

Introduction

EC2622 Hall-effect sensor is a temperature stable, stress-resistant, Low Tolerance of Sensitivity micro-power switch. Superior high-temperature performance is made possible through a dynamic offset cancellation that utilizes chopper-stabilization. This method reduces the offset voltage normally caused by device over molding, temperature dependencies, and thermal stress.

EC2622 is special made for low operation voltage, 1.65V, to active the chip which includes the following on a single silicon chip: voltage regulator, Hall voltage generator, small-signal amplifier, chopper stabilization, Schmitt trigger, CMOS output driver. Advanced CMOS wafer fabrication processing is used to take advantage of low-voltage requirements, component matching, very low input-offset errors, and small component geometries. This device requires the presence of omni-polar magnetic fields for operation.

The package type is in a Halogen Free version has been verified by third party Lab.

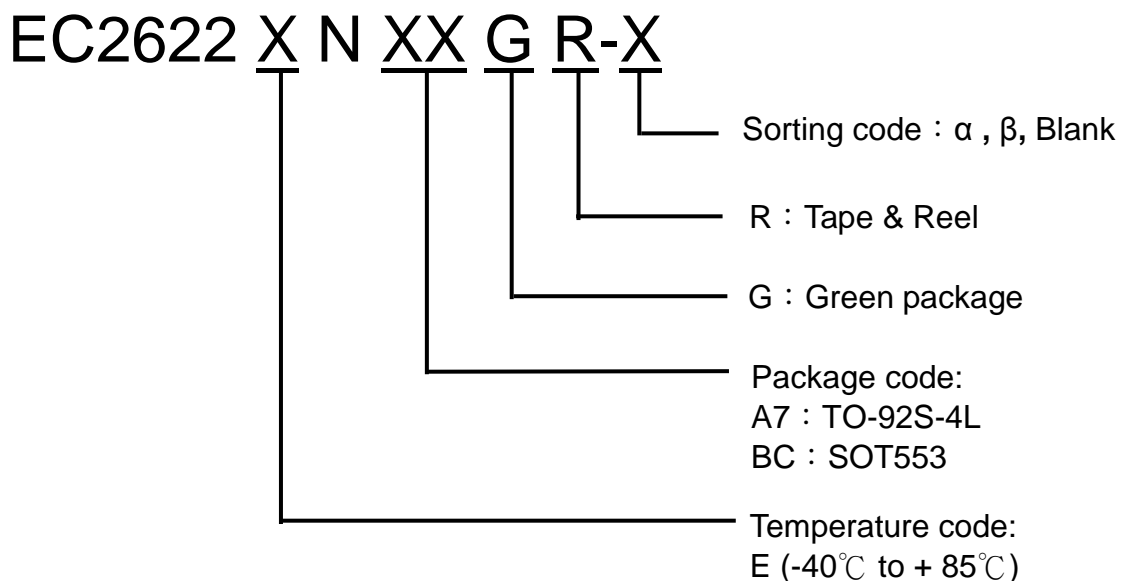
Features

- CMOS Hall IC Technology
- Strong RF noise protection
- 1.65 to 3.5V for battery-powered applications
- Omni polar, output switches with absolute value of North or South pole from magnet
- Operation down to 1.65V, Micro power consumption
- High Sensitivity for reed switch replacement applications
Direction detection
- Low sensitivity drift in crossing of Temp. range
- Ultra Low power consumption at 5uA (Avg)
- High ESD Protection, HBM > ±4KV(min)
- Operation with South Pole (OUT1) or North Pole (OUT2)
- Totem-pole output

Applications

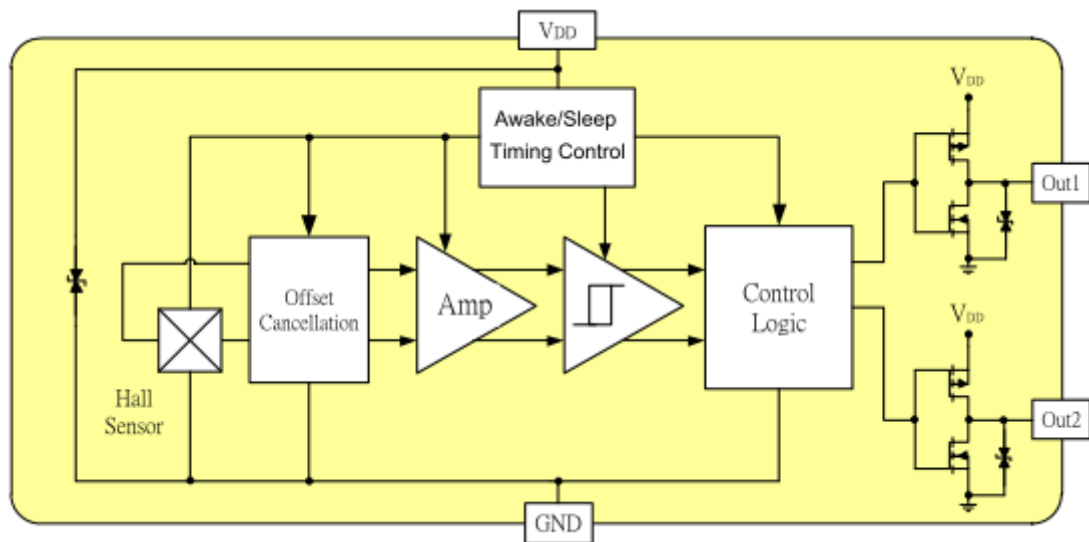
- Solid state switch
- Handheld Wireless Handset Awake Switch
(FlipCell/PHS Phone/Note Book/Flip Video Set)
- Magnet proximity sensor for reed switch replacement in low duty cycle applications
- Water Meter
- PDA ● PDVD
- NB ● Pab PC

