



General Description

ZT101 is USA/Japan/China/Taiwan market universal remote control IC. It can control 8 devices at most, includes TV, VCR, Satellite receiver, Cable TV converter, CD, VCD, DVD, HIFI, Tape...

Features

- Single chip 8-bit micro-controller
- Operating voltage: 2.2V to 5.5V
- Operating current: 1.0mA to 5.1mA
- Standby current: 1uA to 3uA
- Low power dissipation
- Ambient operating temperature: 0 to +70
- Storage temperature: -55 to +150
- Total 56 keys design (P0.0-P0.7 x P1.0-P1.6)
- Resonator at 3.58M HZ
- For TV, VCR, Satellite receiver, Cable TV converter, VCD, CD, DVD, Tape, HiFi ...
- Easy setup methods : (1) By 3 digit number (2) By AUTO SCAN.
- TV has TV1 and TV2 two different data groups.
- VCR1 VCR2 same data device includes VCD and VCR and CD
- CBL1 CBL2 same data device includes satellite receiver and cable TV converter.
- AUX1 AUX2 same data device includes CD, TAPE, DVD, HIFI.

Pin Description

Pin	Function
Vdd	Positive power pin
OSCO	Resonator pin(3.58M)
OSCI	Resonator pin(3.58M)
GND	Ground pin
/RES	System reset pin(Low active)
TEST	For test mode only
P0.0	Buttons matrix pin
P0.1	Buttons matrix pin (High)
P0.2	Buttons matrix pin(High)
P0.3	Buttons matrix pin(High)
P0.4	Buttons matrix pin(High)
P0.5	Buttons matrix pin(High)
P0.6	Buttons matrix pin(High)
P0.7	Buttons matrix pin(High)

Pin	Function
P1.0	Buttons matrix pin(Low)
P1.1	Buttons matrix pin(Low)
P1.2	Buttons matrix pin(Low)
P1.3	Buttons matrix pin(Low)
P1.4	Buttons matrix pin(Low)
P1.5	Buttons matrix pin(Low)
P1.6	Buttons matrix pin(Low)
P1.7	IR LED output pin
AGND	Ground pin
SPK1	DAC1 output(unused)
AVdd	Positive power pin
SPK2	DAC2 output(LED display pin)



Absolute Maximum Rating

PARAMETER	RATING	UNIT
Supply Voltage to Ground	-0.3 to +5.0	V
Applied Voltage	-0.3 to +5.0	V
Power Dissipation	60	mW
Ambient OP Temperature	0 to +70	
Storage Temperature	-55 to +150	

DC Characteristics

Parameter	Min.	TYP.	Min.	Unit
OP.Voltage	2.4		5.5	V
OP.Current		1.3	5.1	mA
Standby Current		1	3	uA



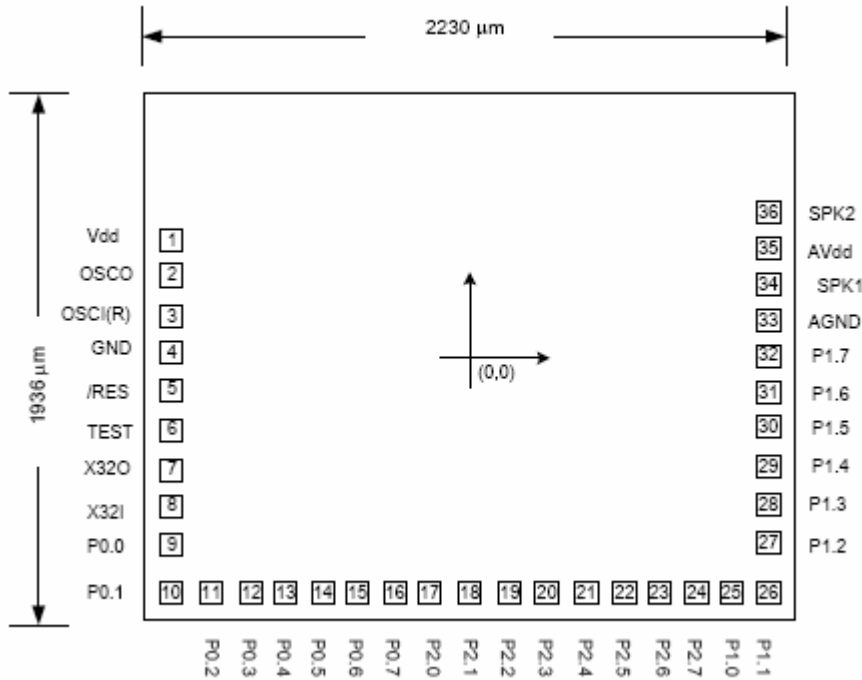
DAC output current		3.67		mA
Input High Voltage	0.8Vdd		Vdd	
Input Low Voltage	0		0.2Vdd	

AC Characteristics

Parameter	Min.	TYP.	Min.	Unit
CPU op. Frequency		3.58		MHZ
POR duration	10	15	50	mS



PAD Assignment



Note:

