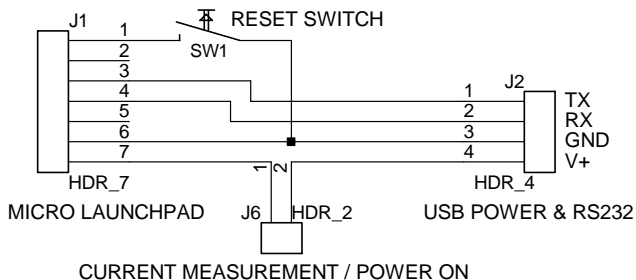
Description:

The Microchip Technology Inc. 24AA64F/24LC64F/24FC64F (24XX64F*) is a 64 Kbit Electrically Erasable PROM. The device is organized as a single block of 8K x 8-bit memory with a 2-wire serial interface. Low-voltage design permits operation down to 1.7V, with standby and read currents of only 1 μ A and 400 μ A, respectively. It has been developed for advanced, low-power applications such as personal communications or data acquisition. The 24XX64F also has a page write capability for up to 32 bytes of data. Functional address lines allow up to eight devices on the same bus, for up to 512 Kbits address space. The 24XX64F is available in the standard 8-pin PDIP, surface mount SOIC, TSSOP, TDFN and MSOP packages. The 24XX64F is also available in the 5-lead SOT-23 package.

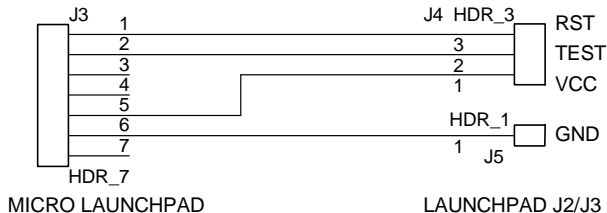
Block Diagram

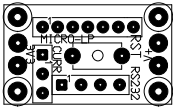


MICRO LAUNCHPAD INTERFACE BOARD



MICRO LAUNCHPAD PROGRAMMING CABLE

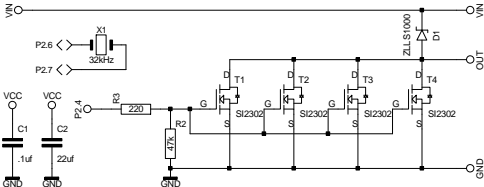
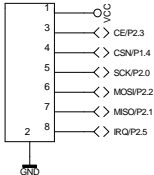


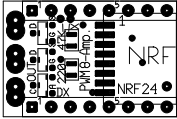


MICRO LAUNCHPAD ACTUATOR 1 - VSN 0.1

XTAL, NRF TRANSCEIVER, 4X 2 AMP. MOSFET

NRF24L01P





gnd



8 3 3 3 a

4_X_S12302

(c) W.O.
2018 E.P.
8 Amp PWM



nRF24L01P

GND



成都亿佰特电子科技有限公司
Chengdu Ebyte Electronic Technology Co.,Ltd.

E01-ML01IPX Datasheet V1.0

1. Introduction

E01-ML01IPX



E01-ML01IPX is a SMD wireless transceiver module, which operates at 2.4GHz with small-size and high air data rate (2Mbps maximum), with high air data rate (2Mbps maximum). The IPEX interface designed on the module is convenient to connect external antenna. Cost-effective and Batch production, which makes the module is suitable for various applications.

E01-ML01IPX is based on original imported nRF24L01P from Nordic in Norway. All the components are imported, especially for the crystal. Our module adopts high-precision crystal with wide temperature range, which guarantee the industrial properties of our products. The professional hardware design allows the module features small-size, which is convenient for all kinds of embedded development.

