ROHM's Online Tool

ROHM AC/DC Designer User's Guide

●**Content**

1. What is ROHM AC/DC Designer?

Outline
The online tool "ROHM AC/DC Designer" is an assistant tool which outputs circuit designs using Rohm's ACDC power source. It can output Reference circuits, Component lists, Trans designs easily by matching the conditions the user entered.

1.2 Language Used

Basically, English is the language used in ROHM AC/DC Designer.

1.3 Products

BM2P091F	BM2P092F	BM2P093F	BM2P094F	BM2P051F	BM2P052F
BM2P053F	BM2P054F	BM2P091	BM2P092	BM2P093	BM2P094
BM2P051	BM2P052	BM2P053	BM2P054	BM2P031	BM2P032
BM2P033	BM2P034	BM2P011	BM2P012	BM2P013	BM2P014
BM1P101FJ	BM1P102FJ	BM1P061FJ	BM1P062FJ		

1.4 Precautions

We have implemented an account register system for the ROHM AC/DC Designer.
After a month of usage, there will be a requirement for an account registration.
If the registration is not completed, the ROHM AC/DC Designer will not operate.

In order to operate ROHM AC/DC Designer, the environment written below will be needed.

- Microsoft Silverlight
- Adobe Reader (a software to open PDF files)

This tool works best with the following browsers: Firefox; Internet Explorer 11.

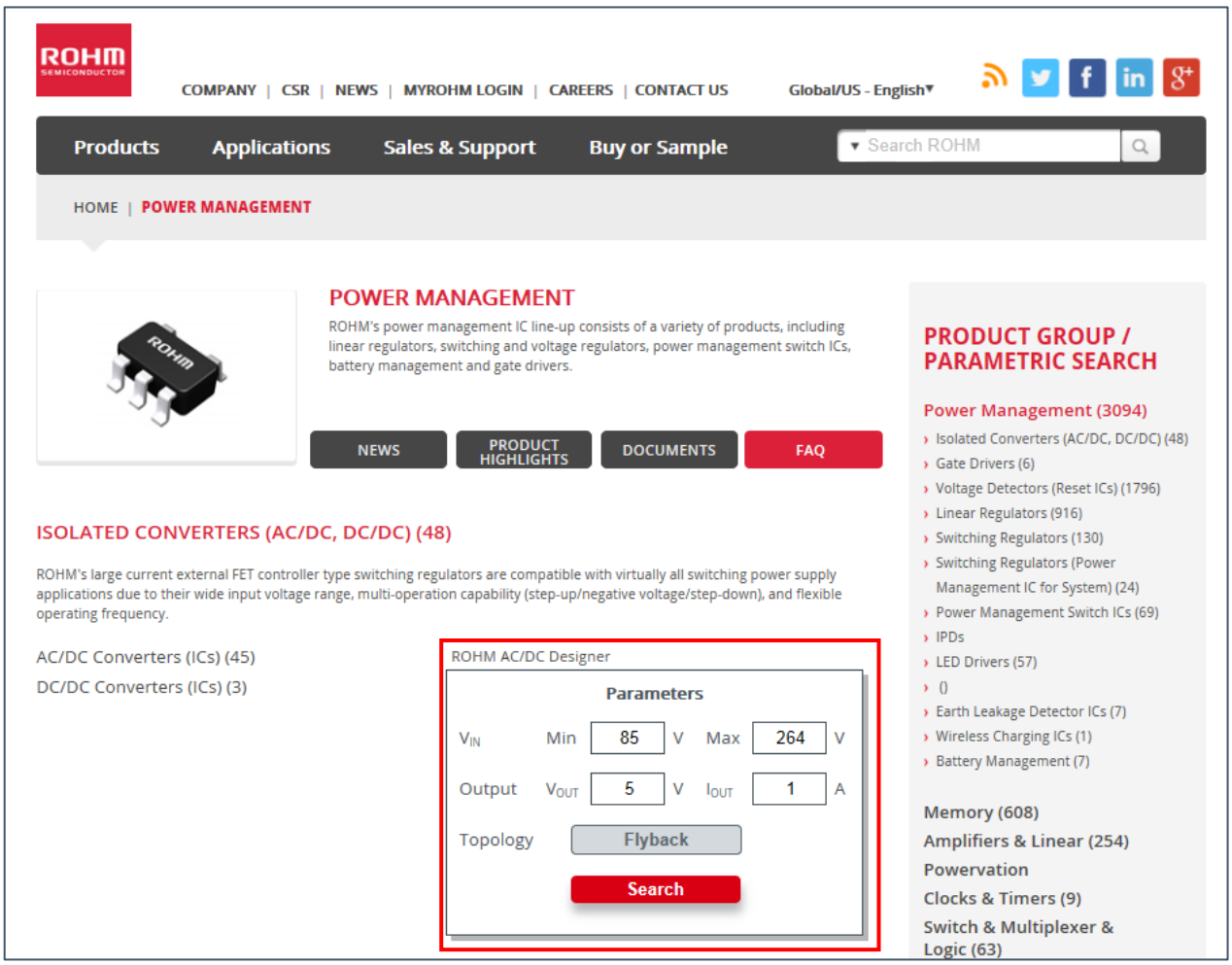
■Please Read the Exemption clause before using the ROHM AC/DC Designer.
■The specification of the ROHM AC/DC Designer may change without any notice.

