WK8588-XX Wireless Mouse Transmitter controller IC

General Descriptions:

WK8588A-XX is a CMOS IC. It is used for wireless wheel mouse . It combine four functions, those are built-in RF circuit for two RF channels, low-battery power detector, DC/DC regulator & battery charger.

Feature:

- **Operating voltage range: 2.0V ~ 3.3V**
- **Controller operating frequency: 32KHZ~56KHZ**
- **Device ID : 1. Power-on, it automatically generate a default ID**
  2. Push the ID button to generate random 8-bit ID code.
- **Built-in 27MHZ FSK circuit.**
- **2 RF channels support and 3/5 keys selection.**
- **2 RF channels can auto exchange by pushing ID button.**
- **It has low power detector and display by LED or Buzzer.**
- **It has power-saving function.**
- **It has a built-in battery charger, the charger has some protections by timer and battery voltage detection.**
- **It has a DC/DC regulator.**
- **It can be used for multifarious sensors by option bonding.**
- **It can use as an optic wireless mouse or a wheel wireless mouse**
- **It has many kinds of selection for optic or wheel, 3 or 5 keys, one or two channel RF.**
- **Package type and function :**
  28 pin SSOP(209mil) for single RF channel with 3 key.
  44 pin LQFP(10X10mm) for dual RF channel with 5 key.

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Pin Description:

WK8588A:CHIP

Number	Name	Description
1	LBAT	Low battery input
2	Y2/SDIO	Y-axis encoder 2 input /sensor SDIO pin
3	Y1/SCLK	Y-axis encoder 1 input/sensor SCLK pin
4	X2/PD	X-axis encoder 2 input/sensor PD pin
5	X1	X-axis encoder 1 input
6	FADJ2	2nd Ch. Frequency adjustment
7	XAT2B	2nd Ch. X'tal connection
8	XAT2	2nd Ch. X'tal connection
9	CHSEL	Channel option pin ,pull-low for 2CH (default one channel in 1st Ch)
10	RFVSS	RF circuit Ground

11	RFOUT	RF output
12	RFVCC	RF circuit power supply
13	XAT1	1st Ch. X'tal connection
14	XAT1B	1st Ch. X'tal connection
15	FADJ1	1st Ch. Frequency adjustment
16	HOLD	Chip Standby controller pin ,pull-high to standby
17	OPT1	Sensor selection option pin (default pull-high)
18	VSS	Ground
19	DCO	DC/DC output
20	DCVR	DC/DC voltage modify pin
21	CHIN	Wheel sensor LED driver
22	CHO	Charger controller output
23	CHVF	Charger cutoff voltage modify pin
24	OSCI	Crystal Oscillation output
25	OSCR	RC Oscillation output
26	OSCO	Oscillation input
27	TEST	Option for sensor
28	Z2	Scrolling encoder 2
29	Z1	Scrolling encoder 1
30	ID	ID change control
31	KEY5	5th key input
32	KEY4	4th key input
33	KEYM	Middle key input
34	KEYR	Right key input
35	KEYL	Left key input
36	RDPD	Wheel sensor LED driver / sensor power controller pin
37	OPT2	Sensor selection option pin(default pull-low)
38	VCC	Power supply
39	OPT3	Sensor selection option pin(default pull-low)
40	LLED	Low battery output to LED or Buzzer

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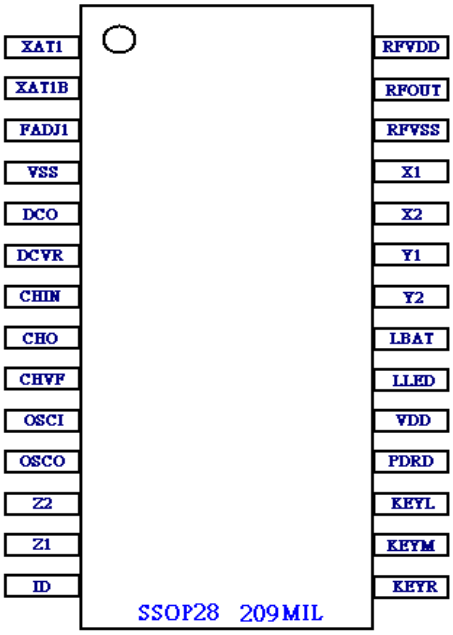
Option Description for sensor :

