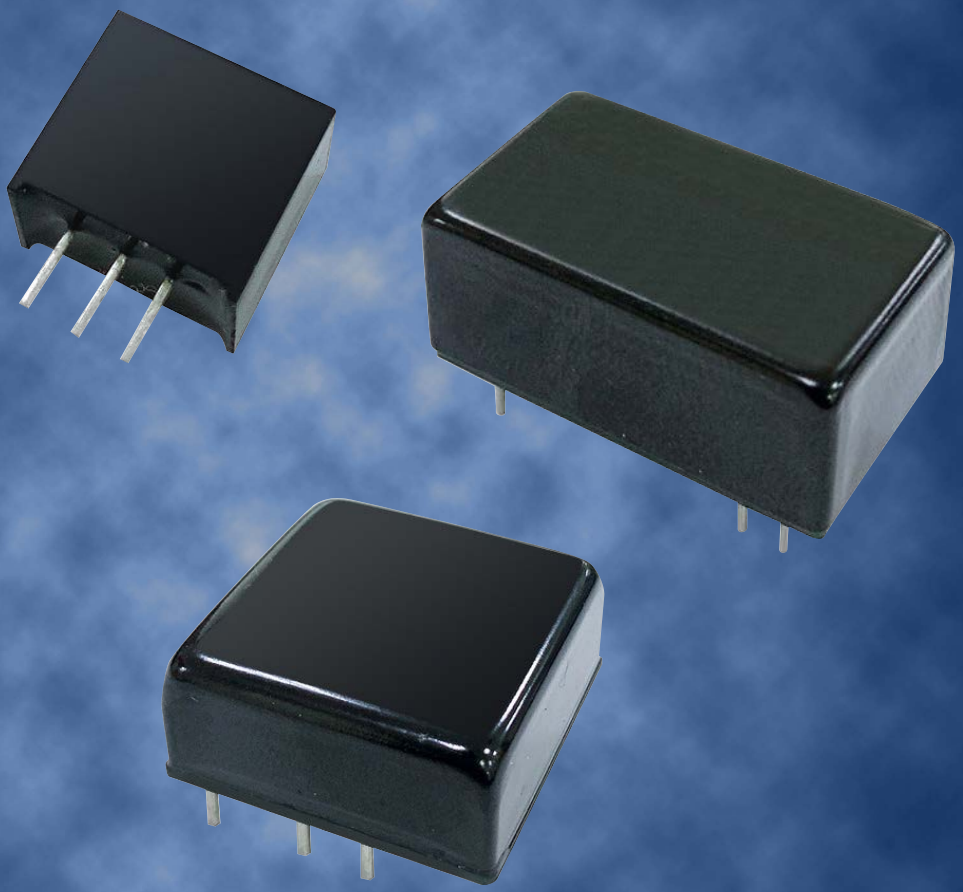
ADAM TECH



DC-DC CONVERTERS

Adam Tech boasts an expansive line of DC-DC Converters. These devices are designed to effectively convert direct current (DC) from one voltage level to another. This makes them ideal for applications that utilize the cooperation of different voltage levels. Adam Tech's offering is equipped to accommodate these various applications, thanks to its support of a wide range of watts, voltages, and currents. In addition, Adam Tech possesses the ability to manufacture custom converters to meet every customer's needs.

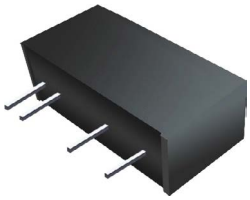
FEATURES AND BENEFITS:

- **Efficiently convert DC voltage levels**
- **Single and dual output**
- **Power ranging from 1 to 30 W**
- **Input voltages ranging from 2.97 to 75 VDC**
- **Output voltages ranging from 3.3 to 24 VDC**
- **Input currents ranging from 7 to 10 mA no-load, and 255 to 1420 mA full-load**
- **Output currents ranging from 21 to 6500 mA**
- **Various packaging options**
- **Burned-in**
- **Low ripple and noise**

APPLICATIONS:

