ROHM's Online Tool

ROHM LDO Finder User's Guide

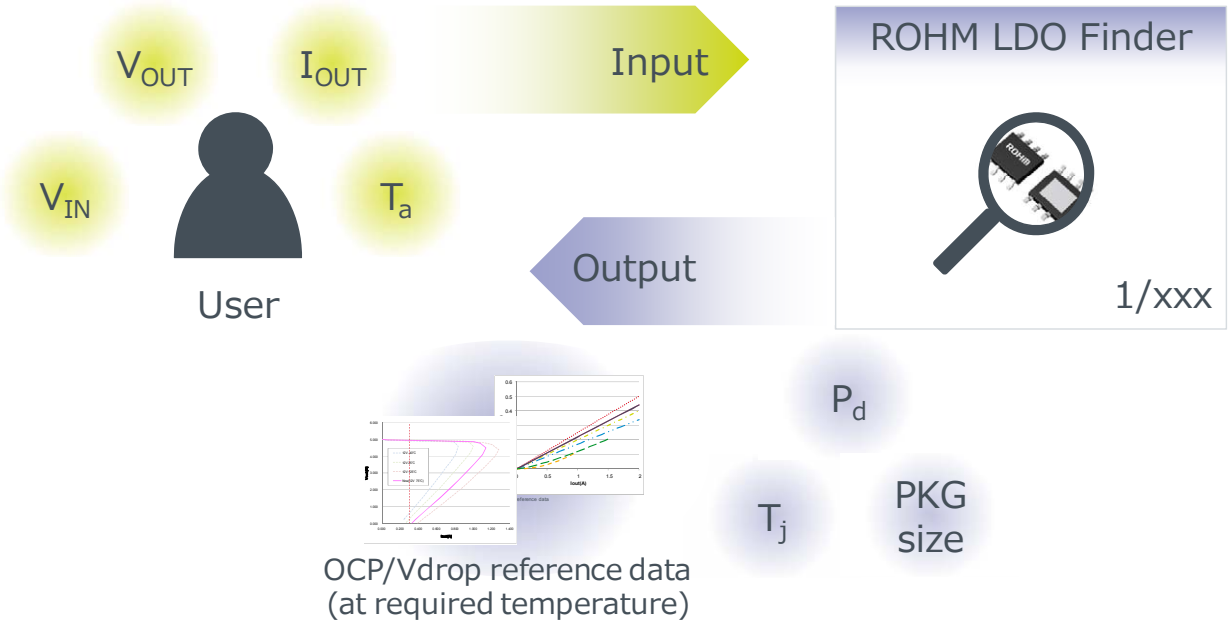
● Table of Contents

1. What is ROHM LDO Finder?

1.1 Outline

ROHM LDO Finder is an online tool that allow circuit designers searching for an IC of Linear regulator to easily find a uitable Linear regulator.

ROHM LDO Finder can compare "I_{OUT} vs. V_{OUT}" graph (means OCP) and minimum dropout voltage (means V_{drop}) to up to six products simultaneously. In addition, it implements simple calculation to display Junction temperature(Tj) and Power dissipation(Pd) on the required conditions.



1.2 Default Language

The default language of ROHM LDO Finder is English. Only the MyROHM user registration and user authentication screens can be displayed in other languages (i.e. Japanese).

1.3 Applicable Products

- Single-Output LDO Regulators
- Standard Voltage Regulators
- ROHM LDO Finder will continue adding new products and series

1.4 Notes

- The results provided by ROHM LDO Finder are based on experimental results using ROHM evaluation boards and cannot be guaranteed. In addition, the results by ROHM LDO Finder offers reference results, not guaranteed results.
- ROHM LDO Finder specifications are subject to change without notice.