1.5 Contact

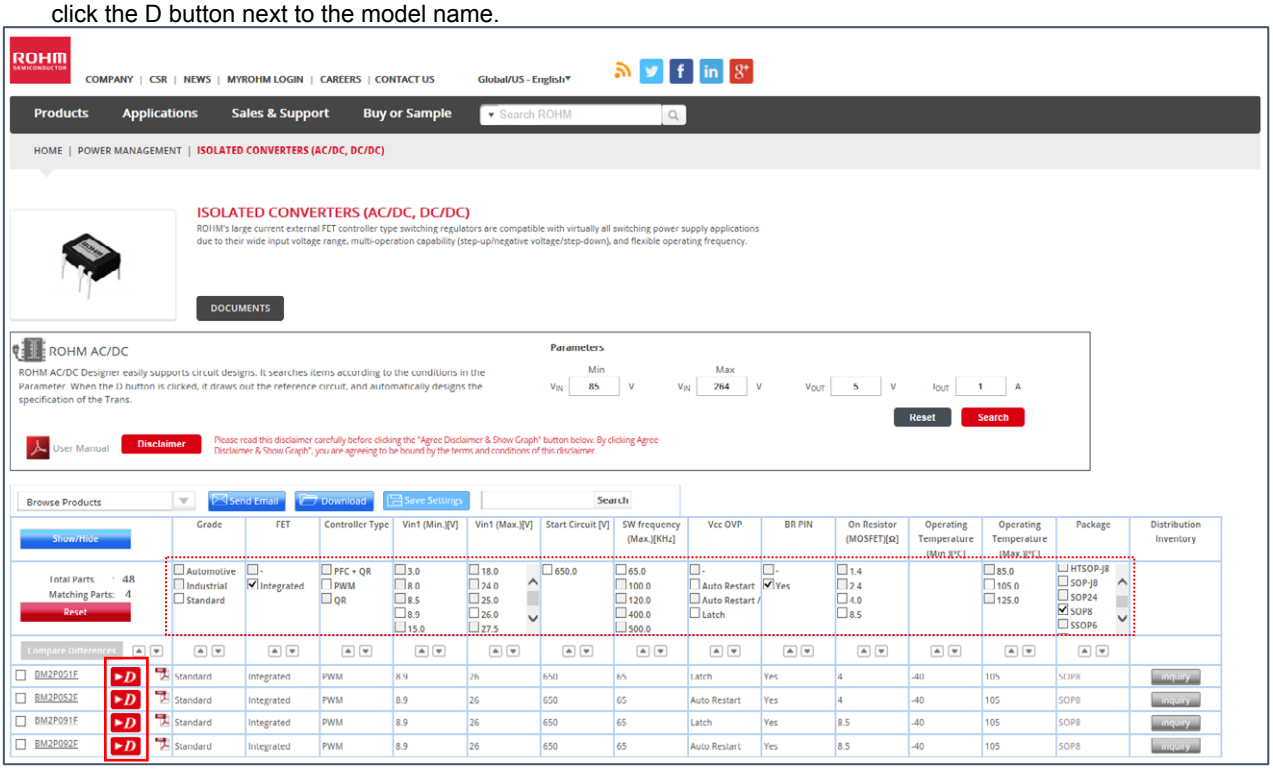
https://www.rohm.com/web/global/contactus

