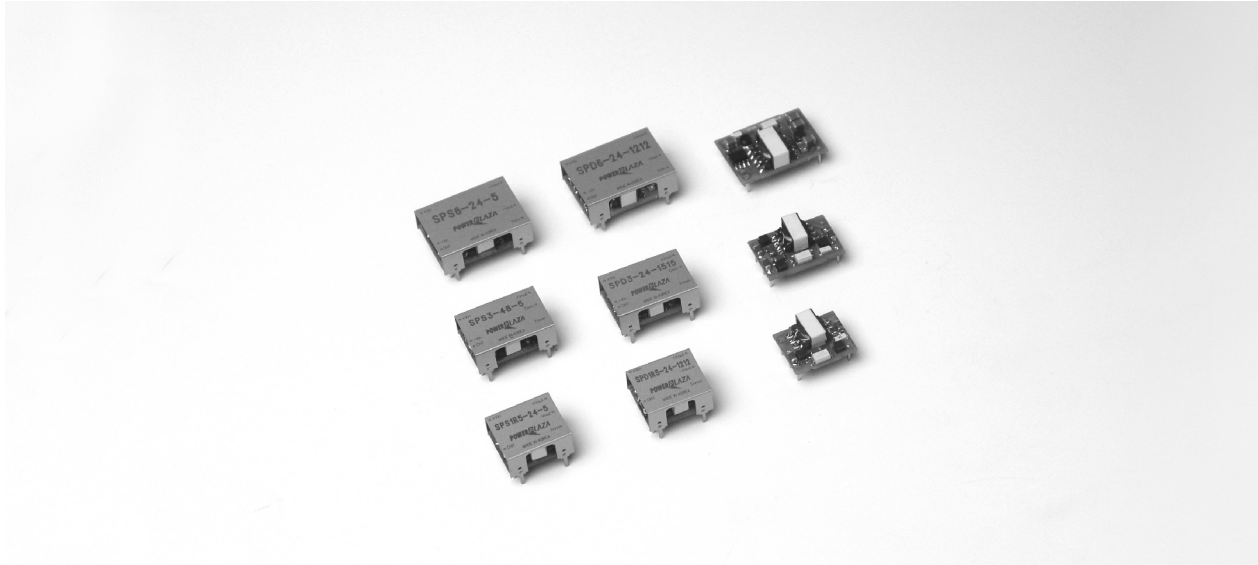
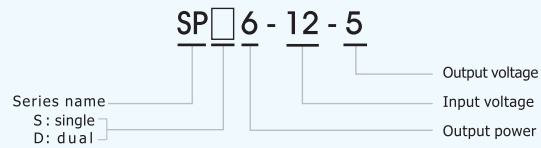


SMALL SIZE ISOLATED DC-DC CONVERTER (SPS series)



Ordering Information







INPUT DC 4.5V - 9V, 9V - 18V, 18V - 36V, 36V - 76V

OUTPUT 3.3V, 5V, 12V, 15V, ±12V, ±15V

Features

- RoHS directive compliance
- High efficiency
- Wide operating temperature range (-40 °C ~ +85 °C)
- Small size & Light weight
- Wide 2:1 input range
- Built - in overcurrent protection circuit
- Input - Output Isolated
- Remote on/off control (Except - 1.5W series)
- Trimmable output voltage (single output)
- Open case type
- Long Life Design (employ only ceramic capacitor)
- Safety : UL, CE(pending)
- 5 years warranty