1.5 Questions/Comments

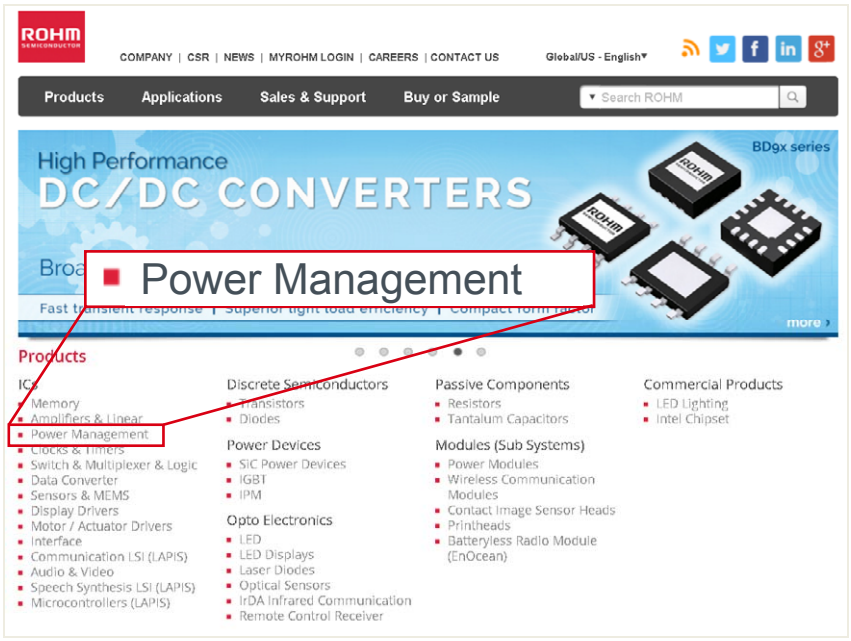
For inquiries and/or comments, please contact us at: https://www.rohm.com/web/global/contactus

2. Access Method

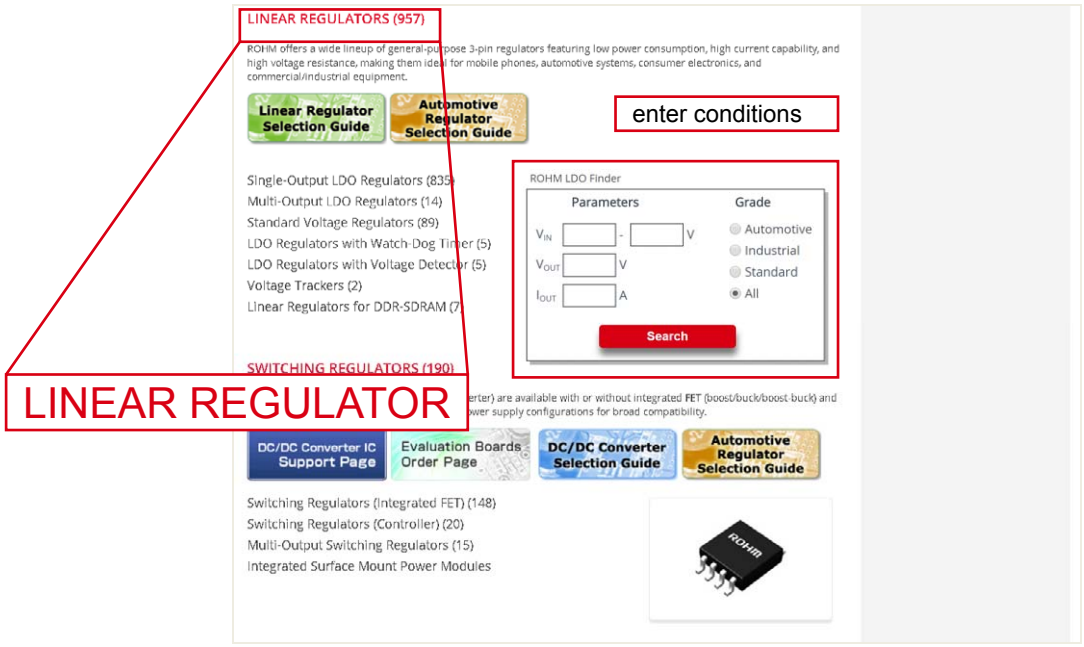
ROHM LDO Finder can be accessed using as follow:
- From ROHM's homepage (http://www.rohm.com) (2.1)

2.1 From ROHM's homepage (http://www.rohm.com)

■ Homepage



■ ROHM LDO Finder's "Entrance"
(http://www.rohm.com/web/global/groups/-/group/groupname/Power%20Management)



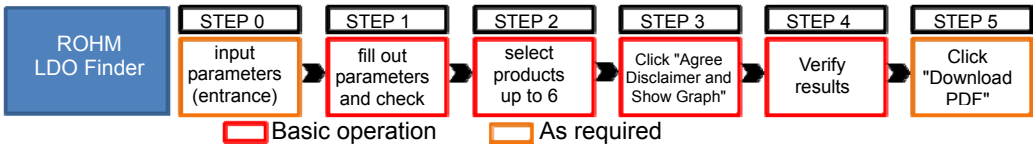
3. Usage Instructions

3.1 Enter the user conditions at "Entrance"

Start ROHM LDO Finder as described on page 3.