2. How to Access

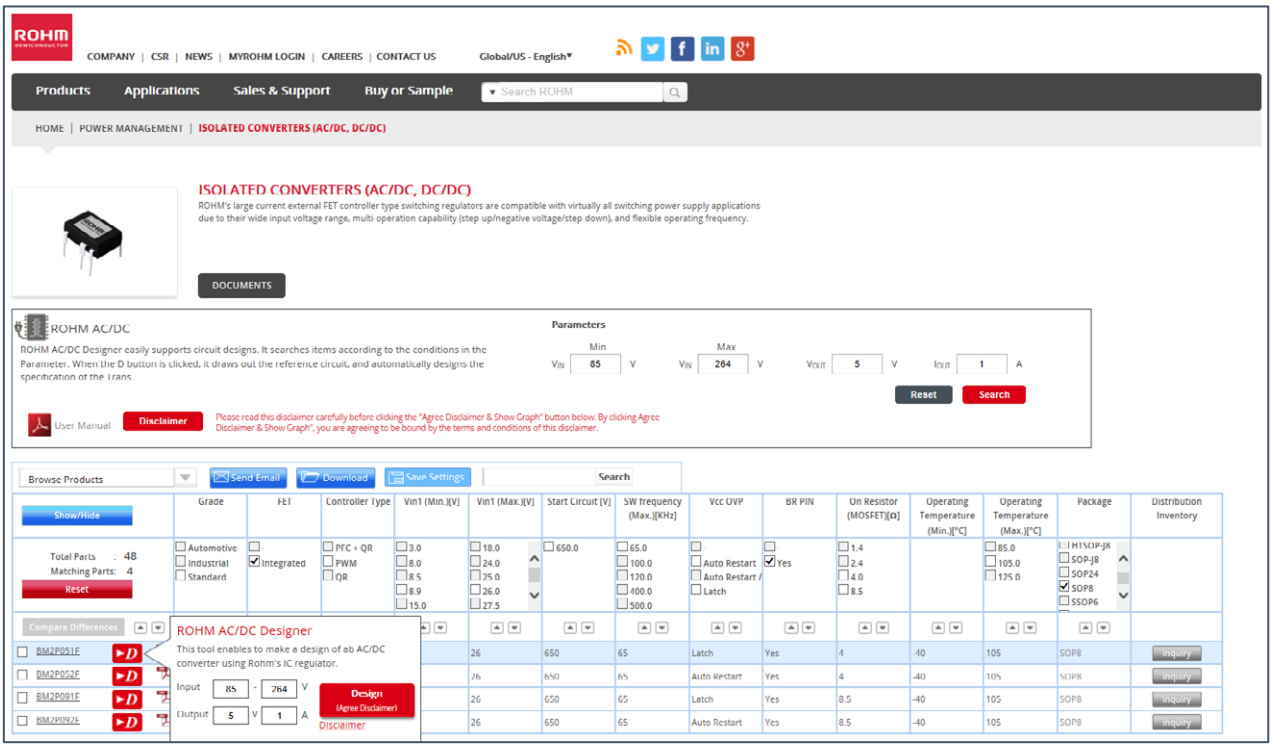
① There is a ROHM AC/DC Designer search tool created on HOME/Power source IC page. Click the search button after the parameter column is entered (Vin Min/Max, Vout, Iout).



② It will search for the ICs which correspond to the conditions set at ①. By clicking the check box at the function column, it will narrow down the ICs further. Select the IC which best corresponds to the user's selected conditions and then click the D button next to the model name.



③ A pop-up will appear, with the numbers entered in the parameter column, and when the Design button is clicked, the tool will activate.



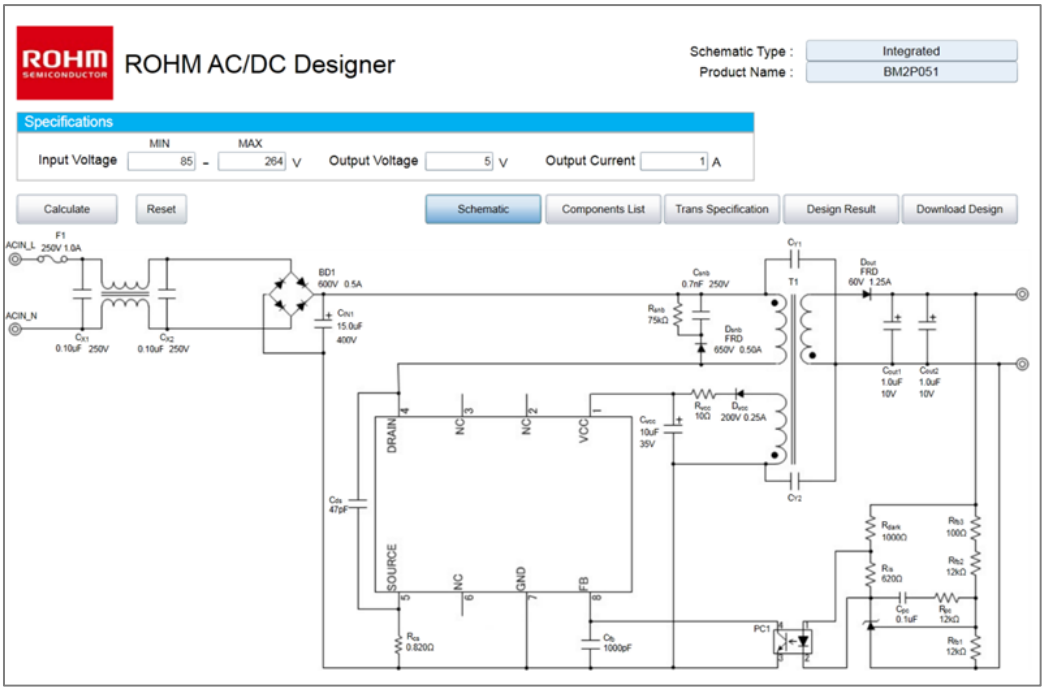
3. How to Use

3.1 Activating ROHM AC/DC Designer ROHM AC/DC Designer

When the Design button is clicked, the browser will start up, and will move on to "Calculation Running" screen.