2. Electrical parameter

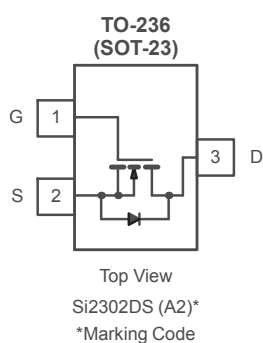
E01-ML01IPX

No.	Parameter item	Parameter details	Description
1	RF IC	nRF24L01P	Nordic
2	Size	12 * 19 mm	
3	Production process	Machine	Lead-free
4	Connector	1 * 8 * 1.27mm	SMD
6	Supply voltage	1.9 ~ 3.6V DC	Notes: the voltage higher than 3.6V is forbidden
3	Frequency	2400 ~ 2525MHz	Adjustable
7	Communication level	0.7VCC ~ 3.6V	VCC refers to the supply voltage
8	Operation Range	150m	Test condition: Clear and open area, 0dBm , antenna gain: 5dBi , height: 2m , Air data rate: 250Kbps
9	Max Power	Maximum 0dbm	About 1mW
10	Air data rate	3 level adjustable	250kbps, 1Mbps, 2Mbps
11	Sleep current	1.0uA	nRF24L01P sets as power-down
12	Transmitting current	13mA@0dBm	The largest emission current
13	Receiving current	11.5mA	CE=1
14	Communication interface	SPI	Data rate: up to 10Mbps
15	Transmitting length	3 level FIFO.	32 bytes (maximum) for one package
16	Receiving length	3 level FIFO.	32 bytes (maximum) for one package
17	RSSI support	N/A	Support simple data packet loss statistics
18	Antenna type	IPEX	50 ohm characteristic impedance
19	Sensitivity	-106dBm	250kbps
20	Operating temperature	-40 ~ +85°C	Industrial-grade
21	Operating humidity	10% ~ 90%	Relative humidity, without condensation
22	Storage temperature	-40 ~ +125°C	Industrial-grade



N-Channel 1.25-W, 2.5-V MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
20	0.085 @ $V_{GS} = 4.5$ V	2.8
	0.115 @ $V_{GS} = 2.5$ V	2.4



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 8	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^b	$T_A = 25^\circ\text{C}$	I_D	2.8	A
	$T_A = 70^\circ\text{C}$		2.2	
Pulsed Drain Current ^a		I_{DM}	10	
Continuous Source Current (Diode Conduction) ^b		I_S	1.6	
Power Dissipation ^b	$T_A = 25^\circ\text{C}$	P_D	1.25	W
	$T_A = 70^\circ\text{C}$		0.80	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient ^b	R_{thJA}	100	$^\circ\text{C/W}$
Maximum Junction-to-Ambient ^c		166	

Notes

- Pulse width limited by maximum junction temperature.
- Surface Mounted on FR4 Board, $t \leq 5$ sec.
- Surface Mounted on FR4 Board.

For SPICE model information via the Worldwide Web: <http://www.vishay.com/www/product/spice.htm>

Features

- Low Equivalent on Resistance
- Extremely Low Leakage (typically 6 μ A @30V)
- High current capability ($I_F = 1.16$ A)
- Low V_F , Fast Switching Schottky
- SOT23 Package
- ZLLS1000 Complements Low Temperature Equivalent ZHCS1000
- Package Thermally Rated to +150°C
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT23
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.008 grams (Approximate)

Applications

- DC – DC Converters
- Strokes
- Mobile Phones
- Charging Circuits
- Motor Control

SOT23



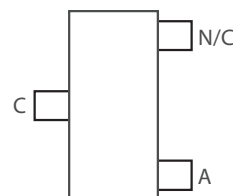
Top View

Cathode



Anode

Device Symbol



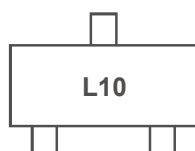
Pinout – Top View

Ordering Information

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZLLS1000TA	L10	7	8	3,000 units
ZLLS1000TC	L10	13	8	10,000 units

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See <http://www.diodes.com> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Marking Information