3.2 Setting parameters (parametric search)

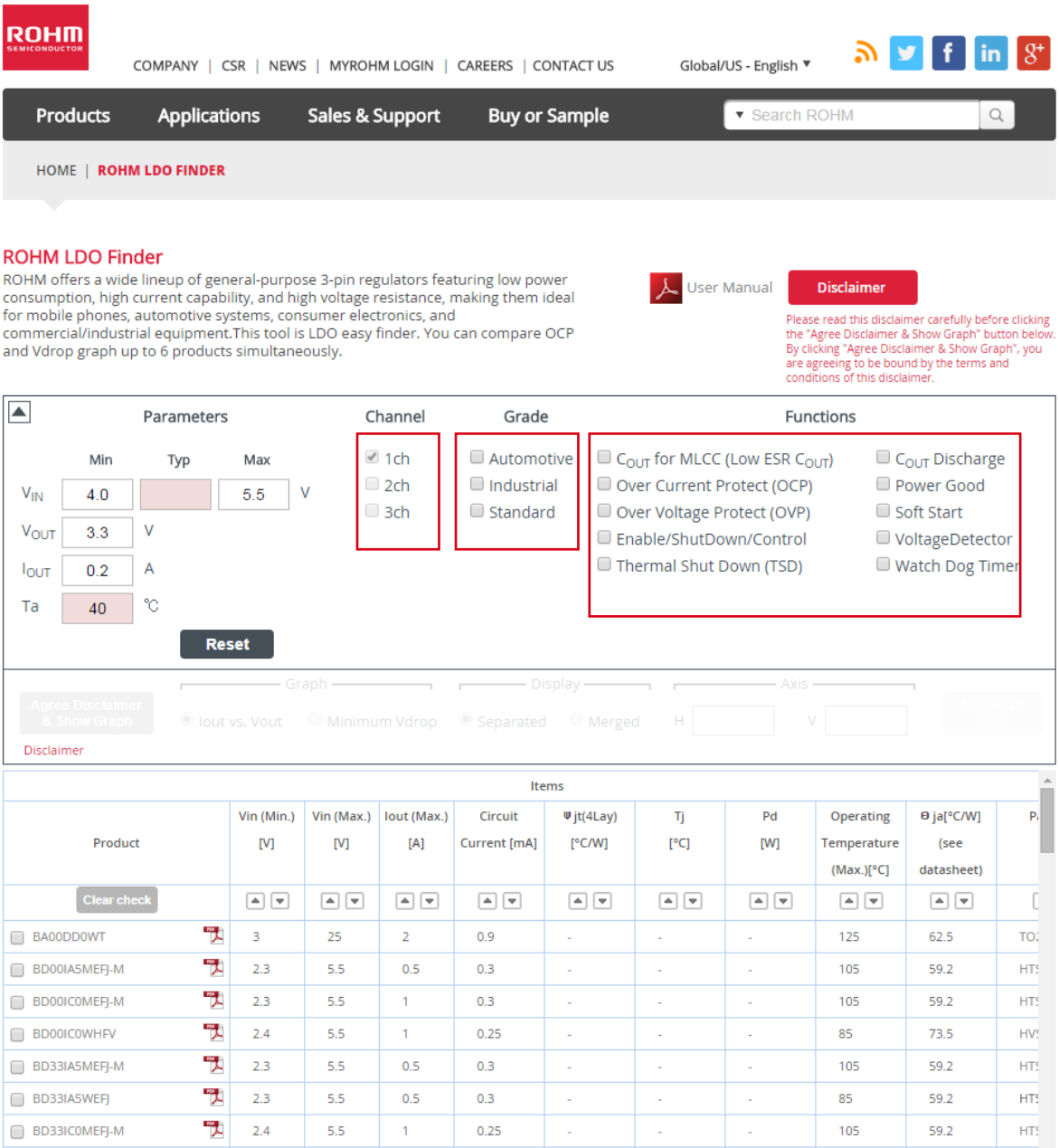
The basic design flow is as follow (with some possible omissions of intervening steps)



STEP 1

3.2.1 Select Channel, Grade and Functions

Check the boxes you required. After having checked it, parametric search works.