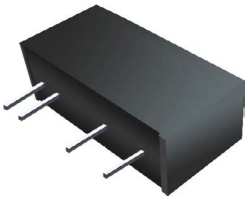
- **Automatic control equipment**
- **Industrial computers**
- **Communications and telecommunications equipment**
- **Traffic signal control systems**
- **Smart home appliances and security systems**
- **Video and image processing equipment (car tag recognition, traffic technology, facial recognition)**
- **Energy conversion (solar energy and electric vehicles)**

EC2 Series
1 Watt
1.5KV ~ 6KV Isolated
Single & Dual Output
SIP7



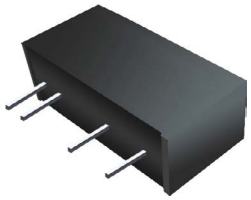
View Datasheet

EC2-2W Series
2 Watt
1.5KV ~ 6KV Isolated
Single & Dual Output
SIP7



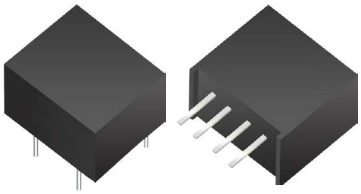
View Datasheet

EC2-3W Series
3 Watt
1.5KV ~ 6KV Isolated
Single & Dual Output
SIP7



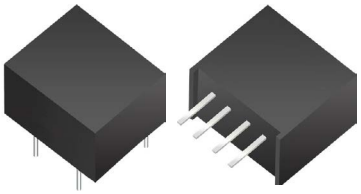
View Datasheet

EC3 Series
1 Watt
1.5KV ~ 3KV Isolated
Single & Dual Output
SIP4 & DIL8



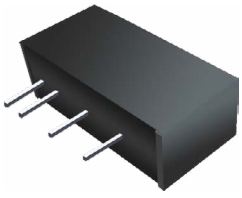
View Datasheet

EC3-2W Series
2 Watt
1.5KV ~ 3KV Isolated
Single & Dual Output
SIP4 & DIL8



View Datasheet

EC4 Series
1 Watt
1.5KV ~ 3KV Isolated
Single & Dual Output
SIP7

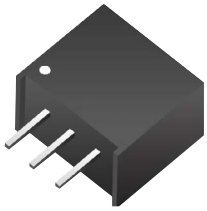


View Datasheet

ES3 Series
1 Watt
1.5KV ~ 3KV Isolated
Single Output
SMD14

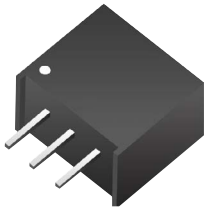
View Datasheet

NL1-1A Series
Non-Isolated
Single Output
SIP3



View Datasheet

NL1-P5 Series
Non-Isolated
Single Output
SIP3



View Datasheet

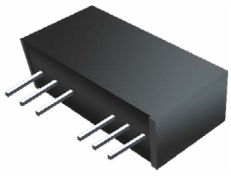
RD7 Dual Series
2 Watt
1KV & 3KV Isolated
2:1 Input Voltage Range
Dual Output
SIP7

View Datasheet

RD7 Single Series
2 Watt
1KV & 3KV Isolated
2:1 Input Voltage Range
Single Output
SIP7

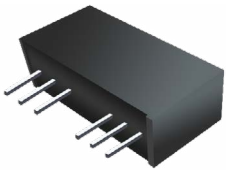
View Datasheet

RD7-3W Dual Series
3 Watt
1.5KV ~ 3KV Isolated
2:1 Input Voltage Range
Dual Output
SIP8



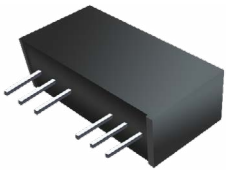
View Datasheet

RD7-3W Single Series
3 Watt
1.5KV ~ 3KV Isolated
2:1 Input Voltage Range
Single Output
SIP8