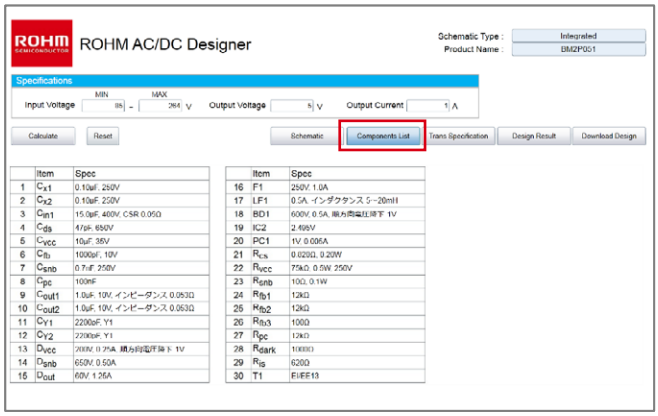
3.2 The initial page for output

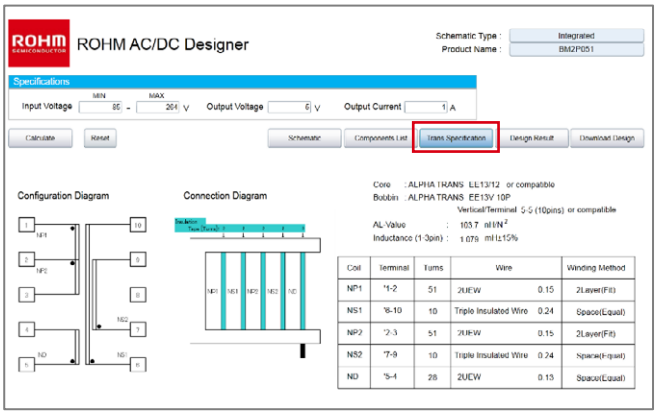
When the calculation is finished, the Reference circuit will appear.



3.3 Switching between pages

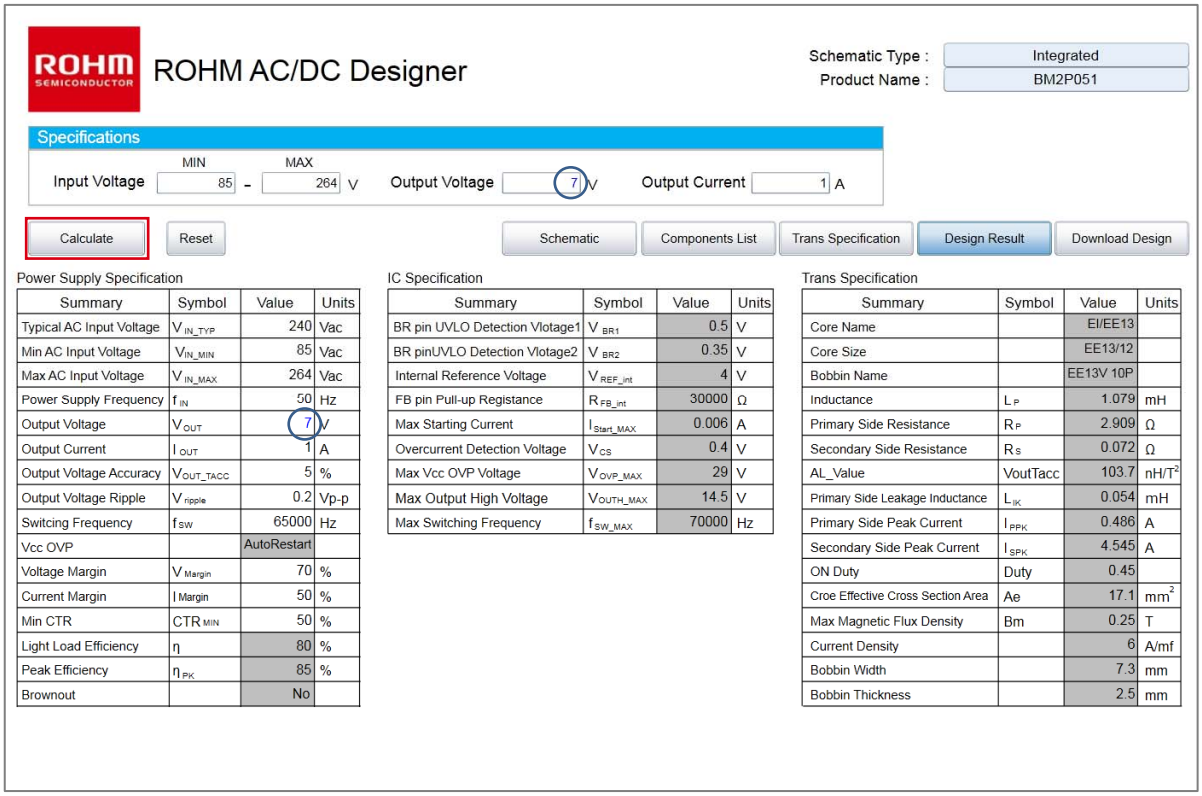
The pages will switch, when the Tab button is clicked.