3.2.2 Enter more detail required conditions

Enter the following parameters,

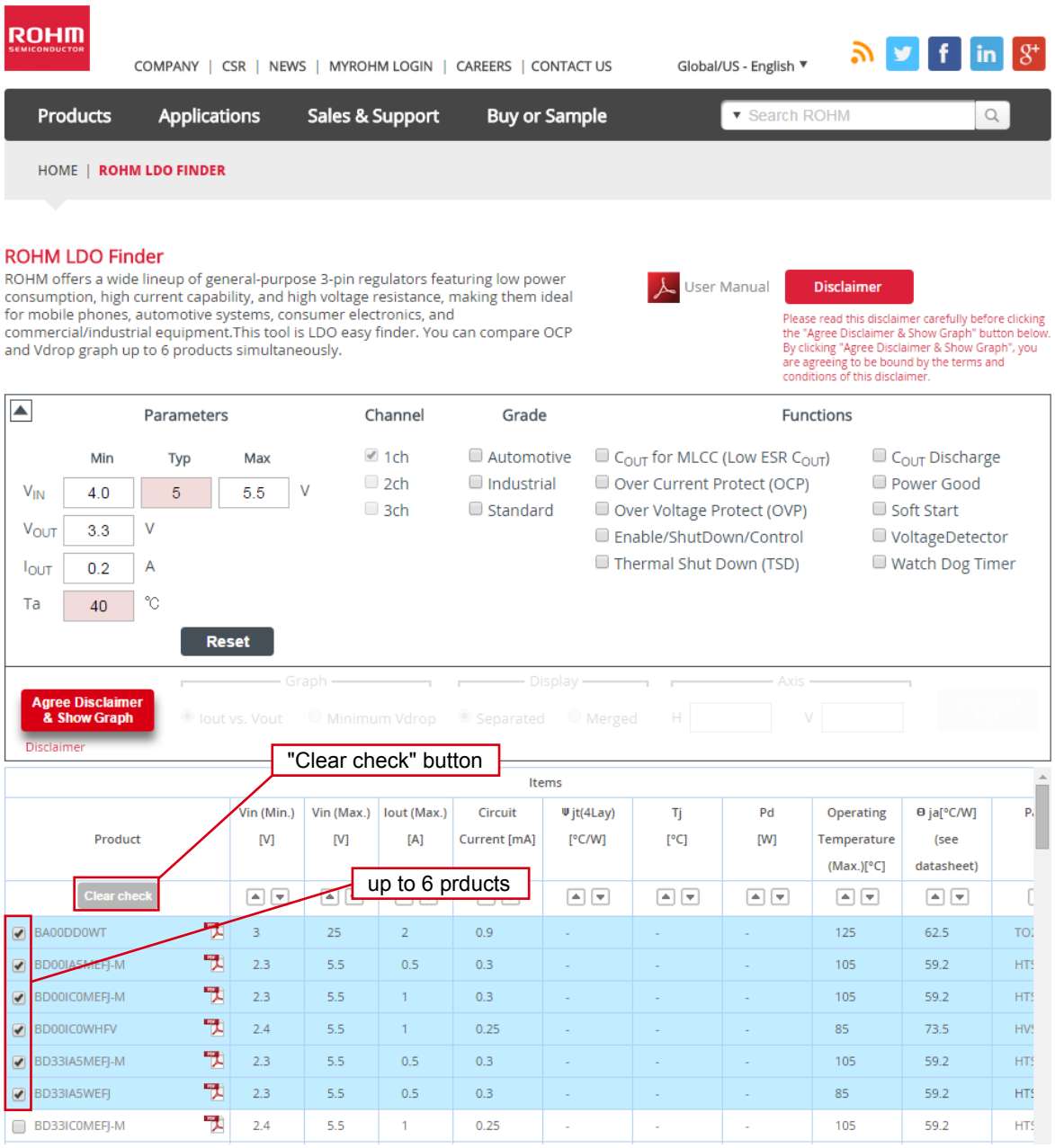
V_{IN} : narrowing by recommended operating input voltage range
("Typ" is used after the "Agree Disclaimer & Show Graph")
V_{OUT} : narrowing by required output voltage
I_{OUT} : narrowing by recommended maximum output current range
Ta : narrowing by recommended operating temperature
(This is used on calculation of junction temperature (Tj) and maximum power dissipation (Pd(max)) based on θ_{ja})

After entering the above parameters, parametric search works.

STEP 2

3.2.3 Select products (up to 6 products)

After narrowing products by input parameters and select functions, please check the box of products you'd like to compare to characteristic.
You can select up to 6 products. After selecting it, a button ,"Agree Disclaimer & Show Graph", will be enabled. When you'd like to clear all checked box at products, click "Clear check" button. In addition, the check boxes grayed out is disabled to check. You cannot select it.