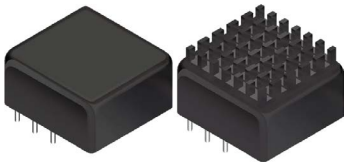
View Datasheet

RD7-6W Series
6 Watt
1.5KV Isolated
2:1 Input Voltage Range
Single & Dual Output
SIP8



View Datasheet

RQ9S Series
30 Watt
1.5KV Isolated
4:1 Input Voltage Range
Single & Dual Output
1" x 1" DIL



View Datasheet

KR15 Series
15 Watt
1600VDC Isolated
4:1 Input Voltage Range
Single & Dual Output
DIP24

View Datasheet

UC10 Series
10 Watt
1600VDC Isolated
4:1 Input Voltage Range
Single & Dual Output
DIP16

View Datasheet

UC15 Series
15 Watt
1600VDC Isolated
4:1 Input Voltage Range
Single & Dual Output
DIP16

View Datasheet

FEATURES:

- 7 pin SIP package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- High Efficiency up to 87%
- Unregulated Output Types
- 1.5KVDC ~ 6KVDC Isolation
- Industry Standard Pinout
- Designed to IEC62368, UL62368, EN62368
- UL Recognized

ADAM TECH

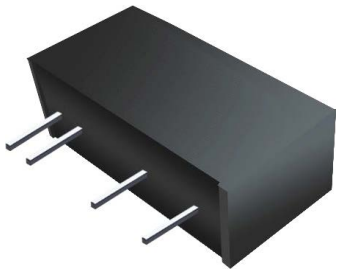
DC-DC Converter

EC2 Series

1 Watt
1.5KV ~ 6KV Isolated
Single & Dual Output
SIP7

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Output Voltage	Output Current	Efficiency	Capacitive Load µF
	Vdc	Vdc	mA	%TYP	µF
EC2-05S03P3	4.5~5.5	3.3	303	76	2400
EC2-05S05P3	4.5~5.5	5	200	82	2400
EC2-12S05P3	9.6~14.4	5	200	82	2400
EC2-15S15P3	12~18	15	67	87	330
EC2-24S15P3	19.2~28.8	15	67	87	330
EC2-05D12P3	4.5~5.5	±12	±42	84	±220
EC2-12D24P3	9.6~14.4	±24	±21	85	±100
EC2-24D12P3	19.2~28.8	±12	±42	85	±330

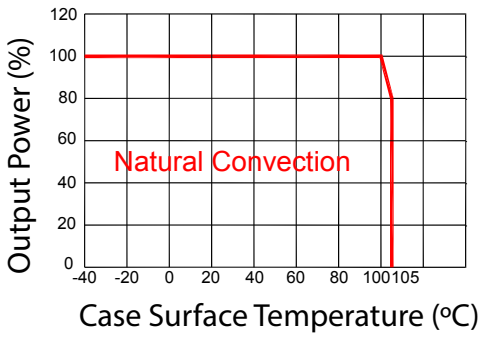


Note:
1: No suffix is standard isolation (1.5KVDC) e.g., EC2-05S05
*add suffix "3" for 3KVDC isolation, *add suffix "4" for 4KVDC isolation,
*add suffix "5" for 5.2KVDC isolation, *add suffix "6" for 6KVDC isolation

2: No "P" suffix = no short circuit protection, e.g., EC2-05S05
*add suffix "P" for short circuit protection
e.g., EC2-05S05P, EC2-05S12P3

3: Character after "-" is Input Voltage: 12=12Vdc, 15=15Vdc, 24=24Vdc
e.g., EC2-12S05P, EC2-15S12P3, EC2-24S15P.