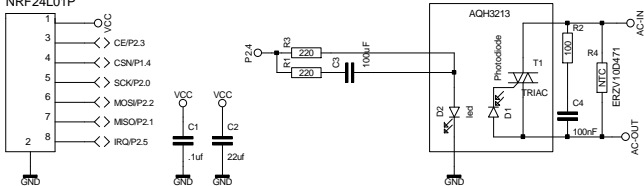


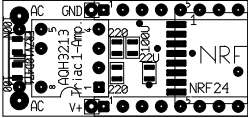
L10 = Product type Marking Code

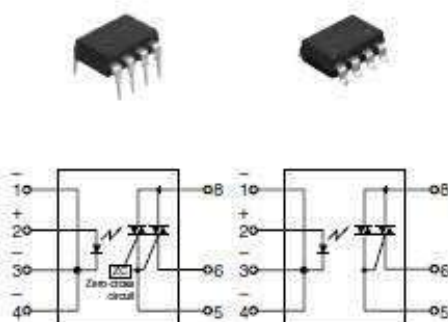
MICRO LAUNCHPAD ACTUATOR 2 - VSN 0.0

XTAL, NRF TRANSCEIVER, 1 A 240V TRIAC SWITCH

NRF24L01P



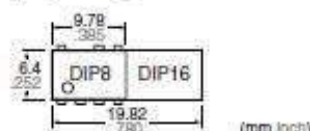




RoHS compliant

FEATURES

1. Supports 0.3 A, 0.6 A, 0.9 A and 1.2 A ON-state RMS currents.
2. The 1.2 A type saves space with a DIP 8-pin package.



3. Handles both 100 and 200 V AC loads

This relay handles both voltages in a single product. It is not necessary for users that use both types to manage separate part numbers.

4. High dielectric strength: 5,000 V AC (between input and output)
5. Two types available: Zero-cross type and Random type

TYPICAL APPLICATIONS

1. Home appliances (air conditioner, microwave oven, washing machine, personal hygiene system, refrigerator, fan heater, inductive heating cooker, rice cooker and humidifier, etc.)
2. Industrial equipment

TYPES

Type	Output rating*		Type	Part No.				Packing quantity	
				Through hole terminal	Surface-mount terminal				
	Repetitive peak OFF-state voltage	ON-state RMS current		Tube packing style	Tube packing style	Tape and reel packing style		Tube	Tape and reel
				Picked from the 1/2/3/4-pin side	Picked from the 5/6/8-pin side				
AC type	600 V	0.3 A	Zero-cross	AQH0213	AQH0213A	AQH0213AX	AQH0213AZ	1 tube contains 50 pcs. 1 batch contains 500 pcs.	1,000 pcs.
		0.6 A		AQH1213	AQH1213A	AQH1213AX	AQH1213AZ		
		0.9 A		AQH2213	AQH2213A	AQH2213AX	AQH2213AZ		
		1.2 A		AQH3213	AQH3213A	AQH3213AX	AQH3213AZ		
		0.3 A	Random	AQH0223	AQH0223A	AQH0223AX	AQH0223AZ		
		0.6 A		AQH1223	AQH1223A	AQH1223AX	AQH1223AZ		
		0.9 A		AQH2223	AQH2223A	AQH2223AX	AQH2223AZ		
		1.2 A		AQH3223	AQH3223A	AQH3223AX	AQH3223AZ		

* Indicate the repetitive peak OFF-state voltage and ON-state RMS current; peak AC.

Note: For space reasons, the SMD terminal shape indicator "A" and the package type indicator "X" and "Z" are omitted from the seal.

RATING

1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

Item	Symbol	AQH0213, AQH0223	AQH1213, AQH1223	AQH2213, AQH2223	AQH3213, AQH3223	Remarks
Input	LED forward current	I_F	50 mA			
	LED reverse voltage	V_R	6 V			
	Peak forward current	$I_{F(P)}$	1 A			$f = 100 \text{ Hz}$, Duty Ratio = 0.1%
Output	Repetitive peak OFF-state voltage	V_{ORM}	600 V			
	ON-state RMS current	$I_T(\text{RMS})$	0.3 A	0.6 A	0.9 A	1.2 A
	Non-repetitive surge current	I_{TSM}	3 A	6 A	9 A	12 A
I/O isolation voltage		V_{iso}	5,000 V AC			
Operating temperature		T_{opr}	-30°C to +85°C -22°F to +185°F			
Storage temperature		T_{stg}	-40°C to +125°C -40°F to +257°F			

Note: "A", "AX" and "AZ" at the end of the part numbers have been omitted.

"ZNR" Transient/Surge Absorbers

Type: **D**

Series: **V**



Features

- Large withstanding surge current capability in compact sizes
- Large "Energy Handling Capability" absorbing transient overvoltages in compact sizes
- Wide range of varistor voltages
- RoHS compliant

Recommended Applications

- Transistor, diode, IC, thyristor or triac semiconductor protection
- Surge protection in consumer electronic equipment
- Surge protection in communication, measuring or controller electronics
- Surge protection in electronic home appliances, gas or petroleum appliances