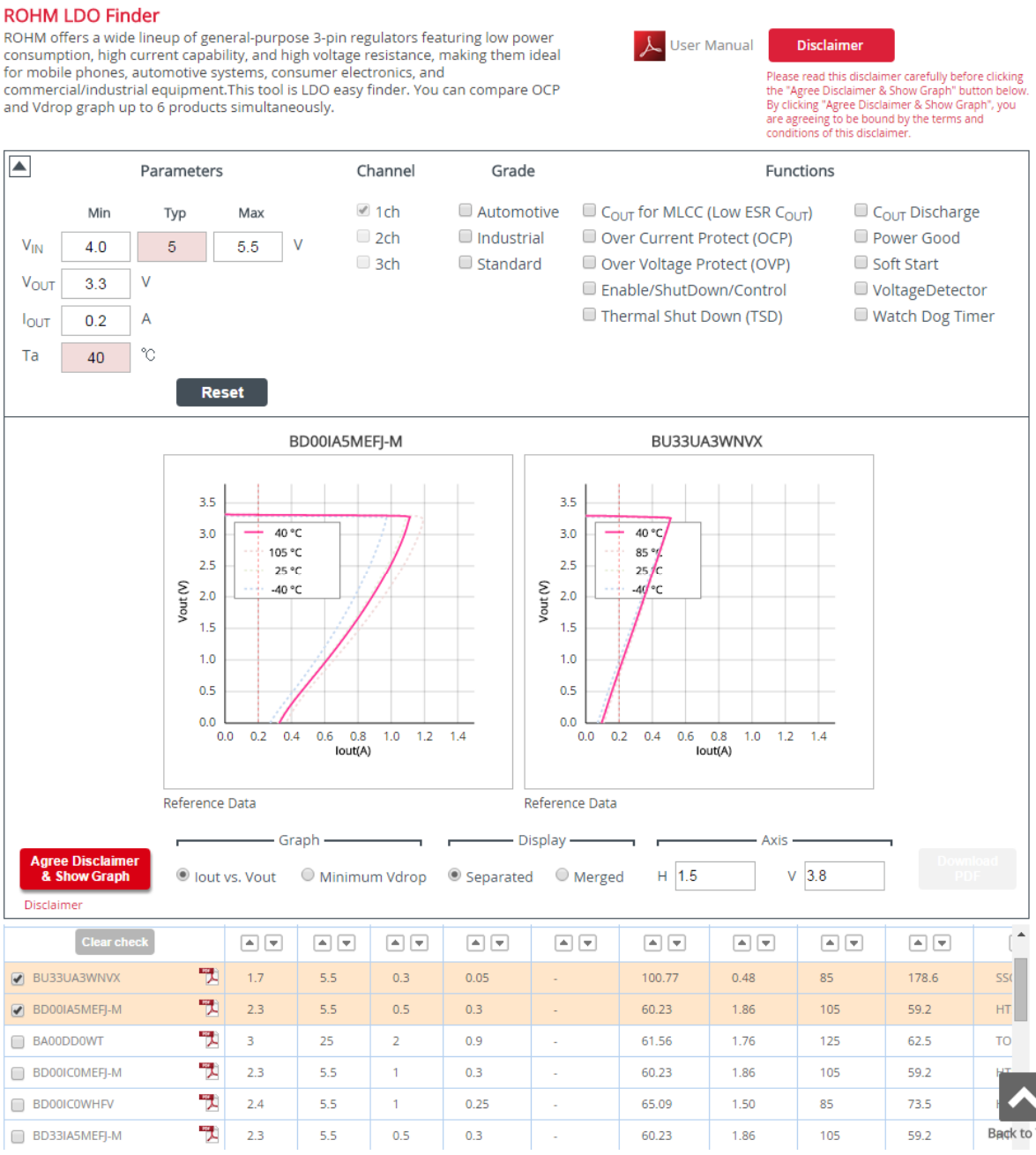
STEP 3

3.2.4 Click "Agree Disclaimer & Show Graph" button (after reading Disclaimer carefully)

You can click "Agree Disclaimer & Show Graph" button after selecting products' check box.

After clicking "Agree Disclaimer & Show Graph" button, ROHM LDO Finder shows OCP & V_{drop} graph at required onditions. You can compare to those graph you selected before.

Caution : Read disclaimer carefully before clicking the "Agree Disclaimer & Show Graph" button.



3.2.5 Reset setting conditions

When you'd like to reset all conditions (parameters, checked box, shown graphs), please click the "Reset" button.