- (1) Dice Format IC dimension: 2230um(W) x 1930um(H)
- (2) Substrate connect to ground(GND)
- (3) Bonding should start from GND pin

(Unit: μm)

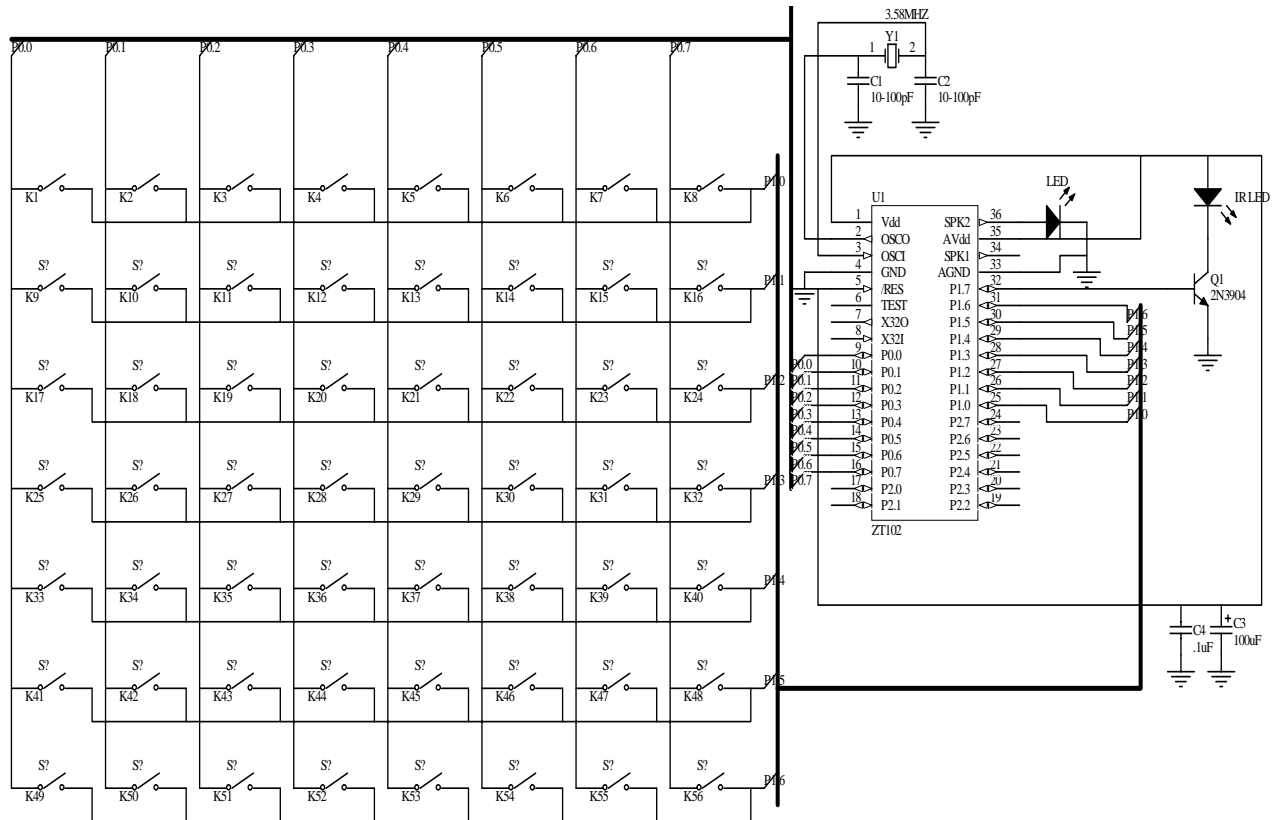
Pad	Name	X	Y	Pad	Name	X	Y
1	VDD	-1005.00	323.35	21	NC	375.00	-858.00
2	OSCO	-1005.00	198.35	22	NC	500.00	-858.00
3	OSCI	-1005.00	73.35	23	NC	625.00	-858.00
4	GND	-1005.00	-51.65	24	NC	750.00	-858.00
5	/RES	-1005.00	-176.65	25	P1.0	875.00	-858.00
6	TEST	-1005.00	-301.65	26	P1.1	1005.00	-858.00
7	NC	-1005.00	-426.65	27	P1.2	1005.00	-697.85
8	NC	-1005.00	-551.65	28	P1.3	1005.00	-572.85
9	P0.0	-1005.00	-676.65	29	P1.4	1005.00	-447.85
10	P0.1	-1005.00	-858.00	30	P1.5	1005.00	-322.85
11	P0.2	-875.00	-858.00	31	P1.6	1005.00	-197.85
12	P0.3	-750.00	-858.00	32	P1.7	1005.00	-72.85
13	P0.4	-625.00	-858.00	33	AGND	1005.00	52.15
14	P0.5	-500.00	-858.00	34	SPK1	1005.00	177.15
15	P0.6	-375.00	-858.00	35	AVDD	1005.00	317.00
16	P0.7	-250.00	-858.00	36	SPK2	1005.00	442.00
17	NC	-125.00	-858.00				
18	NC	0.00	-858.00				
19	NC	125.00	-858.00				
20	NC	250.00	-858.00				