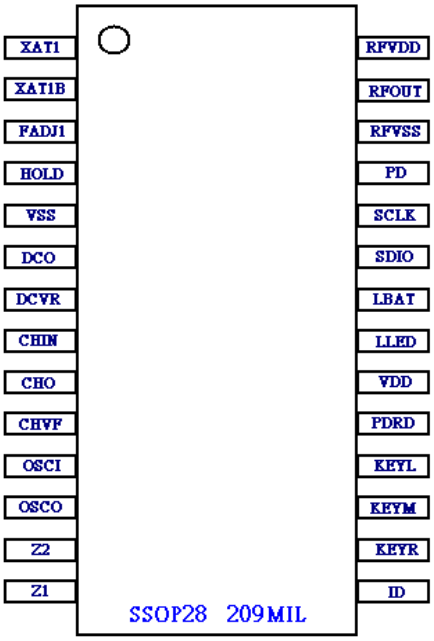
Type	OPT1	OPT2	OPT3	SENSOR DESCRIPTION
WK8588-AC	1	0	0	@LAB or OM-02 X-Y mode
WK8588-RC	1	1	0	Wheel mouse
WK8588-PC	1	0	1	HP-2610 PAN-3101
WK8588-HC	1	1	1	HP-5030,HP7050
WK8588-EC	0	0	0	HP-2030,HP3080,HP6010,OM-10B
WK8588-PCL	0	1	0	PAN-3201
WK8588-LQ				44 PIN LQFP for all sensors

Package Description:

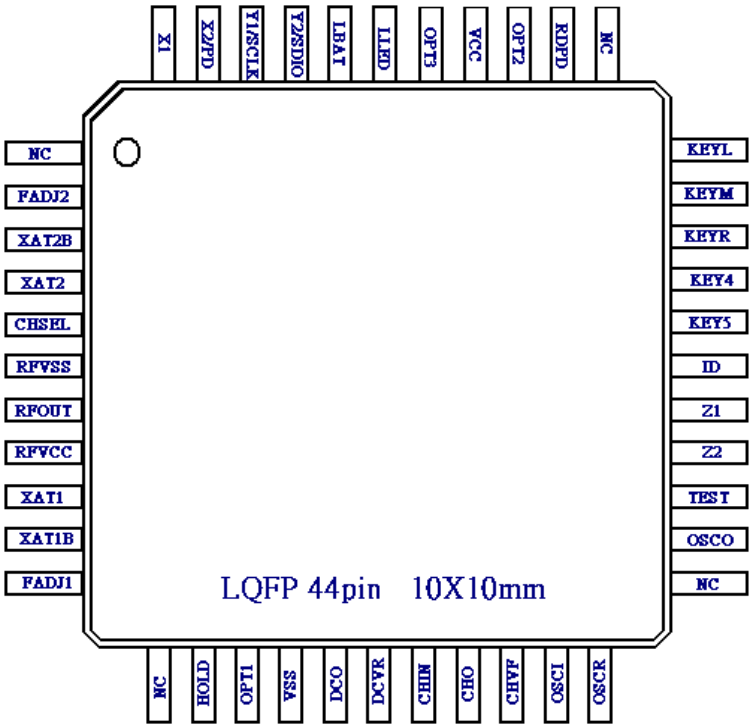
WK8588-AC/RC/: (SSOP28 209mil)



WK8588-EC/HC/PC/PCL: (SSOP28 209mil)



WK8588-LQ: (LQFP44 10X10mm)



Absolute Maximum Rating :

Parameters	Min.	Max.	Unit	Notes
Storage Temperature	- 10	70	℃	
Operating Temperature	0	50	℃	
Lead Solder Temp.	0	50	℃	
Supply Voltage (VCC)	2.2	3.3	V	
Input Voltage	VSS-0.5V	VCC+0.5V	V	For all input pins
Output Voltage	VSS-0.5V	VCC+0.5V	V	
ESD	2	5	KV	For all input pins

Electrical Characteristics : under the conditions T=25℃ VCC=3.0V

	Specifications			Unit	Condition
	Min.	Typ.	Max.		
RF Frequency		27	30	MHz	
Data Rate		5	10	Kbps	
Output Power		-5	-1	dBm	Loading=50 Ohms
Deviation		1	1.5	KHz	
Active current		12	18	mA	Including RF
Standby Current		10	20	uA	Excluding Sensor
Power Supply Voltage		3	3.3	V	
Operating Frequency		32	56	KHZ	For different frame rate necessity
MAX. Frame rate		75	125	Frm/Sec	For different operating freq.
RF Oscillator Start Time		200	300	us	