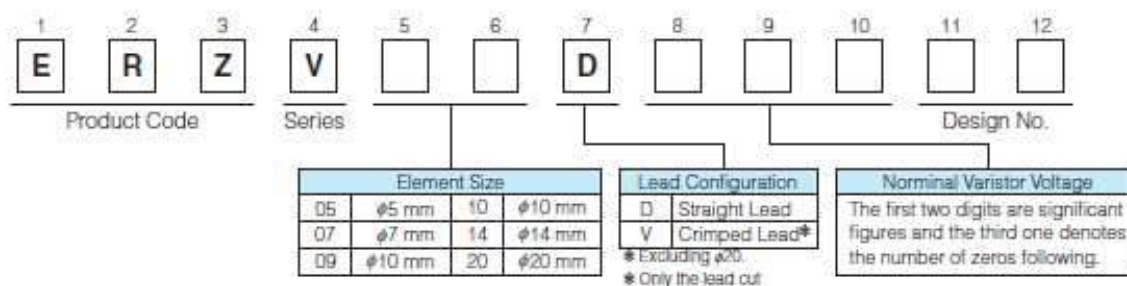
Applicable Standards

- UL1449 (VZCA2/UL, VZCA8/C-UL)
 - VDE IEC61051-1, -2, IEC60950-1 Annex.Q
 - CSA C22.2 No.1
 - CQC(GB/T10193, GB/T10194, GB4943.1, GB8898)
- Refer to page 5 to 8, and 27, for the details

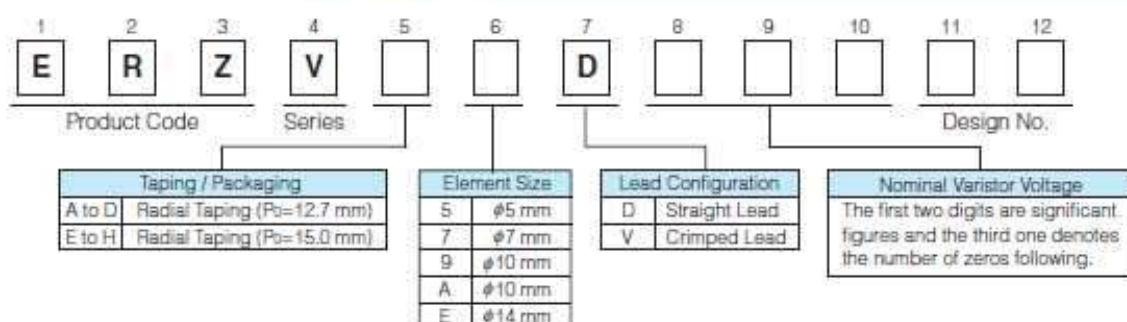
■ As for Handling Precautions and Minimum Quantity / Packing Unit

Please see Related Information

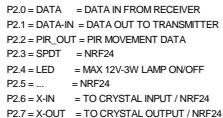
Explanation of Part Numbers (Bulk)



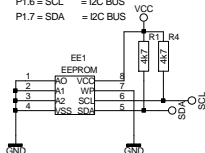
Explanation of Part Numbers (Taping)

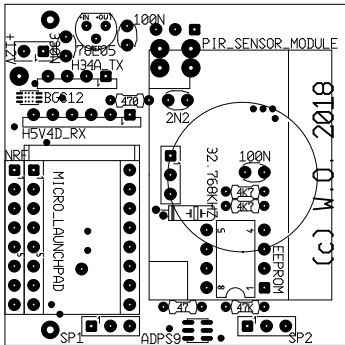


433 MHZ RF RECEIVER, TRANSMITTER, SENSOR & 2 AMP. MOSFET



- | | |
|--------------|---------------------------------|
| P1.0 = LED | = LED ON MICRO LAUNCHPAD |
| P1.1 = RX | = NOFORTH |
| P1.2 = TX | = NOFORTH |
| P1.3 = S2 | = SWITCH / NRF24 |
| P1.4 = LIGHT | = ANALOG LIGHT DATA / SPDT CTRL |
| P1.5 = FREE | = NRF24 |
| P1.6 = SCL | = I2C BUS |
| P1.7 = SDA | = I2C BUS |





(c) W.O. 2018

S12301



DOM

5MM

G4

G4



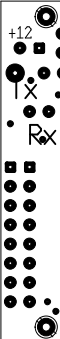
2 Watt LED

Xt

Rx

TX

+12



KA78LXXA / KA78L05AA

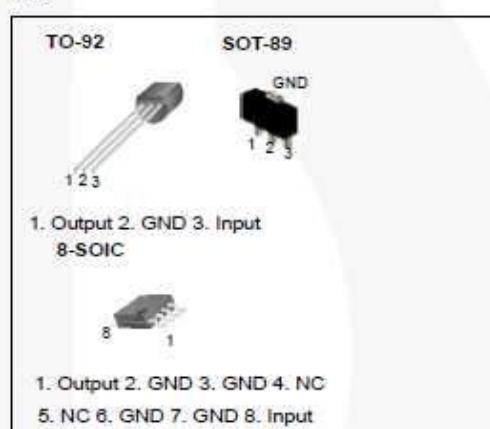
3-Terminal 0.1 A Positive Voltage Regulator

