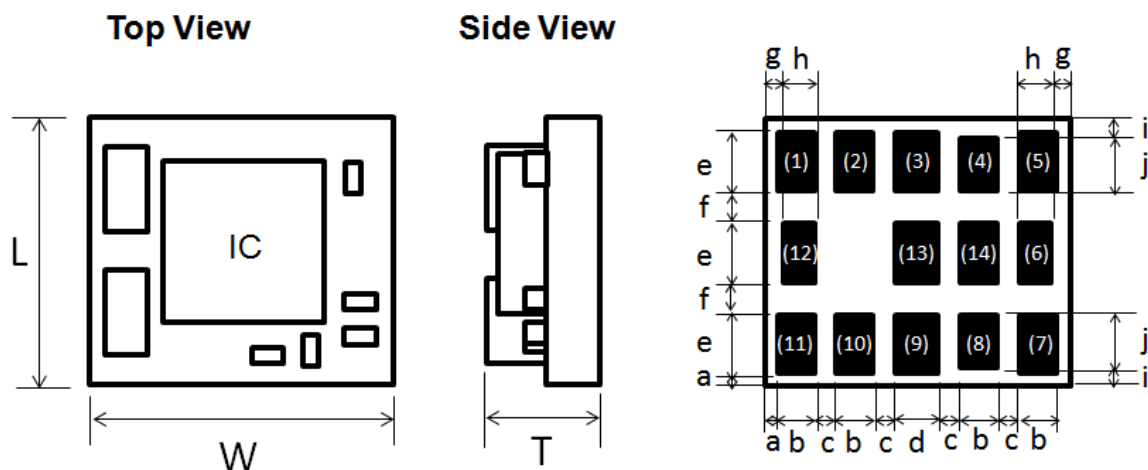


1. Features

- Small footprint Buck converter for up to 1.5A output current application
- Low EMI noise by using an inductor-embedded ferrite substrate
- Max Input voltage range : 4.0V to 14.0V
- User Adjustable Output voltage : 0.8 to 5.3V
- PWM/PFM mode
- Power-Good function ,Over current protection, Over temperature protection

2. Mechanical details



Unit:(mm)

Mark	Dimension	Mark	Dimension
L	5.0 +/- 0.2	e	1.1
W	5.7 +/- 0.2	f	0.6
T	2.1 MAX	g	0.35
a	0.25	h	0.6
b	0.7	i	0.35
c	0.4	j	1.0
d	0.8		

Pin configuration

Pin No.	Symbol	I/O	Description
1	EN	Input	ON/OFF control pin H: Enabled, L: Disabled
2	NC	-	No connection
3,4,5	Vin	Input	Power supply voltage Input pin
6,12,13,14	GND	-	GND pin
7,8,9	Vout	Output	Regulated voltage output pin
10	PG	Output	Power good voltage output pin (Open drain)
11	FB	Input	External resistor connection pin for output voltage setting

3. Electrical Specification

3-1 Absolute maximum ratings

Parameter	symbol	rating	Unit
Maximum power supply voltage	Vin	16	V
Maximum EN pin voltage	VEN	Vin	V
Maximum PG pin voltage	VPG	6	V
Maximum FB pin voltage	VFB	6	V
Operating temperature	TOP	-40 to +85	°C
Storage temperature	TSTR	-40 to +85	°C