Ordering information



Type	Part No.	Marking	Marking Information
TO92S-4L	EC2622EA7GR	2622 LLLL	LLLL : Lot No
SOT553	EC2622EBCGR	22YW	YW : Date Code

Functional Diagram



Note: Static sensitive device; please observe ESD precautions. Reverse VDD protection is not included. For reverse voltage protection, a 100Ω resistor in series with VDD is recommended.

Absolute Maximum Ratings At($T_a=25^{\circ}\text{C}$)

Characteristics		Values	Unit
Supply voltage, (V_{DD})		4.5	V
Output Voltage, (V_{out})		4.5	V
Reverse Voltage , (V_{DD}) (V_{OUT})		-0.3	V
Magnetic flux density		Unlimited	Gauss
Output current, (I_{out})		1	mA
Operating temperature range, (T_a)		-40 to +85	$^{\circ}\text{C}$
Storage temperature range, (T_s)		-65 to +150	$^{\circ}\text{C}$
Maximum Junction Temp, (T_j)		150	$^{\circ}\text{C}$
Thermal Resistance	(θ_{JA}) EC2622EA7GR	227	$^{\circ}\text{C}/\text{W}$
	(θ_{JA}) EC2622EBCGR	540	$^{\circ}\text{C}/\text{W}$
	(θ_{JC}) EC2622EA7GR	49	$^{\circ}\text{C}/\text{W}$
	(θ_{JC}) EC2622EBCGR	390	$^{\circ}\text{C}/\text{W}$
Package Power Dissipation, (P_D)	EC2622EA7GR	550	mW
	EC2622EBCGR	230	mW

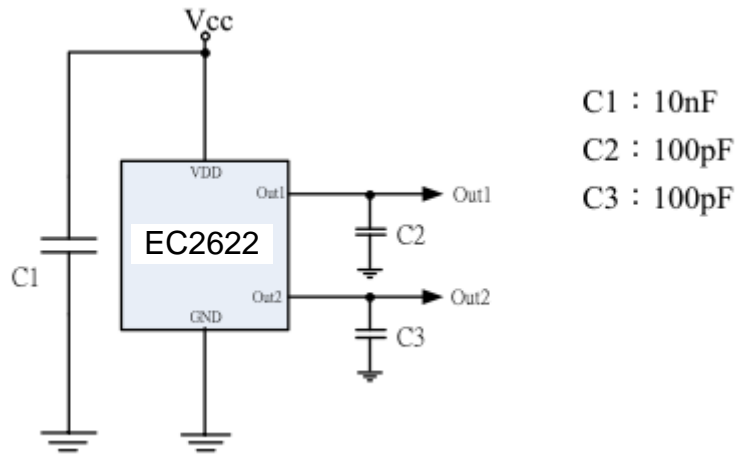
Note: Exceeding the absolute maximum ratings may cause permanent damage. Exposure to absolute maximum-rated conditions for extended periods may affect device reliability.