3.4 Recalculation

In "Design Result", detailed conditions can be changed. The changed numbers will be shown in blue. By clicking the "Calculate" button after the changes, it will recalculate. Regarding the 4 items; Input Voltage (Min/Max), Output Voltage, Output Current, there is no need to move to the "Design Result", for it could be changed from the Specifications at the top of the page.



Power Supply Specification

Summary	Symbol	Value	Units
Typical AC Input Voltage	V_{IN_TYP}	240	Vac
Min AC Input Voltage	V_{IN_MIN}	85	Vac
Max AC Input Voltage	V_{IN_MAX}	264	Vac
Power Supply Frequency	f_{IN}	50	Hz
Output Voltage	V_{OUT}	7	V
Output Current	I_{OUT}	1	A
Output Voltage Accuracy	V_{OUT_TACC}	5	%
Output Voltage Ripple	V_{ripple}	0.2	Vp-p
Switcing Frequency	f_{SW}	65000	Hz
Vcc OVP		AutoRestart	
Voltage Margin	V_{Margin}	70	%
Current Margin	I_{Margin}	50	%
Min CTR	CTR_{MIN}	50	%
Light Load Efficiency	η	80	%
Peak Efficiency	η_{PK}	85	%
Brownout		No	

IC Specification

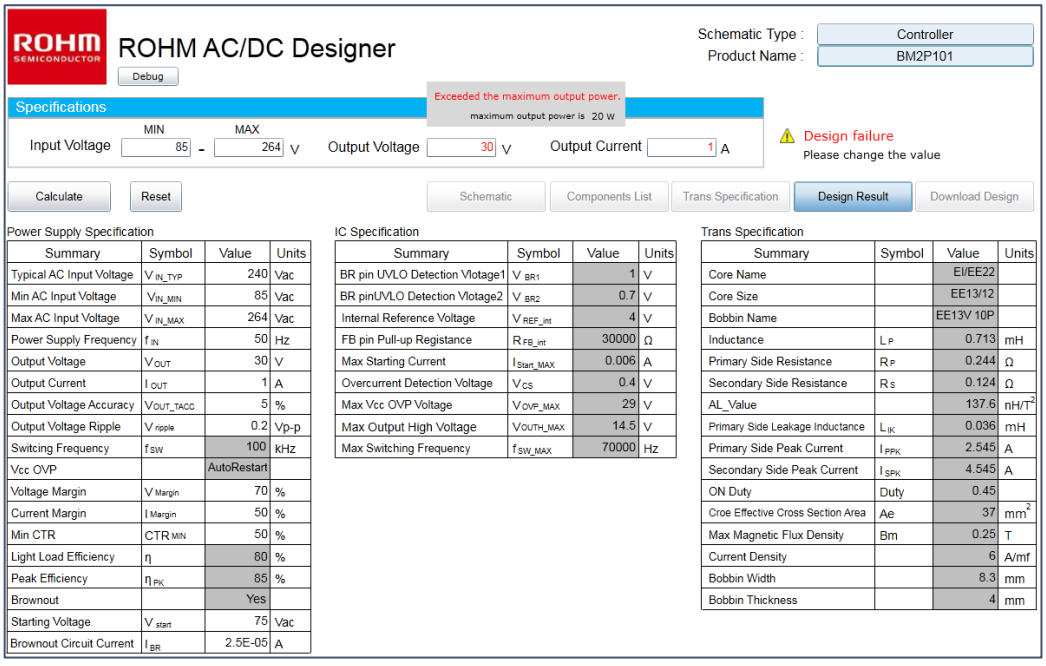
Summary	Symbol	Value	Units
BR pin UVLO Detection Vlotage1	V_{BR1}	0.5	V
BR pinUVLO Detection Vlotage2	V_{BR2}	0.35	V
Internal Reference Voltage	V_{REF_int}	4	V
FB pin Pull-up Registance	R_{FB_int}	30000	Ω
Max Starting Current	I_{Start_MAX}	0.006	A
Overcurrent Detection Voltage	V_{CS}	0.4	V
Max Vcc OVP Voltage	V_{OVP_MAX}	29	V
Max Output High Voltage	V_{OUTH_MAX}	14.5	V
Max Switching Frequency	f_{SW_MAX}	70000	Hz