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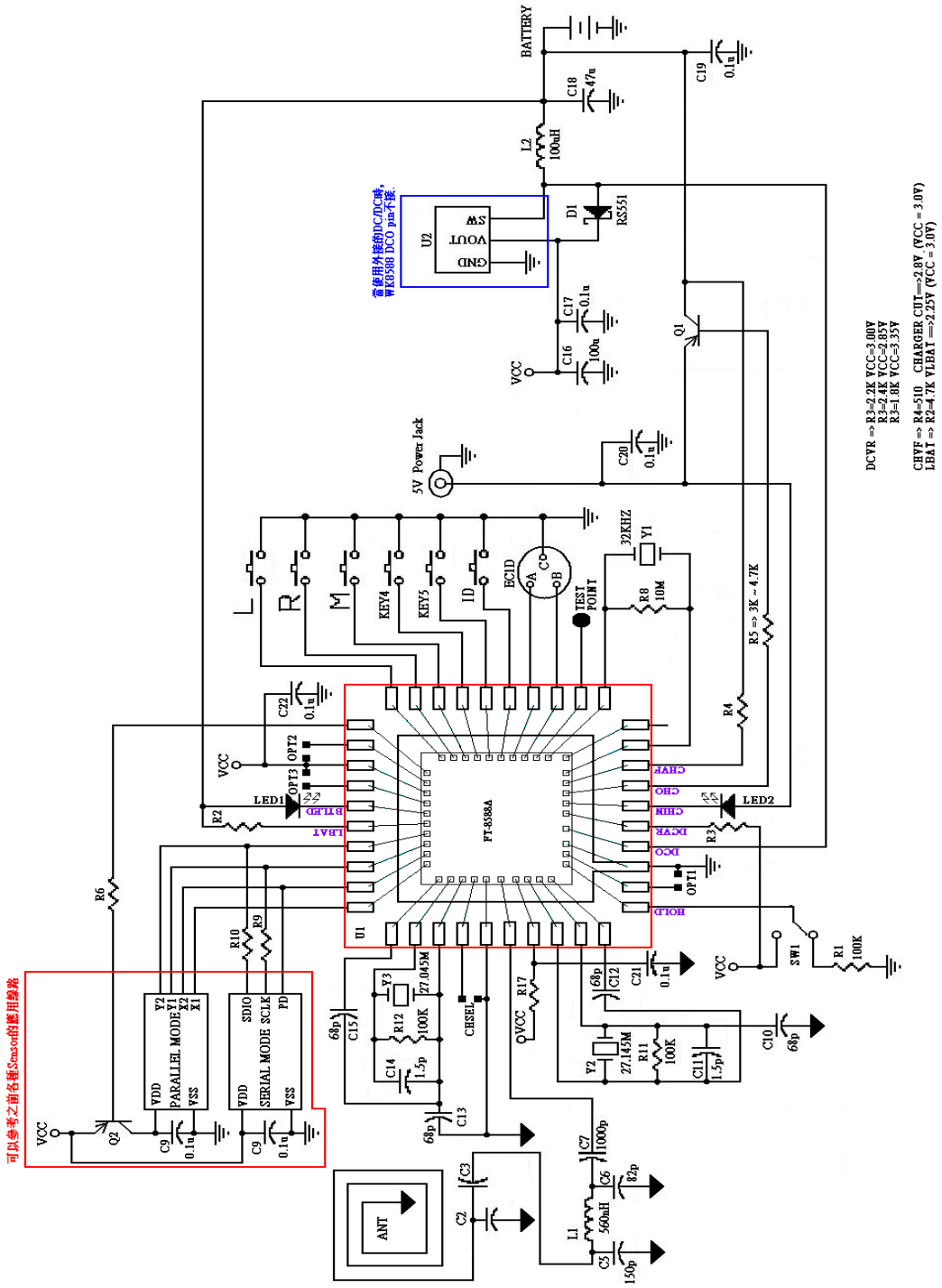