Note: 1. Substrate connected to ground (GND)

2. Bonding should start from GND pin



Universal Remote Control Application circuit



ZT102 Europe Universal Remote Control Circuit

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Key functions:

Device Key: (Device Key No sending any IR signal)

Key Name	Device Name	Code Number
K1	TV1	255
K2	VCR1	255
K3	CBL1	198
K4	AUX1	249
K5	TV2	113
K6	VCR2	255
K7	CBL2	198
K8	AUX2	249

Key functions: (for TV and CBL)

Key Name	TV(CBL)	Function Description
K9	POWER	POWER
K10	CH+	Channel Up
K11	CH-	Channel Down
K12	0/10	0 or 10
K13	1	1
K14	2	2
K15	3	3
K16	4	4
K17	5	5
K18	6	6
K19	7	7
K20	8	8
K21	9	9
K22	A_V	
K23	MUTE	
K24	VOL+	
K25	VOL-	
K26	DISPLAY	
K27	SELECT	
K28	ENTER	
K29	+	Increase
K30	-	Decrease



K31	LCR	Last Channel Recall
K32	CATV	
K33	MENU	
K34	SLEEP	
K35	TIME	
K36	MTS	Multi Language change
K37	11/1-	11 or 1-
K38	12/2-	12 or 2-
K39	AUDIO	Special function
K40	PA	Special function
K41	PGM	Special function
K42	MODE	Special function
K43	INPUT	Special function
K44	TXT	Special function
K45	SAT	Special function
K56		SETUP key

Key functions: (for VCR and AUX)

Key Name	VCR(AUX)	Function Description
K9	POWER	POWER
K10	CH+	Channel Up
K11	CH-	Channel Down
K12	0/10	0 or 10
K13	1	1
K14	2	2
K15	3	3
K16	4	4
K17	5	5
K18	6	6
K19	7	7
K20	8	8
K21	9	9
K22	A_V	
K23	MUTE	
K24	VOL+	
K25	VOL-	

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K26	DISPLAY	
K27	SELECT/MENU	
K28	ENTER/SURE	ENTER or SURE
K29	+ /UP	Increase or UP
K30	- /DN	Decrease or DOWN
K31	LCR/LEFT	LCR or LEFT
K32	CATV/RIGHT	CATV or RIGHT
K33	MENU/MODE	MENU or MODE
K34		Fast Forward
K35	TIME/CLEAR	TIME or CLEAR
K36	MTS/AUDIO	MTS or AUDIO
K37	11/1-	11 or 1-
K38	12/2-	12 or 2-
K39		Backward
K40		RECORD
K41	PGM/TITLE	PGM or TITLE
K42		PLAY
K43		PAUSE
K44		STOP
K45	SAT/SUB	SAT or SUBTITLE
K56		SETUP

 K56 is SETUP key.



Operating methods:

SETUP PROCEDURE (Before (A) or (B) procedure please press device key—TV1 TV2 VCR1 VCR2 CBL1 CBL2 AUX1 AUX2)

(A) BY 3 digit number Method

- (1) From BRAND LIST to find 3 digit number under your brand.
- (2) Press SETUP(key) with POWER(or ENTER key) and then release both keys LED will be light on (if no input any number within 8 seconds it will be off)
- (3) Input 3 digit number (if number out of range,it will flash 3 times)
- (4) Test key function if not OK back to (1) find another 3 digit number from BRAND LIST try it again.

(B) AUTO SCAN Method(I)

- (1) It is not necessary to remember BRAND LIST 3 digit number
- (2) Before AUTO SCAN , let your device at power on state
- (3) Press SETUP(key) with CH+(key) and then release both keys,LED will flash every 2 seconds,it mean the remote control begin to AUTO SCAN.(Your remote control point to your device)
- (4) Pay attention to your device ,if it power off,press any key to stop AUTO SCAN within 1 seconds.(*Over 1 second it will scan next number)
- (5) Test key function ,if no OK,try back to (3) again.

(C) AUTO SCAN Method(II)

- (1) Press SETUP(key) with TV1(device key) and then release both keys,LED will flash every 2 seconds,it mean the remote control begin to AUTO SCAN under TV1.(Your remote control point to your device)
- (2) Pay attention to your device ,if it power off,press any key to stop AUTO SCAN within 1 seconds.(*Over 1 second it will scan next number)
- (3) Test key function ,if no OK,try back to (1) again.

If you are going to check device 3 digit number you already setup:

- (1) Press SETUP(key) with 1(key) then count LED flash times, for example flash 3 times that is mean the first digit number is “3”
- (2) Press SETUP(key) with 2(key) then count LED flash times, for example flash 5 times that is mean the second digit number is “5”
- (3) Press SETUP(key) with 3(key) then count LED flash times, for example no flash that is mean the third digit number is “0”

Press SETUP Keys	Function
SETUP+POWER(or ENTER)	3 digit number setting method
SETUP+TV1	TV1 AUTO SCAN method
SETUP+CH+	AUTO SCAN method after press device key
SETUP+1 or 2 or 3	Display SETUP code number