

The Application of the “By-pass” Diode for Solar Cell

Monday, 19 November 2007

Sirectifier Global Corp. (SGC) announced that the new “By-pass” diode which with lower forward voltage drop (VF) for many kinds of DC to DC application especially in the solar cell fields.

SGC make used of the new material of the alloy barrier instead of old one for obtained the characteristic of lower VF. Therefore, the conduction loss had reduced because of the lower VF on the system such as PV junction box.

The “By-pass” diode connected across one or more solar cells in a solar module, such that the diode will conduct if the cell(s) become reverse biased. It protects these solar cells from thermal destruction in case of total or partial shading, broken cells, while other cells are exposed to full light.

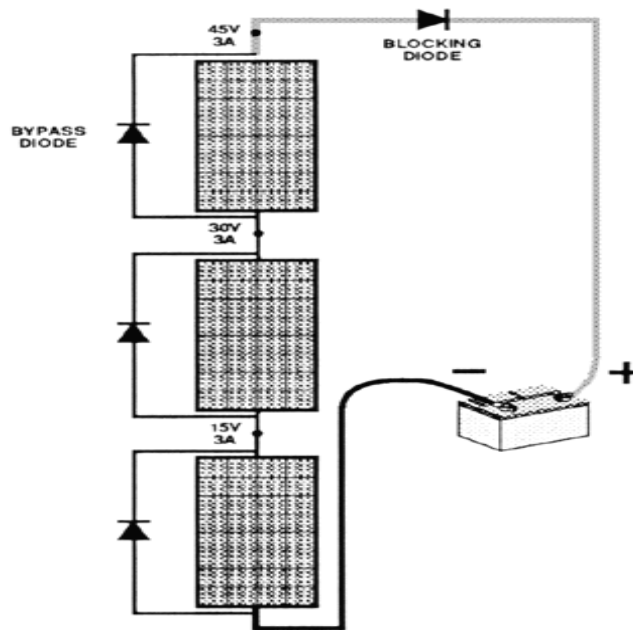


Fig.1. Application of the “By-pass” diode in solar cell

The trend of the application is using bigger panels mean more parallel cells and increased power requirements. Therefore, SGC have increased the PARM of the “By-pass” diode as well. ($PARM = I_{AR} \times V_{BR} = W$).

SGC is capable to offer 40A and below rating in a single die for solar cell application.

- (1) 50V series: $V_F < 0.55V$, typ at 0.5V
- (2) 70V series: $V_F < 0.65V$, typ at 0.57V
- (3) 1,000V series: $V_F < 1.2V$, typ at 1.1V

For further details, please contact SGC at the location nearest you.

NO	P/N	IF (A)	VB (V)	VF (V)		IR (mA) @25° C	Tj(max)	Package
				@25° C	@125C°			
1	ST-MASAR	10	50	0.55	0.45	1.0	150° C	R-6
2	ST-MALAR	10	50	0.5	0.4	1.0	150° C	R-6
3	ST-MBSAR	15	50	0.55	0.45	1.0	150° C	R-6
4	ST-MBLAR	15	50	0.5	0.4	1.0	150° C	R-6
5	ST-MCSAR	20	50	0.55	0.45	1.0	150° C	R-6
6	ST-MCLAR	20	50	0.5	0.4	1.0	150° C	R-6
7	ST-MCSAC	20	50	0.55	0.45	1.0	150° C	TO-220AC
8	ST-MCLAC	20	50	0.5	0.4	1.0	150° C	TO-220AC
9	ST-MDSAC	30	50	0.55	0.45	1.0	150° C	TO-220AC
10	ST-MCSDC	20	50	0.55	0.45	1.0	150° C	TO-263AC
11	ST-MCLDC	20	50	0.5	0.4	1.0	150° C	TO-263AC
12	ST-MSDC	30	50	0.55	0.45	1.0	150° C	TO-263AC

Table.1. The specification of New 50V "By-pass" Diode



Sales Representatives:

U.S.A. -

113 Barksdale Professional
Center in the City of Newark,
County of New Castle, Delaware
e-mail: sgc@sirectsemi.com

China -

Room 302, Block A, Nanfangguoji
Plaza, Yitian Rd. 3013, Futian
district, Shenzhen, China
e-mail: candy@sirectifier.com.tw

Taiwan -

19F-3, NO. 75, Sec. 1, Xintai
5th Rd., Xixhi City, Taipei, Taiwan
e-mail: se@sirectsemi.com

Thailand -

29/123 F.8 Siam Condo. Rama 9
Rd., Huaykwang, Bangkok
10310, Thailand
e-mail: th@sirectsemi.com