Trans Specification

Summary	Symbol	Value	Units
Core Name		EI/EE13	
Core Size		EE13/12	
Bobbin Name		EE13V 10P	
Inductance	L_P	1.079	mH
Primary Side Resistance	R_P	2.909	Ω
Secondary Side Resistance	R_S	0.072	Ω
AL_Value	VoutTacc	103.7	nH/T^2
Primary Side Leakage Inductance	L_{IK}	0.054	mH
Primary Side Peak Current	I_{PPK}	0.486	A
Secondary Side Peak Current	I_{SPK}	4.545	A
ON Duty	Duty	0.45	
Croe Effective Cross Section Area	Ae	17.1	mm^2
Max Magnetic Flux Density	Bm	0.25	T
Current Density		6	A/mf
Bobbin Width		7.3	mm
Bobbin Thickness		2.5	mm

3.5 Design Failure

A design failure may occur depending on the value entered. In that case, it will move on to "Design Result", and "Design Failure" will be indicated. Recalculate by changing the conditions.



Power Supply Specification

Summary	Symbol	Value	Units
Typical AC Input Voltage	V_{IN_TYP}	240	Vac
Min AC Input Voltage	V_{IN_MIN}	85	Vac
Max AC Input Voltage	V_{IN_MAX}	264	Vac
Power Supply Frequency	f_{IN}	50	Hz
Output Voltage	V_{OUT}	30	V
Output Current	I_{OUT}	1	A
Output Voltage Accuracy	V_{OUT_TACC}	5	%
Output Voltage Ripple	V_{ripple}	0.2	Vp-p
Switcing Frequency	f_{SW}	100	kHz
Vcc OVP		AutoRestart	
Voltage Margin	V_{Margin}	70	%
Current Margin	I_{Margin}	50	%
Min CTR	CTR_{MIN}	50	%
Light Load Efficiency	η	80	%
Peak Efficiency	η_{PK}	85	%
Brownout		Yes	
Starting Voltage	V_{start}	75	Vac
Brownout Circuit Current	I_{BR}	2.5E-05	A

IC Specification

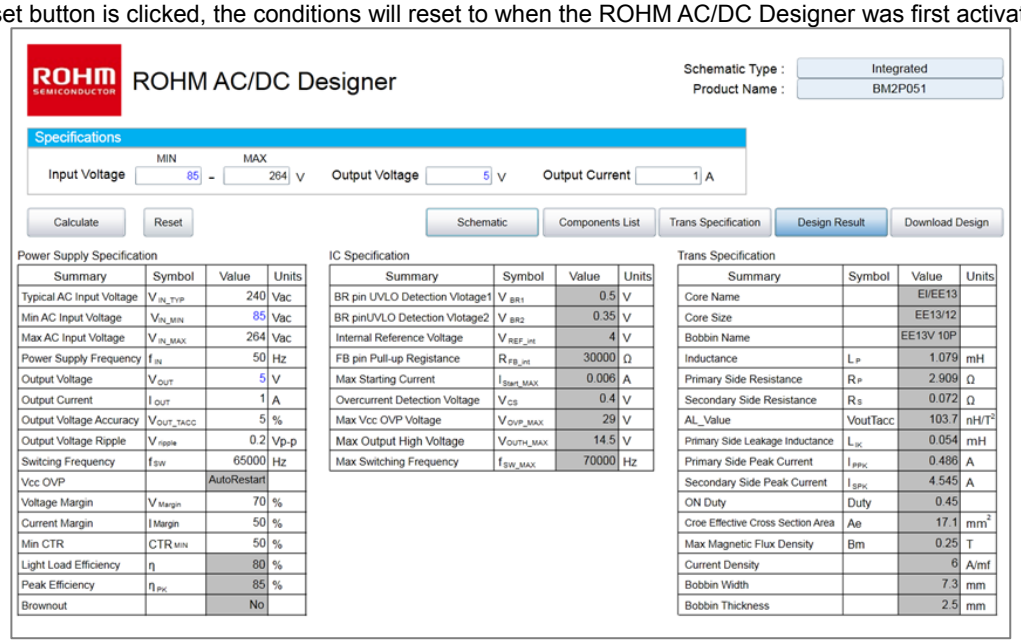
Summary	Symbol	Value	Units
BR pin UVLO Detection Vlotage1	V_{BR1}	1	V
BR pinUVLO Detection Vlotage2	V_{BR2}	0.7	V
Internal Reference Voltage	V_{REF_int}	4	V
FB pin Pull-up Registance	R_{FB_int}	30000	Ω
Max Starting Current	I_{Start_MAX}	0.006	A
Overcurrent Detection Voltage	V_{CS}	0.4	V
Max Vcc OVP Voltage	V_{OVP_MAX}	29	V
Max Output High Voltage	V_{OUTH_MAX}	14.5	V
Max Switching Frequency	f_{SW_MAX}	70000	Hz