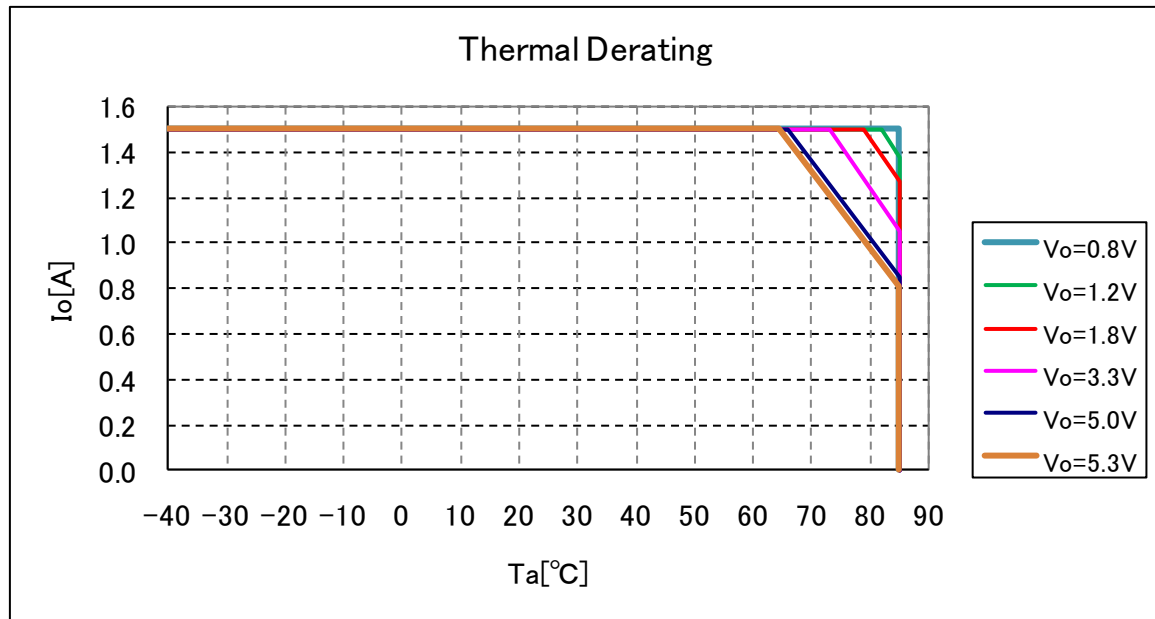
3-2 Electrical characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Input voltage	Vin		4		14	V
Output voltage range	Vout		0.8		5.3	V
UVLO	UVLO	Vin Falling	2.6	2.7	2.8	V
		Hysteresis		200		mV
Output voltage accuracy	Vacc	PWM mode	-3.0		+3.0	%
Load current range	Iout		0		1500	mA
Over current protection	OCP	Auto-recovery	1500		3500	mA
Ripple voltage	Vrpl	Vin=12.0V, RFB=1.31kohm, (Vout=3.3V) Iout=1000mA, BW=100MHz		20		mV
Efficiency	EFF	Vin=12.0V, RFB=1.31kohm, (Vout=3.3V) Iout=1000mA, BW=100MHz		87		%
EN control voltage	VENH	ON ; Enable	0.9		Vin	V
	VENL	OFF ; Disable	0		0.3	V
Power good threshold	PGTHH	Output voltage rising		95		%
	PGTHL	Output voltage falling		90		%
Power good sink current	IPG				2	mA
External output capacitor(*1)	Cout		22		150	uF

(*1) External capacitors ($C_{out} \geq 22\mu F$) shall be placed near the module in order to proper operation.

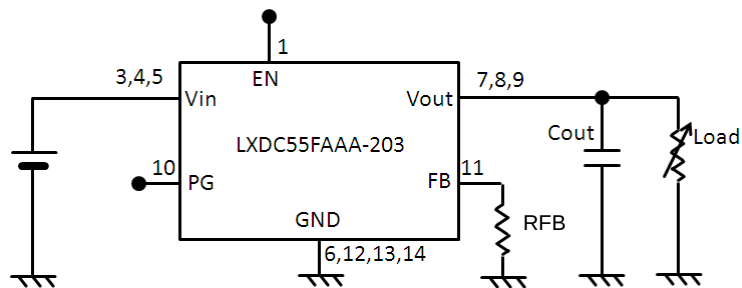
(*2) The above characteristics are tested using the application circuit on section 4.