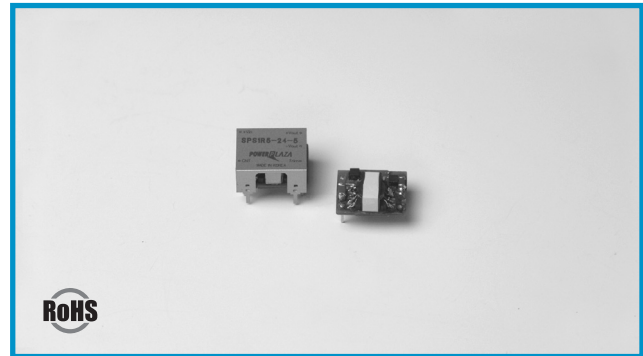
SPS SERIES

Series Name	Input Voltage	Output1 () : 5V Input	Output2	Model	Page
SPS1R5 	5V (4.5 ~ 9.0) 12V (9.0 ~ 18.0) 24V (18.0 ~ 36.0) 48V (36.0 ~ 76.0)	3.3V / 0.4A 5.0V / 0.3A 12.0V / 0.13A 15.0V / 0.1A		SPS1R5	9
		12.0V / 0.065A 15.0V / 0.05A	-12.0V / 0.065A -15.0V / 0.05A	SPD1R5	
SPS3 	5V (4.5 ~ 9.0) 12V (9.0 ~ 18.0) 24V (18.0 ~ 36.0) 48V (36.0 ~ 76.0)	3.3V / 0.60A 5.0V / 0.60A 12.0V / 0.25A 15.0V / 0.20A		SPS3	11
		12.0V / 0.13A 15.0V / 0.1A	-12.0V / 0.13A -15.0V / 0.1A	SPD3	
SPS6 	5V (4.5 ~ 9.0) 12V (9.0 ~ 18.0) 24V (18.0 ~ 36.0) 48V (36.0 ~ 76.0)	3.3V / 1.5A (1.2A) 5.0V / 1.2A (1.0A) 12.0V / 0.5A 15.0V / 0.4A		SPS 6	13
		12.0V / 0.25A 15.0V / 0.20A	-12.0V / 0.25A -15.0V / 0.20A	SPD 6	
SPS10 	5V (4.5 ~ 9.0) 12V (9.0 ~ 18.0) 24V (18.0 ~ 36.0) 48V (36.0 ~ 76.0)	3.3V / 2.5A 5.0V / 2.0A (1.6A) 12.0V / 1.0A (0.8A) 15.0V / 0.8A(0.64A)		SPS 10	Preliminary
		12.0V / 0.50A(0.35A) 15.0V / 0.40A(0.28A)	-12.0V / 0.50A(0.35A) -15.0V / 0.40A(0.28A)	SPD 10	

SPS1R5

Small size Isolated DC/DC Converters

Total power 1.5 Watts
Input voltages 5V, 12V, 24V, 48V
#of outputs Single, Dual output



SPECIAL FEATURES

- High efficiency
- Wide operating temperature range (-40°C ~ +85°C)
- Small size & Light weight
- Wide 2:1 input range
- Built - in over current protection circuit
- Input - Output Isolated
- Trimmable output voltage (single output)
- Open case type
- Long Life Design (employ only ceramic capacitor)
- 5years warranty

ENVIRONMENTAL

- Operating temperature range -40°C ~ 85°C
- Storage temperature range -40°C ~ 105°C
- Operating humidity (non condensing) 5% ~ 95%
- Storage humidity (non condensing) 5% ~ 95%
- Cooling method convection, forced air
- MTBF 9×10^5 hrs
- Safety UL(pending)
CE(pending)

ELECTRICAL SPECIFICATIONS

INPUT

- Input range DC 4.5V - 9V, 9V - 18V, 18V - 36V, 36V - 76V
- Efficiency 73% - 81%
- Remote on/off on : short to - Vin
off : open

OUTPUT

- Voltage tolerance $\pm 2\%$ (Single)
 $\pm 3\%$ (Daul)
- Line Reg $\pm 0.5\%$
- Load Reg $\pm 1\%$
- Ripple & Noise 1% of Vout (Bandwidth : 20MHz)

PROTECTION CIRCUIT

- Short circuit protection Current Limited Output

ELECTRICALLY ISOLATED

- Isolation input - output, input - case, output - case / DC500V, 100Mohms
- High pot input - output, input - case, output - case / AC500V, 1Min