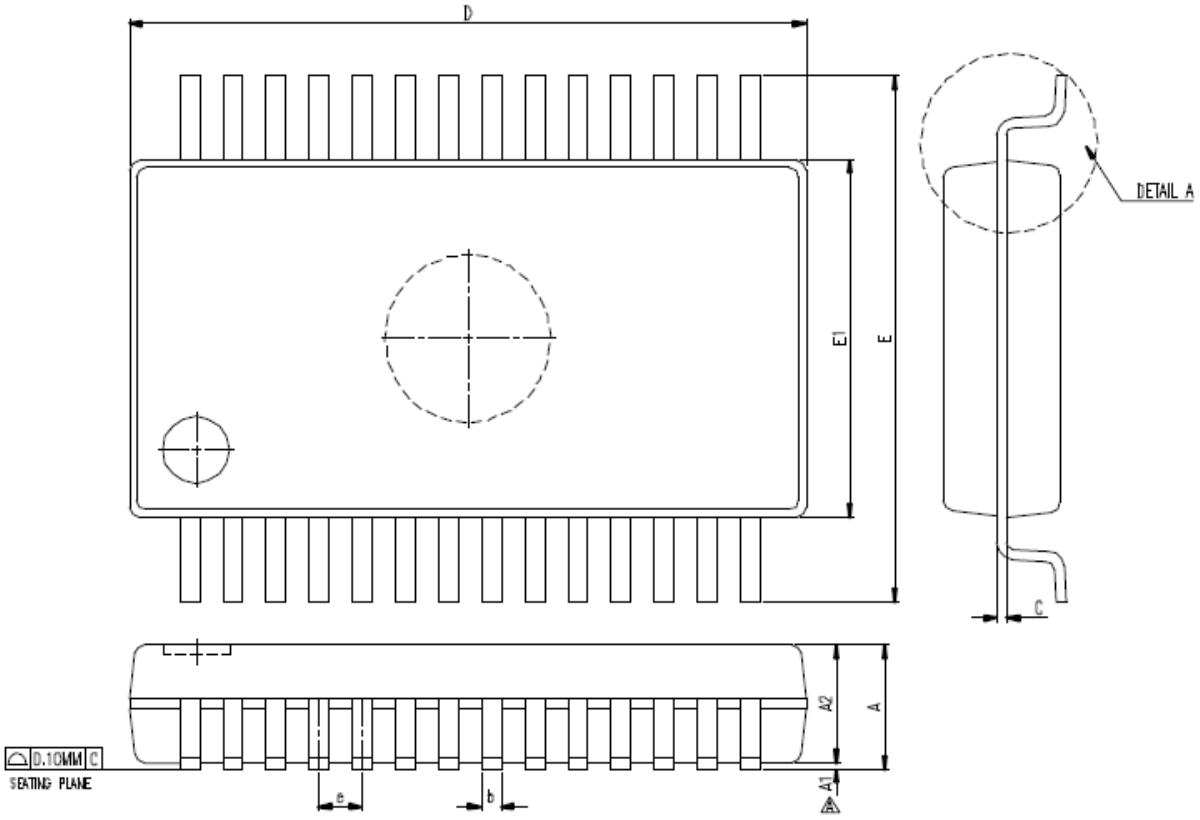
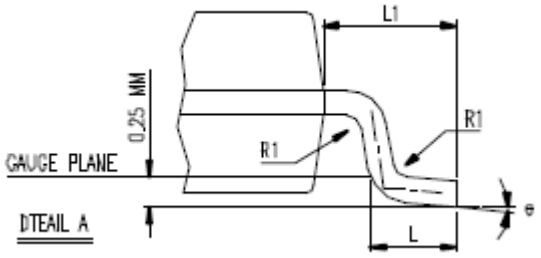
Application Circuit : for optical mouse