3-3 Output Current Derating (Vin=12V)



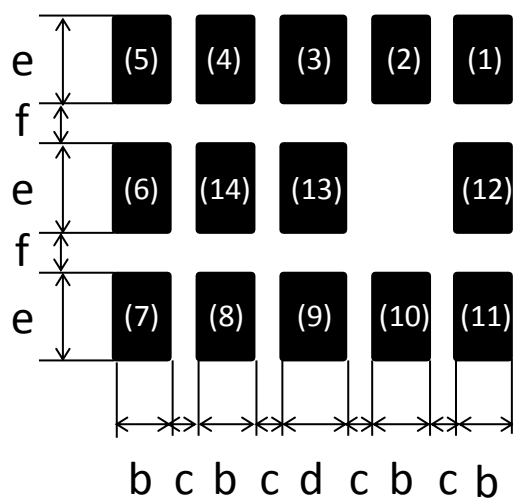
Note: This thermal derating data is measured on Murata evaluation board and reference only.
The temperature of the module depends on PCB design and peripheral components.
Please keep the module temperature under 105 °C on your board.

4. Application Circuit



COUT: GRM21BB30J226 (22uF/6.3V MLCC)

5. Reference Land Pattern



unit (mm)

Mark	Dimension
b	0.7
c	0.4
d	0.8
e	1.1
f	0.6

6. Output Voltage adjustment

Output voltage can be adjusted by using a resistor (RFB) between FB pin and GND pin.

$$RFB = 7.29 / (V_{out} - 0.8V) - 1.6 \text{ [kohm]}$$

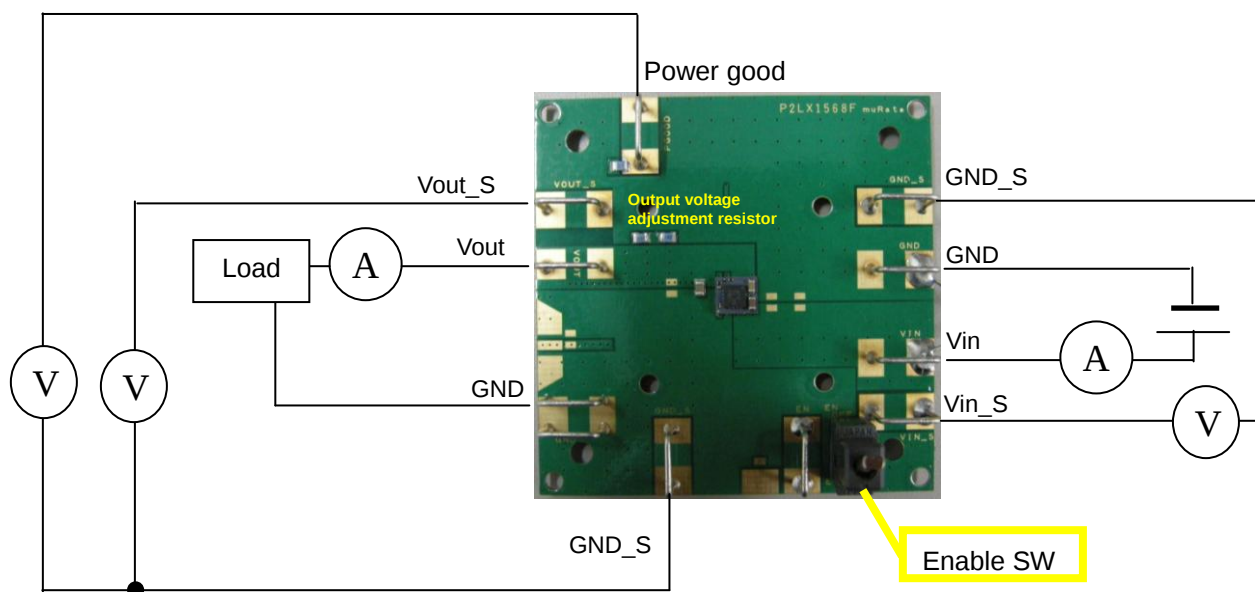
RFB Example

Vout(V)	RFB(kohm)	Vout(V)	RFB(kohm)
0.8	OPEN	3.0	1.71
1.2	16.62	3.3	1.31
1.5	8.81	3.6	1.00
1.8	5.69	3.9	0.751
2.5	2.68	5	0.135