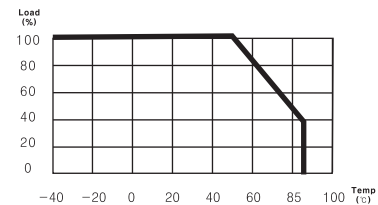
Ordering Information

Input	Output1	Output2	Maximum Power	Ripple&Noise max	Efficiency Typ.	Model Number
4.5 - 9V	3.3V@0.4A		1.32W	50mVp-p	73%	SPS1R5-5-3R3
4.5 - 9V	5V@0.3A		1.5W	50mVp-p	78%	SPS1R5-5-5
4.5 - 9V	12V@0.13A		1.56W	120mVp-p	81%	SPS1R5-5-12
4.5 - 9V	15V@0.1A		1.5W	150mVp-p	81%	SPS1R5-5-15
4.5 - 9V	+12V@65mA	-12V@65mA	1.56W	120mVp-p	81%	SPD1R5-5-1212
4.5 - 9V	+15V@50mA	-15V@50mA	1.5W	150mVp-p	81%	SPD1R5-5-1515
9 - 18V	3.3V@0.4A		1.32W	50mVp-p	73%	SPS1R5-12-3R3
9 - 18V	5V@0.3A		1.5W	50mVp-p	78%	SPS1R5-12-5
9 - 18V	12V@0.13A		1.56W	120mVp-p	81%	SPS1R5-12-12
9 - 18V	15V@0.1A		1.5W	150mVp-p	81%	SPS1R5-12-15
9 - 18V	+12V@65mA	-12V@65mA	1.56W	120mVp-p	81%	SPD1R5-12-1212
9 - 18V	+15V@50mA	-15V@50mA	1.5W	150mVp-p	81%	SPD1R5-12-1515
18 - 36V	3.3V@0.4A		1.32W	50mVp-p	73%	SPS1R5-24-3R3
18 - 36V	5V@0.3A		1.5W	50mVp-p	78%	SPS1R5-24-5
18 - 36V	12V@0.13A		1.56W	120mVp-p	81%	SPS1R5-24-12
18 - 36V	15V@0.1A		1.5W	150mVp-p	81%	SPS1R5-24-15
18 - 36V	+12V@65mA	-12V@65mA	1.56W	120mVp-p	81%	SPD1R5-24-1212
18 - 36V	+15V@50mA	-15V@50mA	1.5W	150mVp-p	81%	SPD1R5-24-1515
36 - 76V	3.3V@0.4A		1.32W	70mVp-p	73%	SPS1R5-48-3R3
36 - 76V	5V@0.3A		1.5W	70mVp-p	78%	SPS1R5-48-5
36 - 76V	12V@0.13A		1.56W	120mVp-p	81%	SPS1R5-48-12
36 - 76V	15V@0.1A		1.5W	150mVp-p	81%	SPS1R5-48-15
36 - 76V	+12V@65mA	-12V@65mA	1.56W	120mVp-p	81%	SPD1R5-48-1212
36 - 76V	+15V@50mA	-15V@50mA	1.5W	150mVp-p	81%	SPD1R5-48-1515

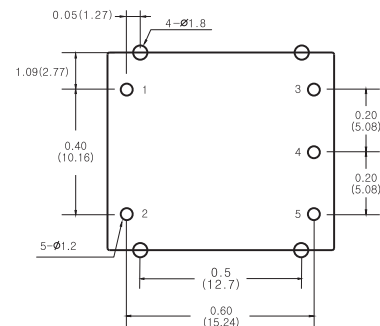
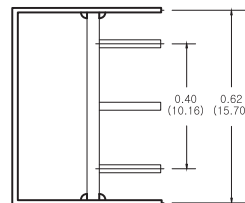
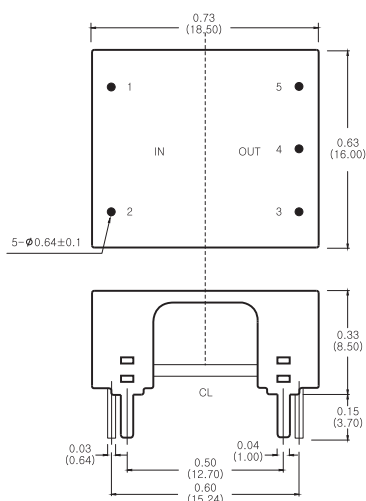
Pin assignments

Single Output	Dual Output
1. +Vin	1. +Vin
2. -Vin	2. -Vin
3. Trim	3. -Vout
4. -Vout	4. COM
5. +Vout	5. +Vout

Derating Curve



Dimensions



※ Mounting hole top view

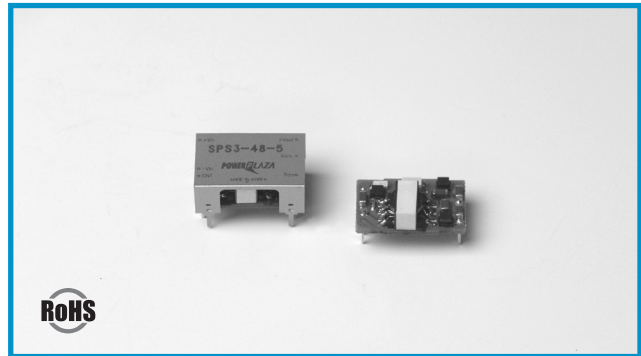
NOTES

1. All dimensions are in inches and (mm).
2. Weight : 3.3g or less

SPS3

Small size Isolated DC/DC Converters

Total power 3 Watts
Input voltages 5V, 12V, 24V, 48V
#of outputs Single, Dual output



