

## Physics Nobel Prize

In 'Physics Nobel Prize 2014 for LEDs as Future Lighting Devices' article in January issue, while explaining about PN junction (page 26) it is given that when no voltage is applied, a depletion region is formed. But should it not be so when voltage is applied?

Pooja Math  
Kalaburgi

*The author Dr S.S. Verma replies:*

That is correct! The formation of the depletion region in PN junction is formed when no voltage is applied.

In continuation to what follows in PN junction formation across the crystal is, there is a concentration gradient of holes and electrons. Holes that are in majority on p-side are minority carriers on n-type; and vice versa for electrons. Concentration gradient causes diffusion of charge carriers (holes and electrons) across the junction even without applied voltage.

Holes will diffuse from p-side to n-side, and electrons will diffuse from n-side to p-side. Some holes on p-side will combine with electrons that have diffused from n-side (some holes will disappear). This leaves un-neutralised acceptor ions (negative ions) near the junction on p-side.

Similarly, some electrons on n-side will combine with holes that have diffused from p-side, leaving un-neutralised donor ions (positive ions) near the junction on n-side. Thus, there will be an accumulation of positive and negative ions near the junction called depletion region.

## PLL FM Transmitter

I am interested in 'PLL FM Transmitter' circuit published in December 2014 issue. I am stuck at RFC (RFC1 and RFC2) and balun cores? Please explain in detail about RFC and L2, and tell me how to make these, or where these are available?

Rushiraj Jawale  
Mumbai

*The author Joy Mukherji replies:*

RFC1 and RFC2 are wound on two-hole

## 'Spot An Error' Award Winners

In 'Precision-Guided Munitions: Guided Techniques' article under Defence Electronics section of February issue, under 'Types of guided weapons,' it is mentioned 'anti radiation weapons (ARMs),' but it should be anti radiation missiles (ARMs).

Siddharth Kaul

□ In 'Building Connected Internet of Things Widgets with Raspberry Pi and Intel Galileo' article in February issue, there is an error under 'Comparison between Galileo and Raspberry Pi Model B+'. GPIO pins for Raspberry Pi B+ are given as 26 instead of 40.

Tejas S. Hortikar



Fig. 1: Balun cores

It can be made using two ordinary ferrite beads placed side-by-side, if binocular balun core is not available. Ferrite balun cores available in various sizes are shown in Fig. 1.

## Pendulum Clock

In 'Javascript Based Canvas Pendulum Clock' DIY article published in February issue, the screenshot (Fig. 2) on page 124 is wrong. An error message is supposed to pop up if Internet Explorer (IE) is used but, instead, it is asking for the default browser. When a script is not supported in IE, it should not show anything.

Monish Meher  
Vashi

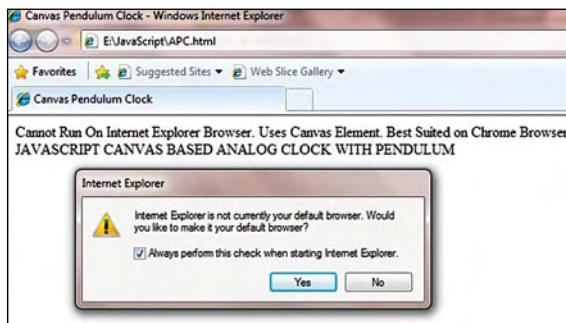


Fig. 2: Error message

## Errata

In 'Buyers' Guide' on modern multimeters in March issue, under 'Notable Multimeter Brands' (page 57), Rigol has been misspelled as Rigel.

binocular TV balun cores. These are generally used at the back of a TV for interfacing with the feeder wire. These can be replaced with ready-made moulded RF inductors.

RFC1 is critical as it prevents the PLL reference tone of 1.5625kHz from entering the RF section of the transmitter via the power supply. Any value between 1mH and 5mH will do. RFC1 in the prototype is measured at 1.5mH. Use a 40µH to 100µH moulded choke for RFC2. RFC2 is not critical and can be eliminated altogether.

L2 is a simple broadband transformer wound on a TV balun core.

*The author Sridhar Bukya replies:*

The screenshot is correct. If you have installed more than one browser, say, IE and Google Chrome, on your PC, and if these are run for the first time, the message asking which browser should be used as default pops up. 'Cannot Run On Internet Explorer Browser' error message is shown along with other messages. The same is reproduced here in Fig. 2.

.html and .htm files both run on these browsers. IE versions lower than 11.0.9600.16438 may not support <canvas> element. I have run and tested the project on Google Chrome version 40.0.2214.111.

For older versions of IE, the page will return blank as it does not recognise <canvas> element.