Temperature Derating Graph



Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Range	Vo,Io Nom @Vin:5V		±10		%
	Vo,Io Nom@ Vin:12V,15V,24V		±20		%
Filter	Capacitor				

Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±5	%
Short Circuit Protection	without suffix "P"			1	Sec
	With Suffix "P"		Continuous		
Line Regulation	For 1.0% OF Vin		1.2		%
Load Regulation	3.3V (10% To 100% F.L)		15	20	%
	5V (10% To 100% F.L)		10	15	%
	9V (10% To 100% F.L)		8	10	%
	12V (10% To 100% F.L)		7	10	%
	15V (10% To 100% F.L)		6	10	%
	24V (10% To 100% F.L)		5	10	%
Ripple & Noise	BW=DC To 20MHz @Vo:3.3V,5V,9V,12V,15V		30	75	mVp-p
	BW=DC To 20MHz @ Vo:24V		50	100	mVp-p

General Specifications

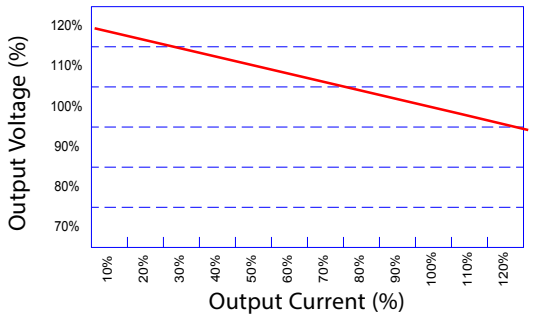
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input @5V Vin		370		KHz
	Full load, nominal input @other Vin		250		KHz
Operating Temperature		-40		+105	ºC
Storage Temperature		-55		+125	ºC
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case Material	DAP				
MTBF	MIL-HDBK-217F@25ºC	3,500,000			Hours
Weight			2.1		g
Dimensions			19.5x6.0x10.0		mm

Part Number

EC2 – XX X XX X X
A B C D E F

A: Series
B: Input Voltage
C: Single (S) / Dual Output (D)
D: Output Voltage
E: Protection (P)
F: Isolation Voltage

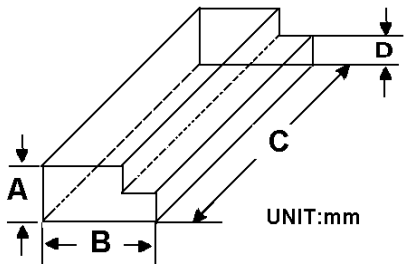
Tolerance Envelope Graph



Electromagnetic Compatibility (EMC)

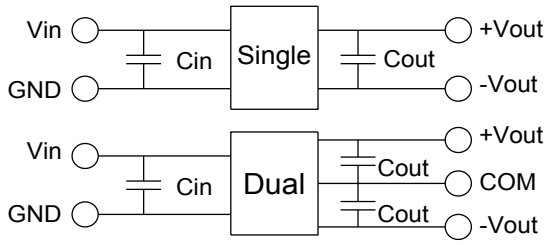
EMI	CE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
	RE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air ±8kV , Contact ±4kV perf. Criteria B

Packaging



Size (mm)			
A	B	C	D
9.5	16.5	522	5.0

Recommended Test Circuit



Vin	Cin	Single Vout	Cout	Dual Vout	Cout
5Vdc	4.7μF/25V	3.3Vdc	10μF/16V	±3.3Vdc	±4.7μF/16V
12Vdc	2.2μF/25V	5Vdc	10μF/16V	±5Vdc	±4.7μF/16V
15Vdc	2.2μF/25V	9Vdc	2.2μF/16V	±9Vdc	±1μF/16V
24Vdc	1μF/50V	12Vdc	2.2μF/25V	±12Vdc	±1μF/25V
- -	- -	15Vdc	1μF/50V	±15Vdc	±1μF/25V