Package Outline :

SSOP28 209mil





SYMBOL	DIMENSION IN MM			DIMENSION IN INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A			2.0			0.079
A1	0.05			0.002		
A2	1.85	1.75	1.85	0.065	0.069	0.073
b	0.22	0.30	0.33	0.009	0.012	0.013
c	0.09	0 15	0.21	0.004	0.006	0.008
e	0.65 BASIC			0.026 BASIC		
D	9.90	10.20	10.50	0.390	0.402	0 413
E	7.40	7.80	8.20	0.291	0.307	0.323
E1	5.00	5.30	5.60	0.197	0.209	0.220
L	0.55	0.75	0.95	0.022	0.030	0.038
L1	1.25 REF.			0.049REF.		
R1	0.09			0 004		
θ	0	4	8	0	4	8
JEDEC	MO-150 (AH)					

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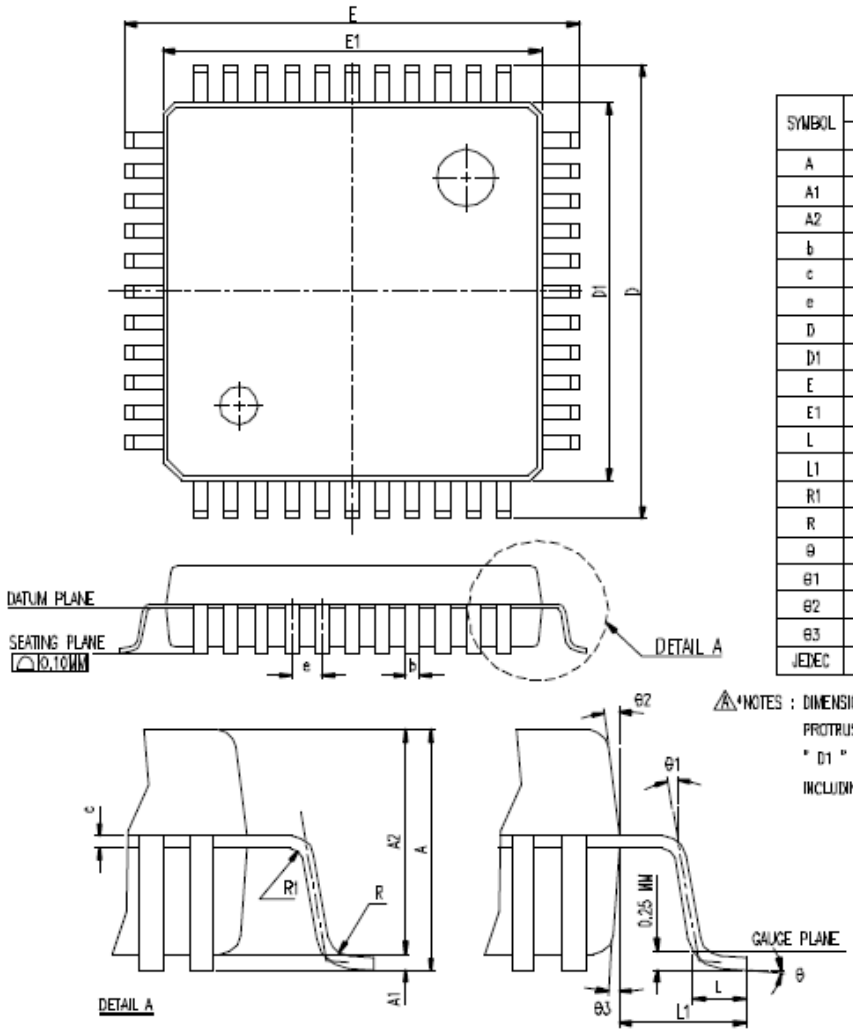
LQFP44pin (10X10mm)



SYMBOL	DIMENSION IN MM			DIMENSION IN INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A			1.60			0.063
A1	0.05		0.15	0.002		0.006
A2	1.35	1.40	1.45	0.053	0.055	0.057
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.09		0.16	0.004		0.006
e	0.80 BASIC			0.031 BASIC		
D	12.00 BASIC			0.472 BASIC		
D1	10.00 BASIC			0.394 BASIC		
E	12.00 BASIC			0.472 BASIC		
E1	10.00 BASIC			0.394 BASIC		
L	0.45	0.60	0.75	0.018	0.024	0.030
L1	1.00 REF.			0.039 REF.		
R1	0.08			0.003		
R	0.08		0.20	0.003		0.008
θ	0	3.5	7	0	3.5	7
θ1	0			0		
θ2	11	12	13	11	12	13
θ3	11	12	13	11	12	13
JEDEC	MS-026 (BCB)					

⚠NOTES : DIMENSIONS " D1 " AND " E1 " DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.25 mm PER SIDE. " D1 " AND " E1 " ARE MAXIMUM PLASTIC BODY SIZE DIMENSIONS INCLUDING MOLD MISMATCH

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