SPECIAL FEATURES

- High efficiency
- Wide operating temperature range (-40°C ~ +85°C)
- Small size & Light weight
- Wide 2:1 input range
- Built - in over current protection circuit
- Input - Output Isolated
- Remote on/off control
- Trimmable output voltage (single output)
- Open case type
- Long Life Design (employ only ceramic capacitor)
- 5years warranty

ENVIRONMENTAL

- Operating temperature range -40°C ~ 85°C
- Storage temperature range -40°C ~ 105°C
- Operating humidity (non consensing) 5% ~ 95%
- Storage humidity (non consensing) 5% ~ 95%
- Cooling method convection, forced air
- MTBF 7×10^5 hrs
- Safety UL(pending)
CE(pending)

ELECTRICAL SPECIFICATIONS

INPUT

- Input range DC 4.5V - 9V, 9V - 18V, 18V - 36V, 36V - 76V
- Efficiency 73% - 83%
- Remote on/off on : short to - Vin
off : open

OUTPUT

- Voltage tolerance $\pm 2\%$ (Single)
 $\pm 3\%$ (Daul)
- Line Reg $\pm 0.5\%$
- Load Reg $\pm 1\%$
- Ripple & Noise 1% of Vout (Bandwidth : 20MHz)

PROTECTION CIRCUIT

- Short circuit protection Current Limited Output

ELECTRICALLY ISOLATED

- Isolation input - output, input - case, output - case / DC500V,100Mohms
- High pot input - output, input - case, output - case / AC500V, 1Min

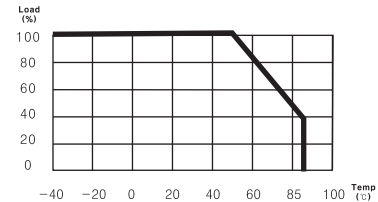
Ordering Information

Input	Output1	Output2	Maximum Power	Ripple&Noise max	Efficiency Typ.	Model Number
4.5 - 9V	3.3V@0.6A		1.98W	50mVp-p	73%	SPS3-5-3R3
4.5 - 9V	5V@0.6A		3W	50mVp-p	78%	SPS3-5-5
4.5 - 9V	12V@0.25A		3W	120mVp-p	80%	SPS3-5-12
4.5 - 9V	15V@0.2A		3W	150mVp-p	80%	SPS3-5-15
4.5 - 9V	+12V@130mA	-12V@130mA	3.12W	120mVp-p	81%	SPD3-5-1212
4.5 - 9V	+15V@100mA	-15V@100mA	3W	150mVp-p	81%	SPD3-5-1515
9 - 18V	3.3V@0.6A		1.98W	50mVp-p	74%	SPS3-12-3R3
9 - 18V	5V@0.6A		3W	50mVp-p	81%	SPS3-12-5
9 - 18V	12V@0.25A		3W	120mVp-p	83%	SPS3-12-12
9 - 18V	15V@0.2A		3W	150mVp-p	83%	SPS3-12-15
9 - 18V	+12V@130mA	-12V@130mA	3.12W	120mVp-p	83%	SPD3-12-1212
9 - 18V	+15V@100mA	-15V@100mA	3W	150mVp-p	83%	SPD3-12-1515
18 - 36V	3.3V@0.6A		1.98W	50mVp-p	73%	SPS3-24-3R3
18 - 36V	5V@0.6A		3W	50mVp-p	79%	SPS3-24-5
18 - 36V	12V@0.25A		3W	120mVp-p	82%	SPS3-24-12
18 - 36V	15V@0.2A		3W	150mVp-p	82%	SPS3-24-15
18 - 36V	+12V@130mA	-12V@130mA	3.12W	120mVp-p	83%	SPD3-24-1212
18 - 36V	+15V@100mA	-15V@100mA	3W	150mVp-p	83%	SPD3-24-1515
36 - 76V	3.3V@0.6A		1.98W	50mVp-p	73%	SPS3-48-3R3
36 - 76V	5V@0.6A		3W	50mVp-p	81%	SPS3-48-5
36 - 76V	12V@0.25A		3W	120mVp-p	83%	SPS3-48-12
36 - 76V	15V@0.2A		3W	150mVp-p	83%	SPS3-48-15
36 - 76V	+12V@130mA	-12V@130mA	3.12W	120mVp-p	83%	SPD3-48-1212
36 - 76V	+15V@100mA	-15V@100mA	3W	150mVp-p	83%	SPD3-48-1515