Trans Specification

Summary	Symbol	Value	Units
Core Name		EI/EE22	
Core Size		EE13/12	
Bobbin Name		EE13V 10P	
Inductance	L_P	0.713	mH
Primary Side Resistance	R_P	0.244	Ω
Secondary Side Resistance	R_S	0.124	Ω
AL_Value		137.6	nH/T^2
Primary Side Leakage Inductance	L_{IK}	0.036	mH
Primary Side Peak Current	I_{PPK}	2.545	A
Secondary Side Peak Current	I_{SPK}	4.545	A
ON Duty	Duty	0.45	
Croe Effective Cross Section Area	Ae	37	mm^2
Max Magnetic Flux Density	Bm	0.25	T
Current Density		6	A/mf
Bobbin Width		8.3	mm
Bobbin Thickness		4	mm

3.6 Reset

When the Reset button is clicked, the conditions will reset to when the ROHM AC/DC Designer was first activated.



Power Supply Specification

Summary	Symbol	Value	Units
Typical AC Input Voltage	V_{IN_TYP}	240	Vac
Min AC Input Voltage	V_{IN_MIN}	85	Vac
Max AC Input Voltage	V_{IN_MAX}	264	Vac
Power Supply Frequency	f_{IN}	50	Hz
Output Voltage	V_{OUT}	5	V
Output Current	I_{OUT}	1	A
Output Voltage Accuracy	V_{OUT_TACC}	5	%
Output Voltage Ripple	V_{ripple}	0.2	Vp-p
Switching Frequency	f_{SW}	65000	Hz
Vcc OVP		AutoRestart	
Voltage Margin	V_{Margin}	70	%
Current Margin	I Margin	50	%
Min CTR	CTR_{MIN}	50	%
Light Load Efficiency	η	80	%
Peak Efficiency	η_{PK}	85	%
Brownout		No	

IC Specification

Summary	Symbol	Value	Units
BR pin UVLO Detection Vlotage1	V_{BR1}	0.5	V
BR pinUVLO Detection Vlotage2	V_{BR2}	0.35	V
Internal Reference Voltage	V_{REF_int}	4	V
FB pin Pull-up Registance	R_{FB_int}	30000	Ω
Max Starting Current	I_{Start_MAX}	0.006	A
Overcurrent Detection Voltage	V_{CS}	0.4	V
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Trans Specification

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Core Name		EI/EE13	
Core Size		EE13/12	
Bobbin Name		EE13V 10P	
Inductance	L_P	1.079	mH
Primary Side Resistance	R_P	2.909	Ω
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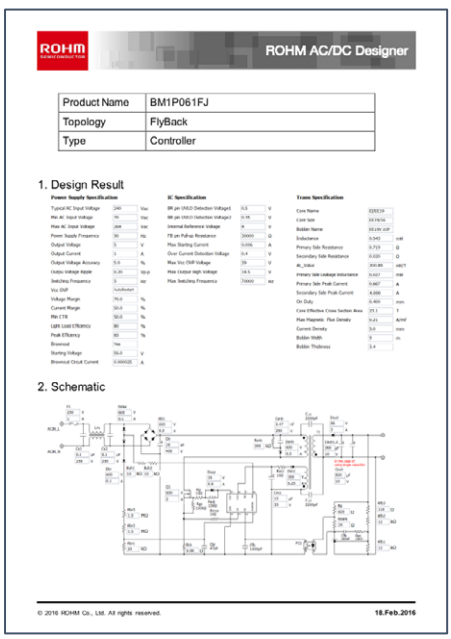
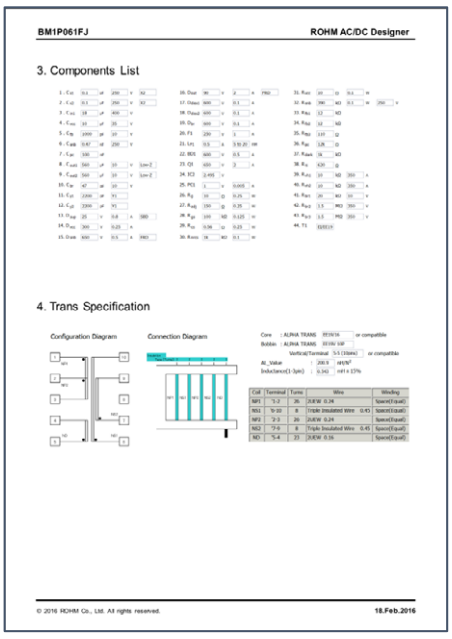
AL_Value	VoutTacc	103.7	nH/T^2
Primary Side Leakage Inductance	L_{IK}	0.054	mH
Primary Side Peak Current	I_{PPK}	0.486	A
Secondary Side Peak Current	I_{SPK}	4.545	A
ON Duty	Duty	0.45	
Croe Effective Cross Section Area	Ae	17.1	mm^2
Max Magnetic Flux Density	Bm	0.25	T
Current Density		6	A/mf
Bobbin Width		7.3	mm
Bobbin Thickness		2.5	mm