Features

- Maximum Output Current of 100 mA
- Output Voltage of 5 V, 6 V, 8 V, 9 V, 10 V, 12 V, 15 V and 18 V
- Thermal Overload Protection
- Short-Circuit Current Limiting
- Output Voltage Offered in $\pm 5\%$ Tolerance

Description

The KA78LXXA / KA78L05AA series of fixed-voltage, monolithic, integrated circuit, voltage regulators are suitable for applications that require supply current up to 100 mA.



Ordering Information

Product Number	Package	Packing Method	Output Voltage Tolerance	Operating Temperature
KA78L05AZTA	TO-92	Ammo	$\pm 5\%$	-40 to $+125$ °C
KA78L05AZBU		Bulk		
KA78L06AZTA		Ammo		
KA78L08AZTA		Ammo		
KA78L09AZTA		Ammo		
KA78L10AZTA		Ammo		
KA78L12AZTA		Ammo		
KA78L15AZTA		Ammo		
KA78L18AZTA		Ammo		
KA78L05AMTF	SOT-89	Tape & Reel	$\pm 5\%$	-40 to $+125$ °C
KA78L08AMTF		Tape & Reel		
KA78L12AMTF		Tape & Reel		
KA78L05ADTF	8-SOIC	Tape & Reel	$\pm 3\%$	0 to $+125$ °C
KA78L05AAZTA	TO-92	Ammo		

Features

- Low-Voltage and Standard-Voltage Operation
 - 2.7 ($V_{CC} = 2.7V$ to $5.5V$)
 - 1.8 ($V_{CC} = 1.8V$ to $5.5V$)
- Low-Power Devices ($I_{SB} = 2 \mu A$ at $5.5V$) Available
- Internally Organized 4096 x 8, 8192 x 8
- 2-Wire Serial Interface
- Schmitt Trigger, Filtered Inputs for Noise Suppression
- Bidirectional Data Transfer Protocol
- 100 kHz (1.8V, 2.5V, 2.7V) and 400 kHz (5V) Clock Rate
- Write Protect Pin for Hardware Data Protection
- 32-Byte Page Write Mode (Partial Page Writes Allowed)
- Self-Timed Write Cycle (10 ms max)
- High Reliability
 - Endurance: 1 Million Write Cycles
 - Data Retention: 100 Years
- Automotive Grade and Extended Temperature Devices Available
- 8-Pin JEDEC PDIP, 8-Pin JEDEC SOIC, 8-Pin EIAJ SOIC, and 8-pin TSSOP Packages

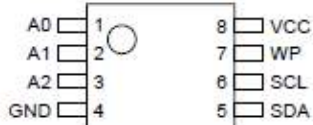
Description

The AT24C32/64 provides 32,768/65,536 bits of serial electrically erasable and programmable read only memory (EEPROM) organized as 4096/8192 words of 8 bits each. The device's cascadable feature allows up to 8 devices to share a common 2-wire bus. The device is optimized for use in many industrial and commercial applications where low power and low voltage operation are essential. The AT24C32/64 is available in space saving 8-pin JEDEC PDIP, 8-pin JEDEC SOIC, 8-pin EIAJ SOIC, and 8-pin TSSOP (AT24C64) packages and is accessed via a 2-wire serial interface. In addition, the entire family is available in 2.7V (2.7V to 5.5V) and 1.8V (1.8V to 5.5V) versions.