EMC (CLASS B) Compliance Circuit

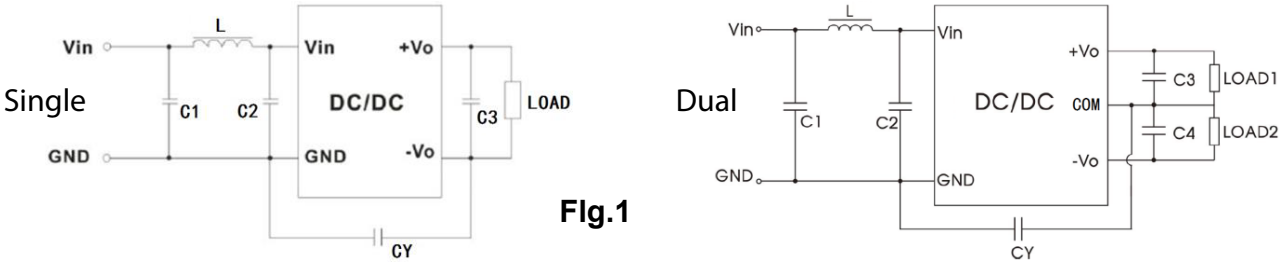
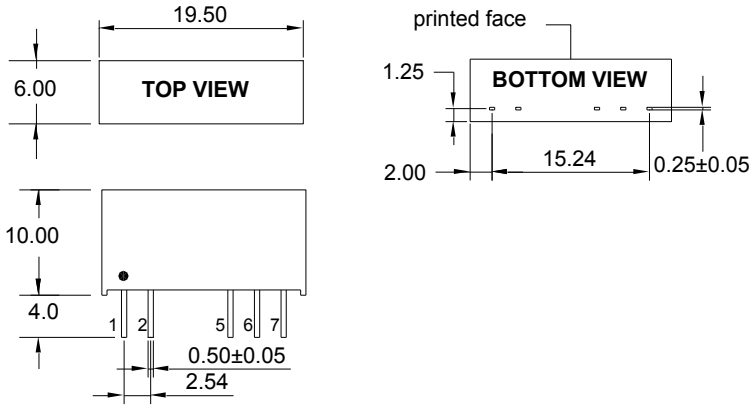


Fig.1

EMC Recommended Circuit Value Table		
EMI	C1	4.7μF /50V
	C2	4.7μF /50V
	CY	1nF/4kV
	C3, C4	Recommended Test Circuit
	L	6.8μH

Markings and Dimensions



UNIT: mm unless otherwise specified, all tolerances are ±0.25

PIN Connection

PIN	1	2	5	6	7
Single	+Vin	-Vin	-Vout	No Pin	+Vout
Dual	+Vin	-Vin	-Vout	Com	+Vout

FEATURES:

- 7 pin SIP package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- High Efficiency up to 89%
- Unregulated Output Types
- 1.5KVDC ~ 6KVDC Isolation
- Industry Standard Pinout
- Designed to IEC62368, UL62368, EN62368
- UL Recognized

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Output Voltage	Output Current	Efficiency	Capacitive Load µF
	Vdc	Vdc	mA	%TYP	µF
EC2-05S052P3	4.5~5.5	5	400	84	2400
EC2-24S152P6	19.2~28.8	15	133	88	220
EC2-05D052P3	4.5~5.5	±5	±200	82	±1200

Note:
1: No suffix is standard isolation (1.5KVDC) e.g., EC2-05S052P
*add suffix "3" for 3KVDC isolation, *add suffix "4" for 4KVDC isolation,
*add suffix "5" for 5.2KVDC isolation, *add suffix "6" for 6KVDC isolation

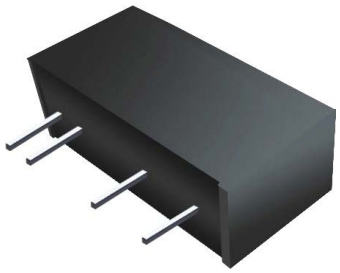
2: Character after "-" is Input Voltage: 12=12Vdc, 15=15Vdc, 24=24Vdc
e.g., EC2-12S052P, EC2-15S122P3, EC2-24S152P6.