3.7 Download the material for the designing

When "Download Design" is clicked, it will move on to creating a PDF file of the output results.
When it finishes creating the PDF file, a PDF name will be shown, and by clicking the Download button the PDF file could be downloaded.

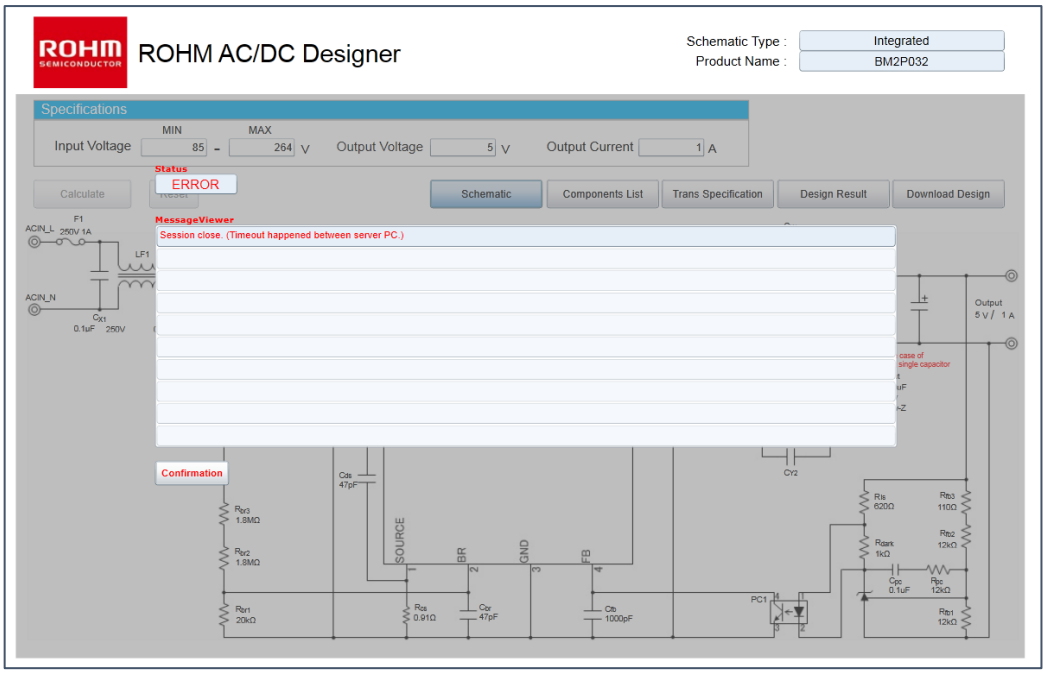




4. Troubleshooting

When an error occurs during the operation of the ROHM AC/DC Designer, an error page will be shown.
By clicking the "Confirmation" button, the error page will close.

Error page



■Error List

Type	Error Message	Method of dealing
ERROR	The channel for the simulation doesn't remain.	The access number to the ROHM DC/DC Designer has exceeded the limit. Please access again after giving it a little while.
ERROR	Session close. (Timeout happened between server PC.)	This is a condition when there was no action operated for a fixed time. Please reload the browser, or attempt to access the page again.
ERROR	URL is incorrect	The Login information was not effective, and the URL is incorrect. Please Login again.
Warning	Setting has been changed. Please run the simulation.	This occurs when performing "Download Design" instead of "Simulate" after changing the value. Please perform "Simulate".

5. Exemption Clause

Please read the exemption clause before using the ROHM DC/DC Designer.
The exemption clause can be seen by clicking the URL below.

http://rohmfs.rohm.com/en/products/databook/disclimer/ic/tech_info/disclaimer_for_lsiwebtool-e.pdf

6. Supplementary Note

■When using the proxy search engine, please enable the web browser setting to HTTP1.1.
When using Windows Internet Explorer, please enable all HTTP1.1, from Menu Bar>Tools>Internet Option>Advanced Settings.

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   (Note1) Medical Equipment Classification of the Specific Applications

JAPAN	USA	EU	CHINA
CLASSⅢ	CLASSⅢ	CLASSⅡb	CLASSⅢ
CLASSⅣ		CLASSⅢ	

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