7. Typical Electric Performance (reference purpose only) (Ta=25°C)

Micro DCDC Converter evaluation board (P2LX1568F)

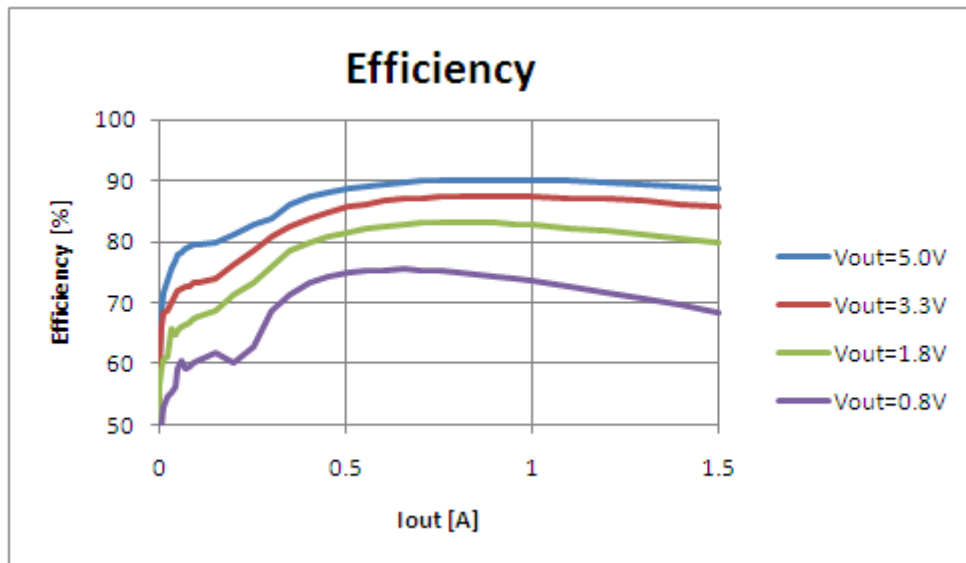
Measurement setup



*** Evaluation board initial output Voltage setting : 3.3V (resistor : 1.3k Ω + 12 Ω)**

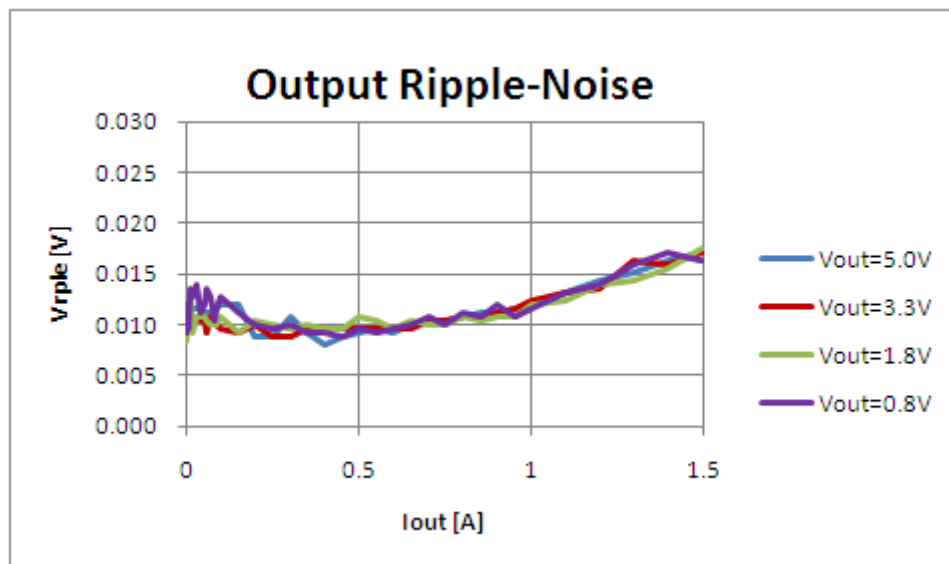
Efficiency

$V_{in}=12.0V$,



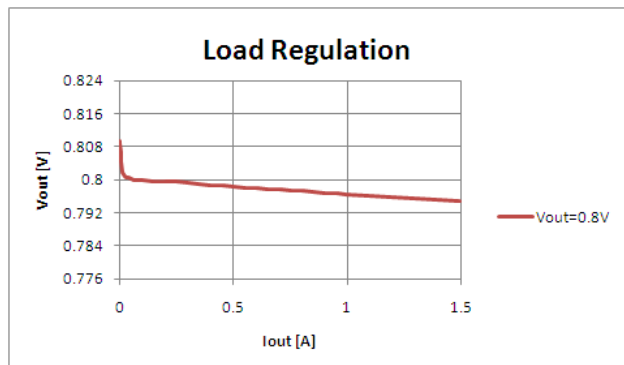
Output Ripple-Noise

$V_{in}=12.0V$, BW : 100MHz