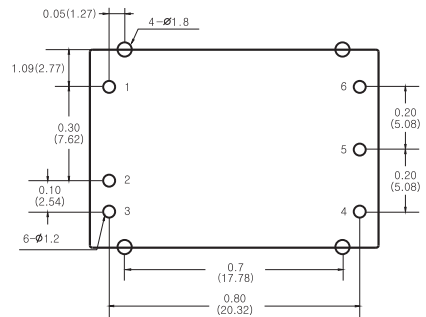
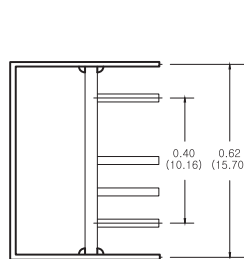
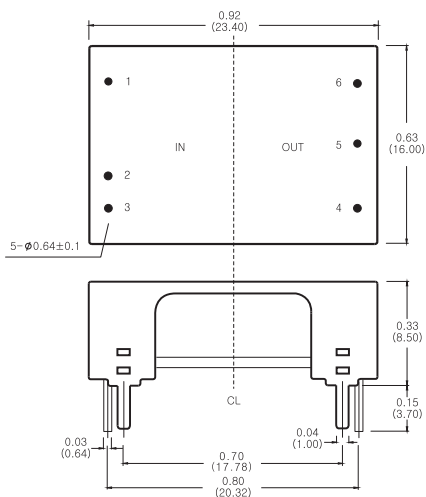
Pin assignments

Single Output	Dual Output
1. +Vin	1. +Vin
2. -Vin	2. -Vin
3. CNT	3. CNT
4. Trim	4. -Vout
5. -Vout	5. COM
6. +Vout	6. +Vout

Derating Curve



Dimensions



※ Mounting hole (top view)

NOTES

1. All dimensions are in inches and(mm).
2. Weight : 4.0g or less

SPS6

Small size Isolated DC/DC Converters

Total power 6 Watts
Input voltages 5V, 12V, 24V, 48V
#of outputs Single, Dual output



SPECIAL FEATURES

- High efficiency
- Wide operating temperature range (-40°C ~ +85°C)
- Small size & Light weight
- Wide 2:1 input range
- Built - in over current protection circuit
- Input - Output Isolated
- Remote on/off control
- Trimmable output voltage (single output)
- Open case type
- Long Life Design (employ only ceramic capacitor)
- 5years warranty

ENVIRONMENTAL

- Operating temperature range -40°C ~ 85°C
- Storage temperature range -40°C ~ 105°C
- Operating humidity (non consensing) 5% ~ 95%
- Storage humidity (non consensing) 5% ~ 95%
- Cooling method convection, forced air
- MTBF 5.6×10^5 hrs
- Safety UL(pending)
CE(pending)

ELECTRICAL SPECIFICATIONS

INPUT	<ul style="list-style-type: none"> • Input range DC 4.5V - 9V, 9V - 18V, 18V - 36V, 36V - 76V • Efficiency 72% - 86% • Remote on/off on : short to - Vin off : open
OUTPUT	<ul style="list-style-type: none"> • Voltage tolerance $\pm 2\%$(Single) $\pm 3\%$(Daul) • Line Reg $\pm 0.5\%$ • Load Reg $\pm 1\%$ • Ripple & Noise 1% of Vout (Bandwidth : 20MHz)
PROTECTION CIRCUIT	<ul style="list-style-type: none"> • Short circuit protection Current Limited Output
ELECTRICALLY ISOLATED	<ul style="list-style-type: none"> • Isolation input - output, input - case, output - case / DC500V,100Mohms • High pot input - output, input - case, output - case / AC500V, 1Min