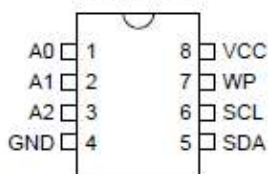
Pin Configurations

Pin Name	Function
A0 - A2	Address Inputs
SDA	Serial Data
SCL	Serial Clock Input
WP	Write Protect

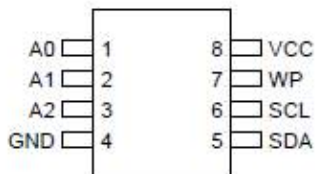
8-Pin TSSOP



8-Pin PDIP



8-Pin SOIC



2-Wire Serial EEPROM

32K (4096 x 8)

64K (8192 x 8)

AT24C32 AT24C64

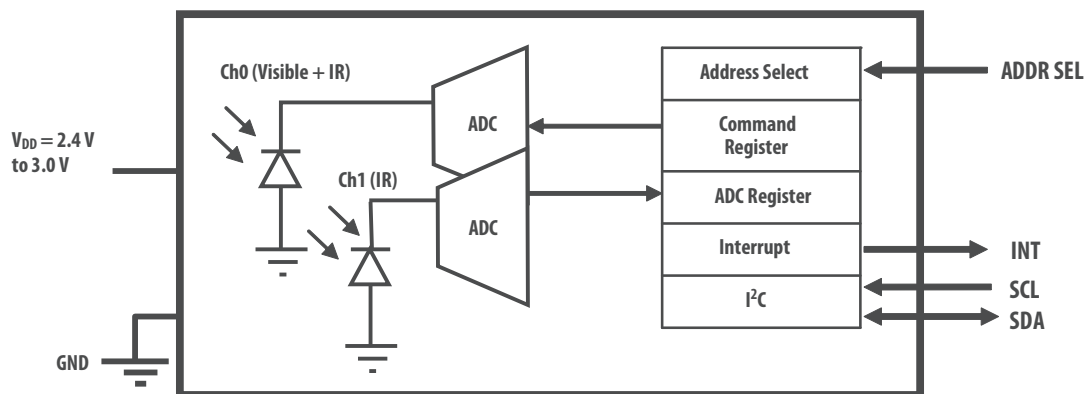
Rev. 0336K-SEEPR-7/03



Ordering Information

Part Number	Packaging Type	Package	Quantity
APDS-9300-020	Tape and Reel	6-pins Chiplied package	2500

Functional Block Diagram



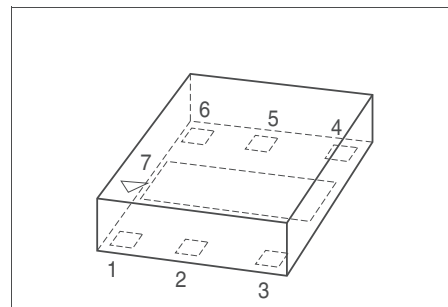
I/O Pins Configuration Table

Pin	Symbol	Description
1	V_{DD}	Voltage Supply
2	GND	Ground
3	ADDR SEL	Address Select
4	SCL	Serial Clock
5	SDA	Serial Data
6	INT	Interrupt

1 Features

Main features:

- Low insertion loss
- High port-to-port-isolation
- Low harmonic generation
- On-chip control logic
- High ESD robustness
- No external components required
- General purpose switch for applications up to 3 GHz
- Small leadless package TSLP-7-6
- Lead and halogen free package (RoHS and WEEE compliant)



Description

The BGS12AL7-4 General Purpose RF MOS switch is designed to cover a broad range of applications from 30 MHz to 3 GHz. The symmetric design of its single pole double throw configuration, as shown in [Figure 1](#) offers high design flexibility. This single supply chip integrates on-chip CMOS logic driven by a simple, single-pin CMOS or TTL compatible control input signal. The 0.1 dB compression point exceeds the switch's maximum input power level of 21 dBm, resulting in linear performance at all signal levels. The RF switch has a very low insertion loss of 0.4 dB in the 1 GHz and 0.5 dB in the 2 GHz range.

Unlike GaAs technology, external DC blocking capacitors at the RF ports are only required if DC voltage is applied externally.

Product Name	Package	Chip	Marking
BGS12AL7-4	TSLP7-4	M4781	12

H34A Wireless Transmitter

433/315Mhz

Item Info

General Information :

H34A is a tuning free, low cost, well integrated receiver, it is a perfect option for RF RC products. It consists brand new RF IC, features small size, high sensitivity, low power consumption, low second harmonic, and is FCC CE ROHS approval. H34A is perfect replacement for traditional super-regenerative and superheterodyne solution