ADAM TECH

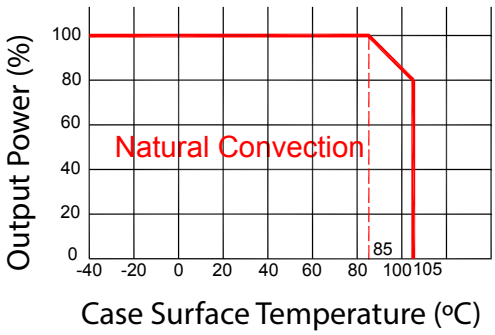
DC-DC Converter

EC2-2W Series

2 Watt
1.5KV ~ 6KV Isolated
Single & Dual Output
SIP7



Temperature Derating Graph



Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Range	Vo,Io Nom		±10		%
Filter	Capacitor				

Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±5	%
Short Circuit Protection	Continuous				
Line Regulation	For 1.0% OF Vin		1.2		%
Load Regulation	5V (10% To 100% F.L)		8	15	%
	9V (10% To 100% F.L)		6	10	%
	12V (10% To 100% F.L)		5	10	%
	15V (10% To 100% F.L)		4	10	%
	24V (10% To 100% F.L)		3	10	%
Ripple & Noise	BW=DC To 20MHz		75	150	mVp-p

General Specifications

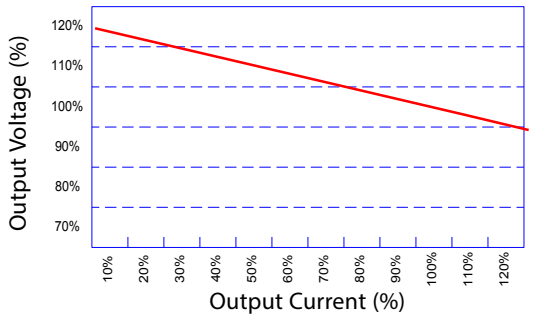
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input @5V Vin		215		KHz
	Full load, nominal input @other Vin		250		KHz
Operating Temperature		-40		+105	ºC
Storage Temperature		-55		+125	ºC
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case Material	DAP				
MTBF	MIL-HDBK-217F@25ºC	3,500,000			Hours
Weight			2.1		g
Dimensions			19.5x6.0x10.0		mm

Part Number

EC2 / A – XX / B X / C XX / D X / E X / F X / G

A: Series
B: Input Voltage
C: Single (S) / Dual Output (D)
D: Output Voltage
E: Output Power
F: Protection (P)
G: Isolation Voltage

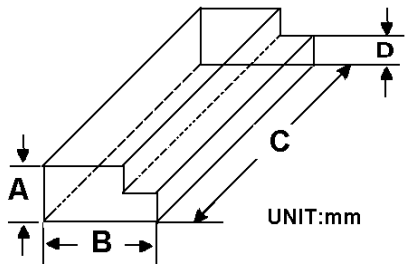
Tolerance Envelope Graph



Electromagnetic Compatibility (EMC)

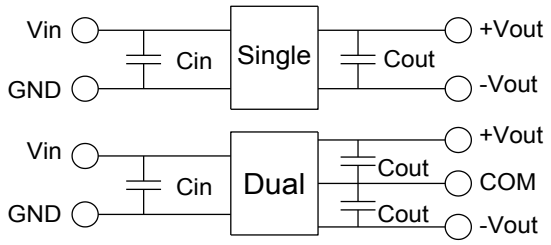
EMI	CE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
	RE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air ±8kV , Contact ±4kV perf. Criteria B

Packaging



Size (mm)			
A	B	C	D
9.5	16.5	522	5.0

Recommended Test Circuit



Vin	Cin	Single Vout	Cout	Dual Vout	Cout
5Vdc	4.7μF/25V	5Vdc	10μF/16V	±5Vdc	±4.7μF/16V
12Vdc	2.2μF/25V	9Vdc	2.2μF/16V	±9Vdc	±1μF/16V
15Vdc	2.2μF/25V	12Vdc	2.2μF/25V	±12Vdc	±1μF/25V
24Vdc	1μF/50V	15Vdc	1μF/25V	±15Vdc	±1μF/25V
- -	- -	24Vdc	1μF/50V	±24Vdc	±1μF/50V