Electrical Specifications

DC Operating Parameters : Ta=25°C, VDD=1.8V

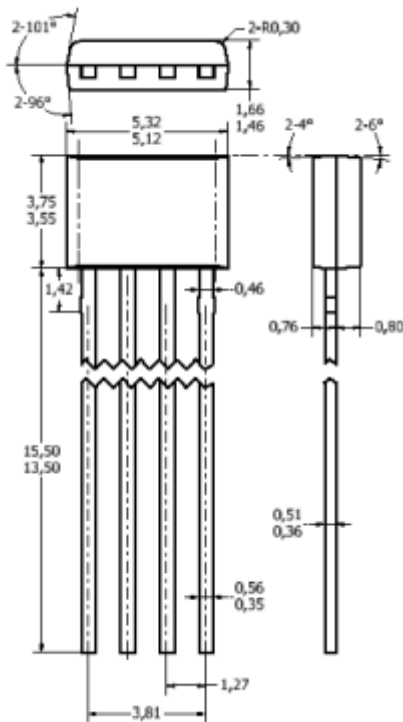
Parameters	Test Conditions	Min	Typ	Max	Units
Supply Voltage, (V_{DD})	Operating	1.65		3.5	Volts
Supply Current, (I_{DD})	Awake State		1.4	3	mA
Supply Current, (I_{DD})	Sleep State		3.6	7	μ A
Supply Current, (I_{DD})	Average		5	10	μ A
Output Leakage	Output off			1	μ A
Output High Voltage, (V_{OH})	$I_{OUT}=0.5mA$ (Source)	$V_{DD}-0.2$			V
Output Low Voltage, (V_{OL})	$I_{OUT}=0.5mA$ (Sink)			0.2	V
Awake mode time, (T_{aw})	Operating		40	80	μ S
Sleep mode time, (T_{SL})	Operating		40	80	mS
Duty Cycle, (D, C)			0.1		%
Electro-Static Discharge	HBM	4			KV
Operate Point, (B_{OPS}) (B_{OPN})	S pole to branded side, $B > BOP$, OUT1 On		30	50	Gauss
Operate Point, (B_{OPS}) (B_{OPN})	N pole to branded side, $B < BOP$, OUT2 On	-50	-30		Gauss
Release Point (B_{RPS}) (B_{RPN})	S pole to branded side, $B < BRP$, Vout Off	10	20		Gauss
Release Point (B_{RPS}) (B_{RPN})	N pole to branded side, $B > BRP$, Vout Off		-20	-10	Gauss
Hysteresis, (B_{HYS})	$ BOPx - BRPx $		10		Gauss

Typical application circuit



Sensor Location, package dimension and marking

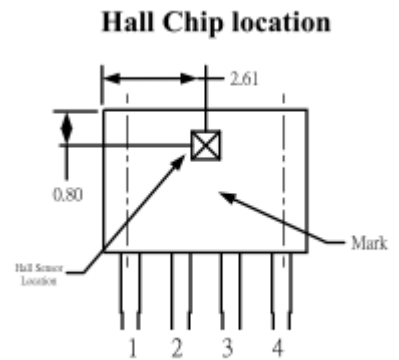
Package (4-pin TO-92S)



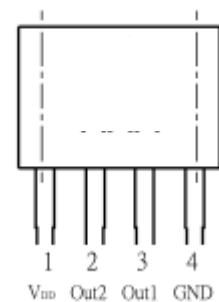
NOTES:

- 1).Controlling dimension: mm
- 2).Leads must be free of flash and plating voids
- 3).Do not bend leads within 1 mm of lead to package interface.
- 4).PINOUT:

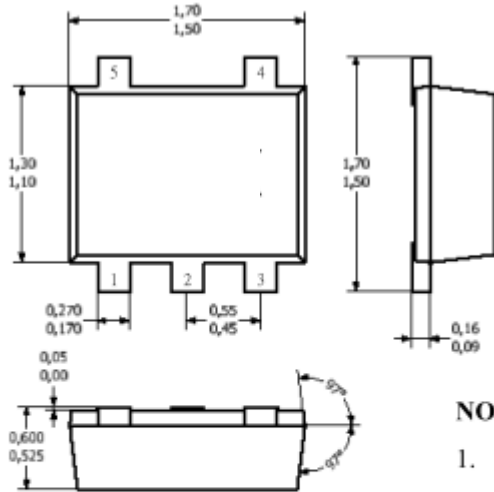
Pin 1	VDD
Pin 2	Out2
Pin 3	Out1
Pin 4	GND



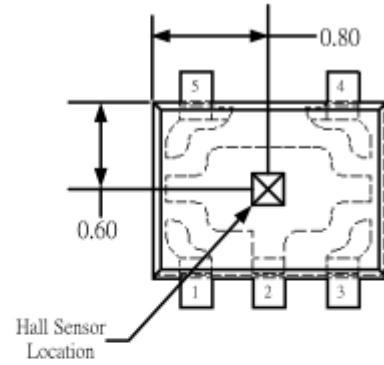
Output Pin Assignment



**Package (SOT-553)
(Top View)**



**Hall Plate Chip Location
(Top View)**



NOTES:

1. PINOUT (See Top View at left):
 - Pin 1 Out2
 - Pin 2 GND
 - Pin 3 NC
 - Pin 4 VDD
 - Pin 5 Out1
2. Controlling dimension: mm;