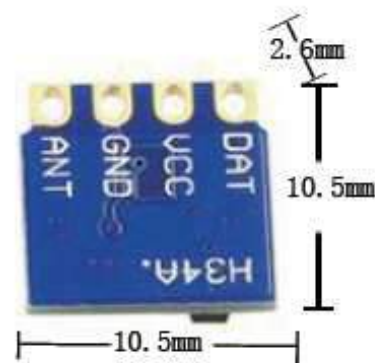


Smallest in size in Market

Quick Reference Data

Name	H34A Transmitter
Dimension	10.5*10.5*2.6mm
Brand	LCHSTAR
Frequency	315/433Mhz Optional
Modulation	ASK
Supply Voltage	4.2 ~ 12V

Product Appearance



H5V4D Receiver Module

5V/433Mhz

ITEM INFO

General Inforamtion

H5V4D is a is a tunning free, low cost, well intergrated receiver, it is a perfect option for RF RC products. It consists brand new RF IC, features small size, high sensitivity, low power consumption, low second harmonic, and is FCC CE ROSH approval. H5V4D is perfect replacement for traditional super-regenerative and superheterodyne solution



Size compare with a coin

Quick Reference Data

Frequency	433Mhz
Bandwidth	± 1.25 Mhz
Sensitivity	-102dBm
Supply Current	1.2mA
Modulation	ASK superheterodyne
Supply Voltage	4.5-5.5V

product appearance





COMMUNICATION

Orange



APD283

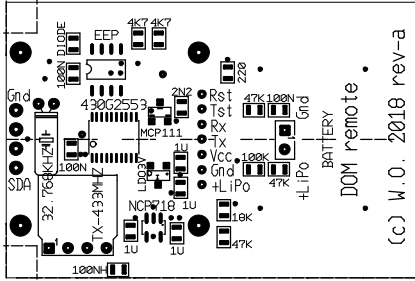


Xf

29a
2c1
Vcc
bnc



NOTED



H34B Low Consumption Transmitter

433/315Mhz

Item Info

General Information :

H34B is a tuning free, low cost, well intergrated receiver, it is a perfect option for RF RC products. It consists brand new RF IC, features small size, high sensitivity, low power consumption, low second harmonic, and is FCC CE ROHS approval. H34B is perfect replacement for high-frequency triode rc solution

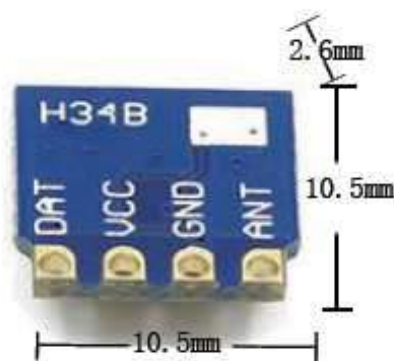


Smallest in size in Market

Quick Reference Data

Name	H34B Transmitter
Dimension	10.5*10.5*2.6mm
Brand	LCHSTAR
Frequency	315/433Mhz Optional
Modulation	ASK
Supply Voltage	2 ~ 4.2V

Product Appearance



NCP718

300 mA Low Iq, Wide Input Voltage Low Dropout Regulator

The NCP718 is 300 mA LDO Linear Voltage Regulator. It is a very stable and accurate device with ultra-low quiescent current consumption (typ. 4 μ A over the full temperature range) and a wide input voltage range (up to 24 V). The regulator incorporates several protection features such as Thermal Shutdown and Current Limiting.

Features

- Operating Input Voltage Range: 2.5 V to 24 V
- Fixed Voltage Options Available: 1.2 V to 5 V (upon request)
- Adjustable Voltage Option from 1.2 V to 5 V
- Ultra-Low Quiescent Current: typ. 4 μ A over Temperature
- $\pm 2\%$ Accuracy Over Full Load, Line and Temperature Variations
- PSRR: 60 dB at 1 kHz
- Noise: typ. 36 μ V_{RMS} from 100 Hz to 100 kHz
- Stable with Small 1 μ F Ceramic Capacitor
- Soft-start to Reduce Inrush Current and Overshoots
- Thermal Shutdown and Current Limit Protection
- SOA Limiting for High Vin / High Iout – Static / Dynamic
- Active Discharge Option Available (upon request)
- Available in TSOT-23-5 and WDFN6 2x2 mm Packages
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