STEP 4

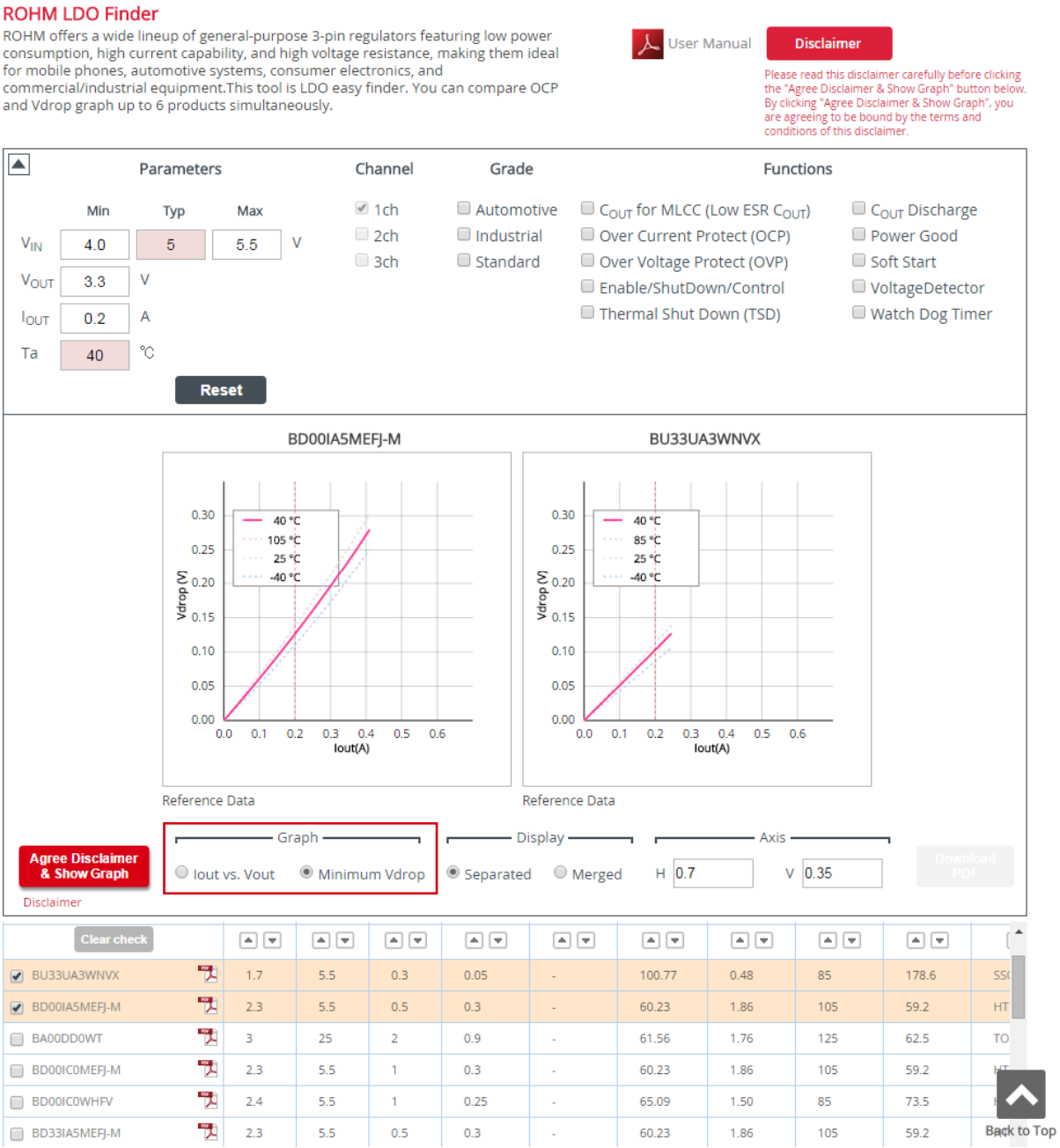
3.3 Check the results

Here, it is described that how to use some functions and buttons.
You can check the following results using buttons.

- I_{OUT} vs. V_{OUT} characteristics (OCP)
- Minimum dropout voltage (V_{drop})
- Junction temperature and maximum power dissipation (based on θ_{ja})

3.3.1 Radio button in "Graph"

After clicking the "Agree Disclaimer and Show Graph", ROHM LDO Finder displays OCP graph at first. When you'd like to check the minimum dropout voltage, you can switch displayed graph to "minimum Vdrop" by clicking radio button in "Graph".



3.3.2 Radio button in "Display"

After clicking button of the "Agree Disclaimer and Show Graph", you can switch 2 ways for checking graph.