EMC (CLASS B) Compliance Circuit

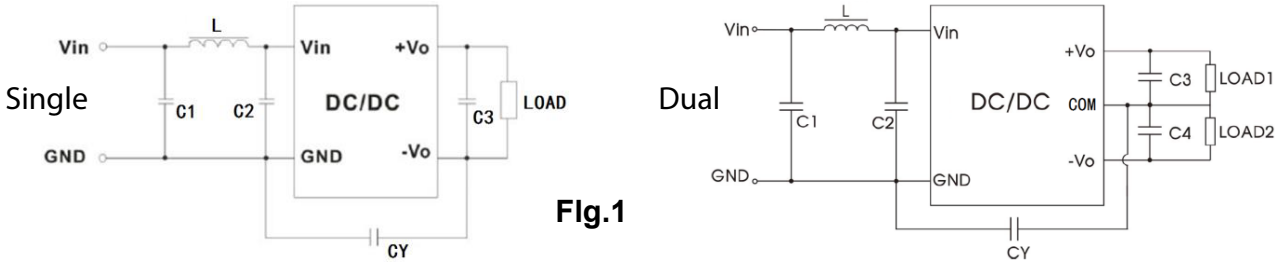
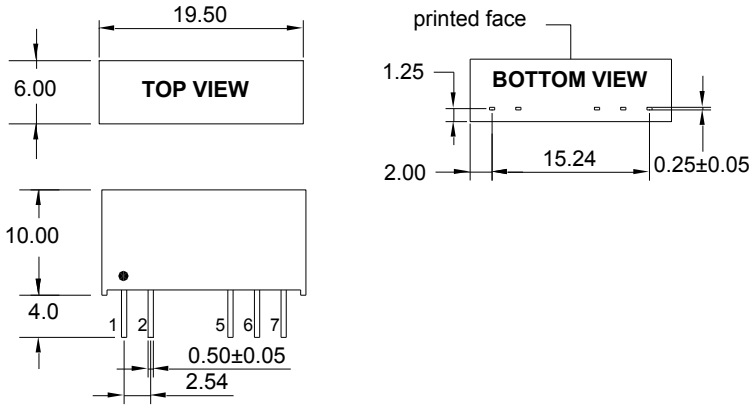


Fig.1

EMC Recommended Circuit Value Table		
EMI	C1	4.7μF /50V
	C2	4.7μF /50V
	CY	1nF/4kV
	C3	Recommended Test Circuit
	L	6.8μH

Markings and Dimensions



UNIT: mm unless otherwise specified, all tolerances are ±0.25

PIN Connection

PIN	1	2	5	6	7
Single	+Vin	-Vin	-Vout	No Pin	+Vout
Dual	+Vin	-Vin	-Vout	Com	+Vout

FEATURES:

- 7 pin SIP package
- No-load input current as low as 8mA
- Continuous short-circuit protection
- High Efficiency up to 88%
- Unregulated Output Types
- 1.5KVDC ~ 6KVDC Isolation
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- Designed to IEC62368, UL62368, EN62368
- UL Recognized

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Output Voltage	Output Current	Efficiency	Capacitive Load µF
	Vdc	Vdc	mA	%TYP	µF
EC2-12S123P	10.8~13.2	12	250	87	220
EC2-12S053P3	10.8~13.2	5	600	85	1000

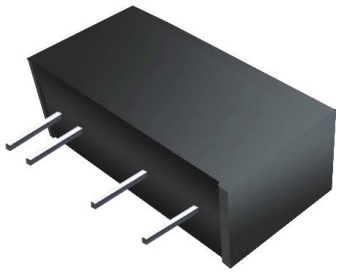
Note:
1: No suffix is standard isolation (1.5KVDC) e.g., EC2-05S053P
*add suffix "3" for 3KVDC isolation, *add suffix "4" for 4KVDC isolation,
*add suffix "5" for 5.2KVDC isolation, *add suffix "6" for 6KVDC isolation
e.g., EC2-12S053P3, EC2-24D243P6