Typical Applications

- Wireless Chargers
- Portable Equipment
- Communication Systems

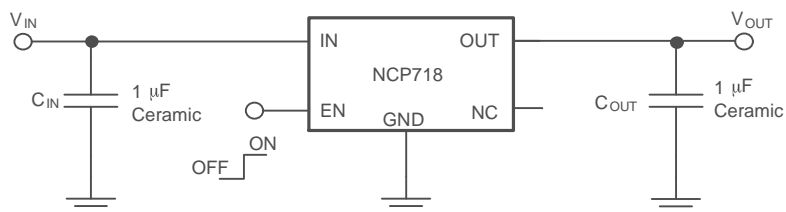


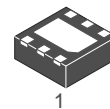
Figure 1. Typical Application Schematic



ON Semiconductor®

www.onsemi.com

MARKING DIAGRAMS



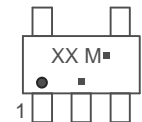
WDFN6
MT SUFFIX
CASE 511BR



XX = Specific Device Code
M = Date Code



TSOT-23-5
SN SUFFIX
CASE 419AE

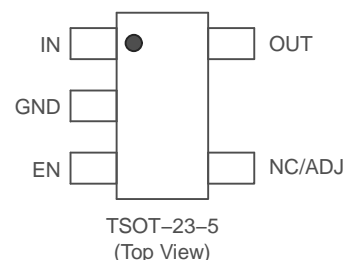
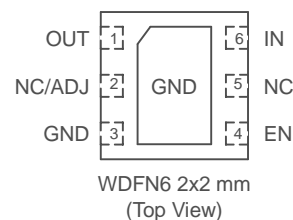


XX = Specific Device Code
M = Date Code*
▪ = Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or position may vary depending upon manufacturing location.

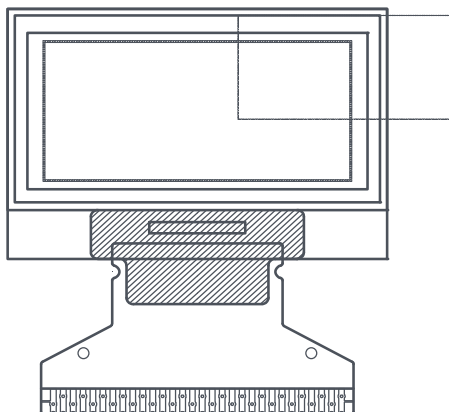
PIN CONNECTIONS



ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 6 of this data sheet.

128 x 64 Graphic OLED



FEATURES

- Type: graphic
- Display format: 128 x 64 dots
- Built-in controller: SSD1306BZ
- Duty cycle: 1/64
- +3 V power supply
- Interface: 6800, 8080, serial, and I²C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

MECHANICAL DATA		
ITEM	STANDARD VALUE	UNIT
Module dimension	26.7 x 19.26 x 1.65	mm
Viewing area	23.938 x 12.058	
Active area	21.738 x 10.858	
Dot size	0.148 x 0.148	
Dot pitch	0.17 x 0.17	
Mounting hole	n/a	

ABSOLUTE MAXIMUM RATINGS				
ITEM	SYMBOL	STANDARD VALUE		UNIT
		MIN.	MAX.	
Supply voltage for logic ⁽¹⁾⁽²⁾	V _{DD}	0	4	V
Supply voltage for display ⁽¹⁾⁽²⁾	V _{CC}	0	15	
Operating temperature	T _{OP}	-40	+80	°C
Storage temperature	T _{STG}	-40	+80	

Notes

- ⁽¹⁾ All the above voltages are on the basis of "V_{SS} = 0 V".
- ⁽²⁾ When this module is used beyond the above absolute maximum ratings, permanent breakage of the module may occur. Also, for normal operations, it is desirable to use this module under the conditions according to section 6 "Electrical Characteristics". If this module is used beyond these conditions, malfunctioning of the module can occur and the reliability of the module may deteriorate.

ELECTRICAL CHARACTERISTICS						
ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
			MIN.	TYP.	MAX.	
Supply voltage for logic	V _{DD}	-	2.8	3.0	3.3	V
Supply voltage for display	V _{CC}	-	10	12	15	
Input high voltage	V _{IH}	-	0.8 V _{DD}	-	V _{DDI/O}	
Input low voltage	V _{IL}	-	0	-	0.2 V _{DD}	
Output high voltage	V _{OH}	-	0.9 V _{DD}	-	V _{DDI/O}	
Output low voltage	V _{OL}	-	0	-	0.1 V _{DD}	
50 % check board operating current	I _{CC}	V _{CC} = 12 V	9	10	12	mA

OPTIONS				
EMITTING COLOR				
YELLOW	GREEN	RED	BLUE	WHITE
-	-	-	Yes	-