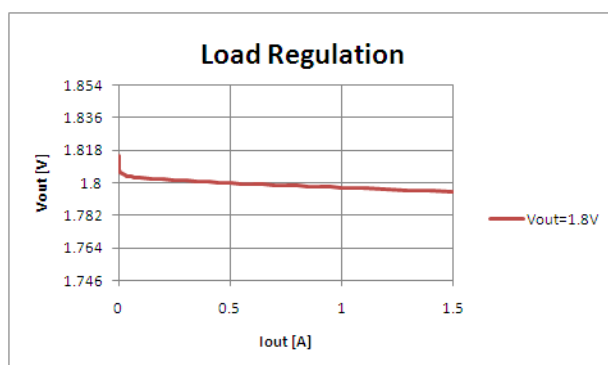


Load Regulation

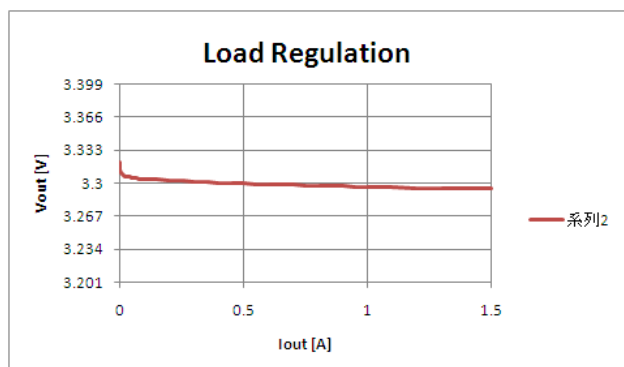
Vin=12.0V, Vout=0.8V



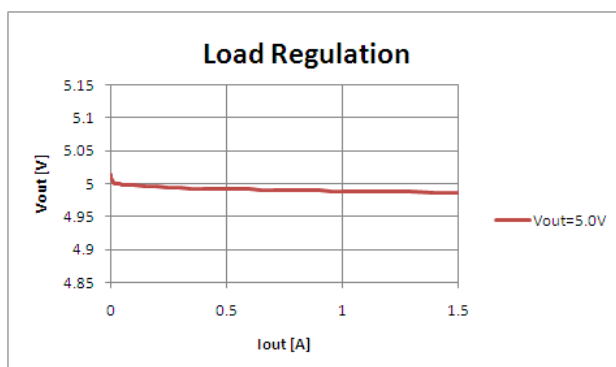
Vin=12.0V, Vout=1.8V



Vin=12.0V, Vout=3.3V



Vin=12.0V, Vout=5.0V



Note:

1. This datasheet's specifications are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before ordering.
2. This datasheet has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.