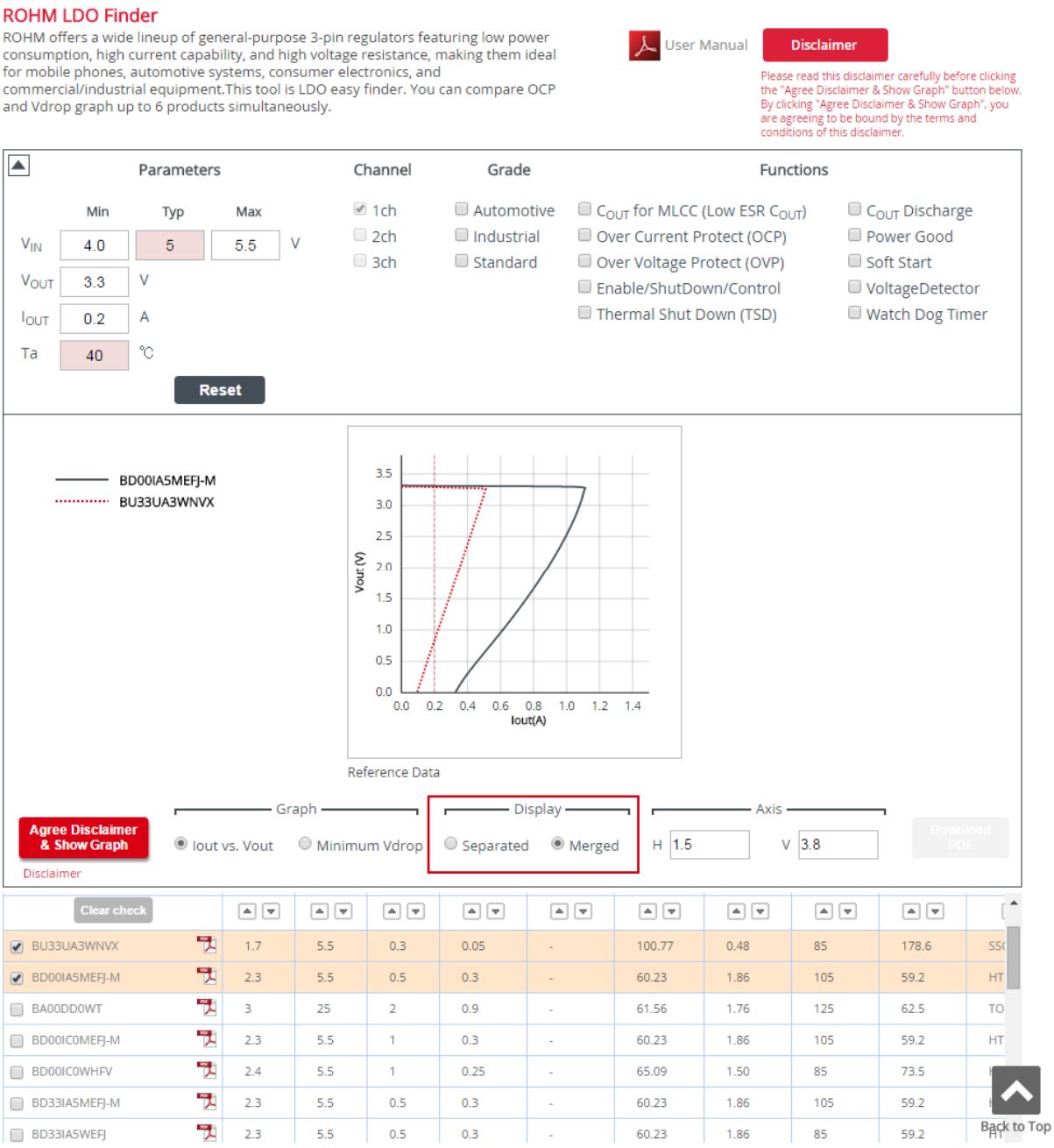
1) Separated

This shows 4 graph lines in each graph block. It differs temperature at each lines and has 4 type as follow.

pink - at user input temperature
light red - at recommended highest operating temperature range
light green - at typical temperature (25°C mainly)
light blue - at recommended lowest operating temperature range