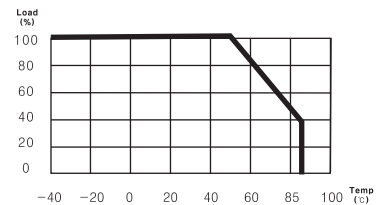
Ordering Information

Input	Output1	Output2	Maximum Power	Ripple&Noise max	Efficiency Typ.	Model Number
4.5 - 9V	3.3V@1.2A		3.96W	50mVp-p	72%	SPS6-5-3R3
4.5 - 9V	5V@1.0A		5W	50mVp-p	78%	SPS6-5-5
4.5 - 9V	12V@0.5A		6W	120mVp-p	80%	SPS6-5-12
4.5 - 9V	15V@0.4A		6W	150mVp-p	80%	SPS6-5-15
4.5 - 9V	+12V@250mA	-12V@250mA	6W	120mVp-p	82%	SPD6-5-1212
4.5 - 9V	+15V@200mA	-15V@200mA	6W	150mVp-p	82%	SPD6-5-1515
9 - 18V	3.3V@1.5A		4.95W	50mVp-p	77%	SPS6-12-3R3
9 - 18V	5V@1.2A		6W	50mVp-p	81%	SPS6-12-5
9 - 18V	12V@0.5A		6W	120mVp-p	86%	SPS6-12-12
9 - 18V	15V@0.4A		6W	150mVp-p	86%	SPS6-12-15
9 - 18V	+12V@250mA	-12V@250mA	6W	120mVp-p	85%	SPD6-12-1212
9 - 18V	+15V@200mA	-15V@200mA	6W	150mVp-p	85%	SPD6-12-1515
18 - 36V	3.3V@1.5A		4.95W	50mVp-p	75%	SPS6-24-3R3
18 - 36V	5V@1.2A		6W	50mVp-p	80%	SPS6-24-5
18 - 36V	12V@0.5A		6W	120mVp-p	84%	SPS6-24-12
18 - 36V	15V@0.4A		6W	150mVp-p	84%	SPS6-24-15
18 - 36V	+12V@250mA	-12V@250mA	6W	120mVp-p	84%	SPD6-24-1212
18 - 36V	+15V@200mA	-15V@200mA	6W	150mVp-p	84%	SPD6-24-1515
36 - 76V	3.3V@1.5A		4.95W	50mVp-p	75%	SPS6-48-3R3
36 - 76V	5V@1.2A		6W	50mVp-p	81%	SPS6-48-5
36 - 76V	12V@0.5A		6W	120mVp-p	85%	SPS6-48-12
36 - 76V	15V@0.4A		6W	150mVp-p	85%	SPS6-48-15
36 - 76V	+12V@250mA	-12V@250mA	6W	120mVp-p	86%	SPD6-48-1212
36 - 76V	+15V@200mA	-15V@200mA	6W	150mVp-p	86%	SPD6-48-1515

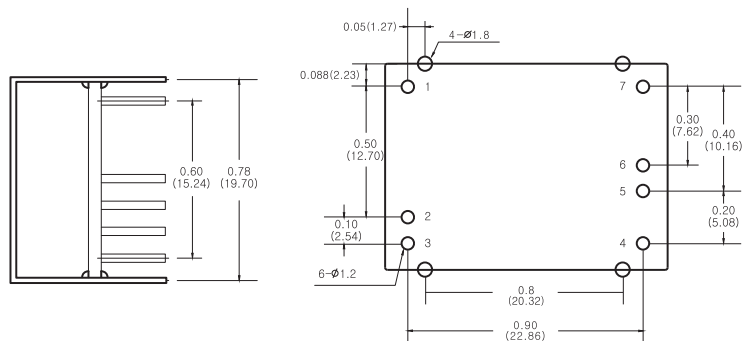
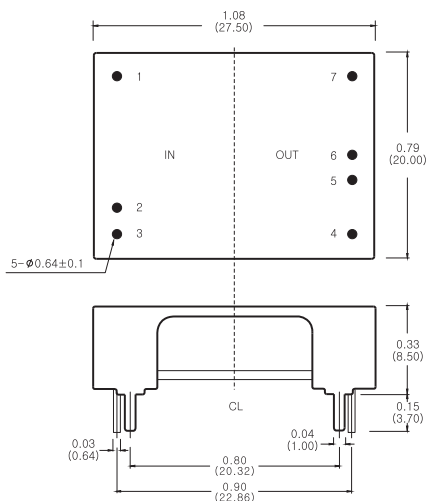
Pin assignments

Single Output	Dual Output
1. +Vin	1. +Vin
2. -Vin	2. -Vin
3. CNT	3. CNT
4. Trim	4. -Vout
5. -Vout	5. No pin
6. No pin	6. COM
7. +Vout	7. +Vout

Derating Curve



Dimensions



NOTES

- All dimensions are in inches and (mm).
- Weight : 5.8g or less

※ Mounting hole (top view)