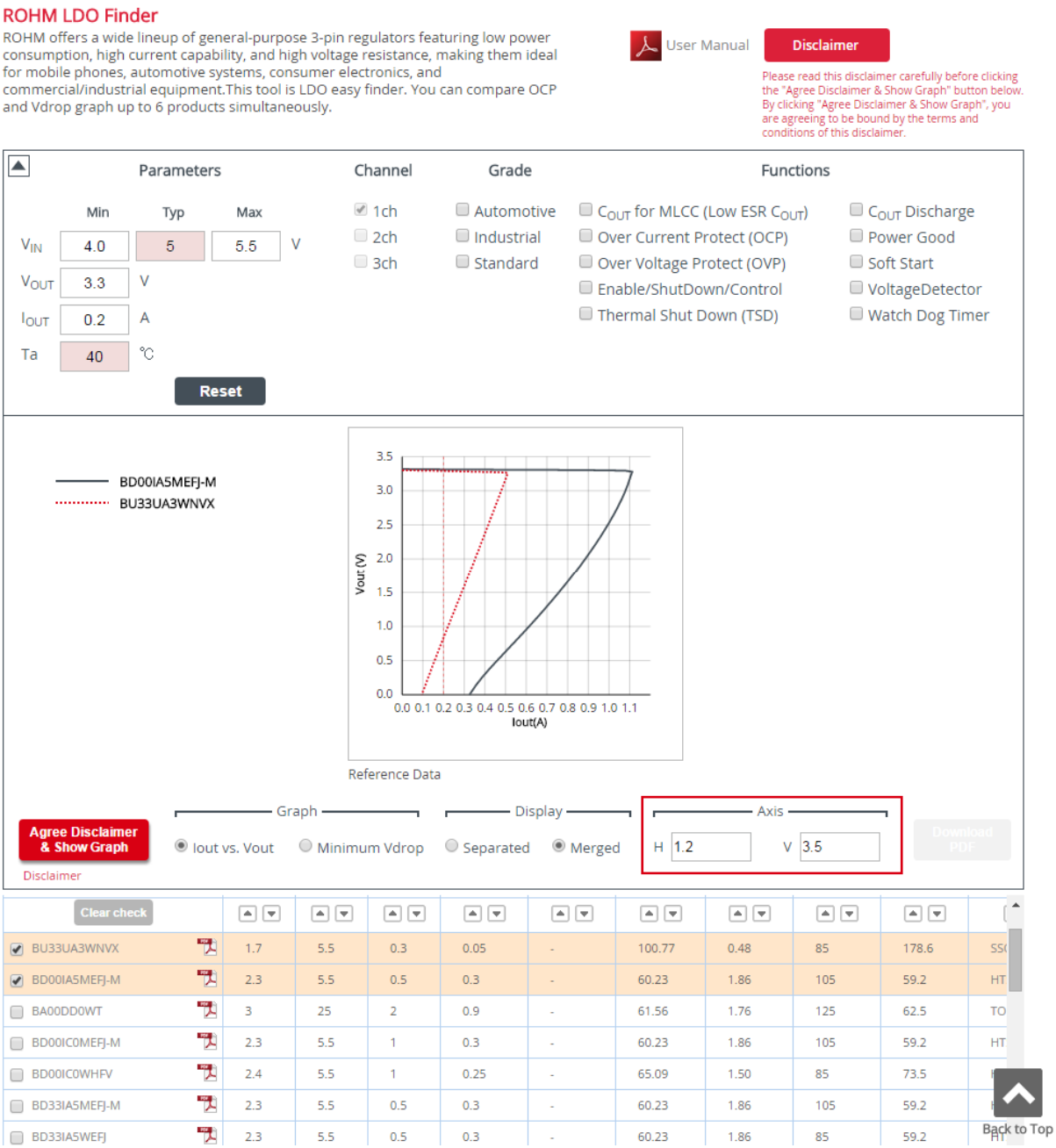
2) Merged

This shows only user input temperature. And if you selected at least 2 products, it will be shown merged graph on the same graph area.



3.3.3 Input box in "Axis"

This input box can change axis for all graphs. Here, the "H" changes horizontal axis maximum range, and the "V" changes vertical axis maximum range.



3.3.4 Calculation of junction temperature (Tj) and maximum power dissipation (Pd(max)) (based on θja)

After clicking button of the "Agree Disclaimer and Show Graph", column of Tj [°C] and Pd(max)[W], that is in the parametric search area, is calculated based on θ_{ja}.
Here shows a result about data in case of existing θ_{ja} on the parametric search.

These results are calculated by following expression.

$Tj = Ta + \theta_{ja} * P$ ($P = (V_{IN} - V_{OUT}) * I_{OUT} + (V_{IN} * I_{IN})$)

$Pd(max) = Pd(max)_{@25°C} - (Ta - 25) / \theta_{ja}$ ($Ta > 25°C$)

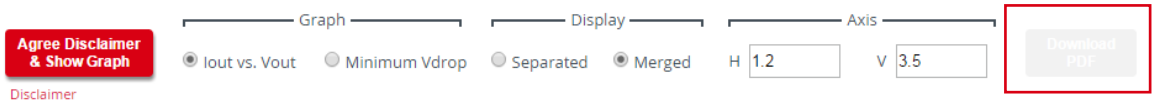
If the column Ψ_{JT} has a value, you can calculate nearer actual junction temperature.
Please refer to following URL:

http://rohmfs.rohm.com/en/products/databook/applinote/ic/power/switching_regulator/thermal_resistance_appli-e.pdf

Caution: In ROHM LDO Finder, a shown θ_{ja} is using one of value in the datasheet. In case you need other θ_{ja}, please refer datasheet of respective products.

3.3.5 Download PDF (screenshot)

After optimizing the graph setting (refer to 3.3.1 - 3.3.3), you can download 4 graphs' (Graph 2 patterns x Display 2 patterns) screenshot by clicking the button "Download".



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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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