ADAM TECH

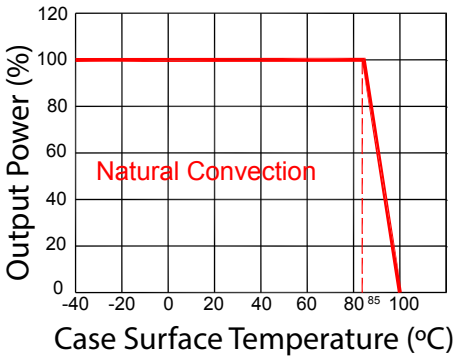
DC-DC Converter

EC2-3W Series

3 Watt
1.5KV ~ 6KV Isolated
Single & Dual Output
SIP7



Temperature Derating Graph



Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Range	Vo,Io Nom		±10		%
Filter	Capacitor				

Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±5	%
Short Circuit Protection	Continuous				
Line Regulation	For 1.0% OF Vin		1.2		%
Load Regulation	5V (10% To 100% F.L)		9	15	%
	12V (10% To 100% F.L)		7	10	%
	15V (10% To 100% F.L)		6	10	%
	24V (10% To 100% F.L)		5	10	%
Ripple & Noise	BW=DC To 20MHz		100	150	mVp-p

General Specifications

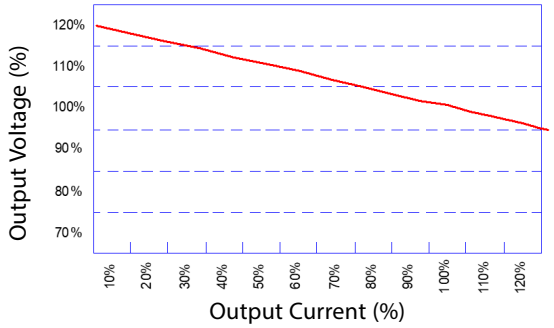
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input		250		KHz
Operating Temperature		-40		+85	ºC
Storage Temperature		-55		+125	ºC
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case Material	DAP				
MTBF	MIL-HDBK-217F@25ºC	3,500,000			Hours
Weight			2.7		g
Dimensions			19.5x7.1x10.0		mm

Part Number

EC2 – XX X XX X X X
A B C D E F G

A: Series
B: Input Voltage
C: Single (S) / Dual Output (D)
D: Output Voltage
E: Output Power
F: Protection (P)
G: Isolation Voltage

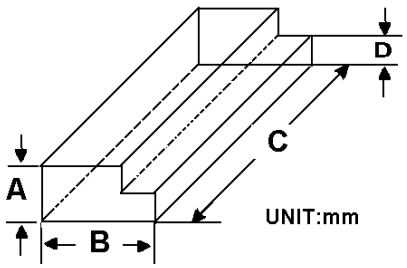
Tolerance Envelope Graph



Electromagnetic Compatibility (EMC)

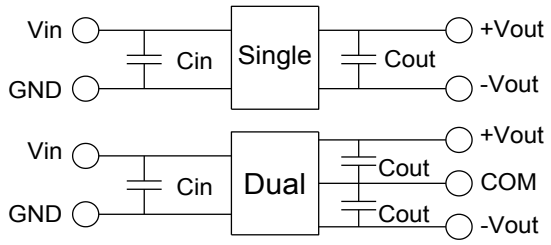
EMI	CE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
	RE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air ±8kV , Contact ±4kV perf. Criteria B

Packaging



Size (mm)			
A	B	C	D
9.5	16.5	522	5.0

Recommended Test Circuit



Vin	Cin	Single Vout	Cout	Dual Vout	Cout
12Vdc	2.2μF/25V	5Vdc	10μF/16V	±5Vdc	±4.7μF/16V
15Vdc	2.2μF/25V	9Vdc	2.2μF/16V	±9Vdc	±1μF/16V
24Vdc	1μF/50V	12Vdc	2.2μF/25V	±12Vdc	±1μF/25V
- -	- -	15Vdc	1μF/25V	±15Vdc	±1μF/25V
- -	- -	24Vdc	1μF/50V	±24Vdc	±1μF/50V

EMC (CLASS B) Compliance Circuit

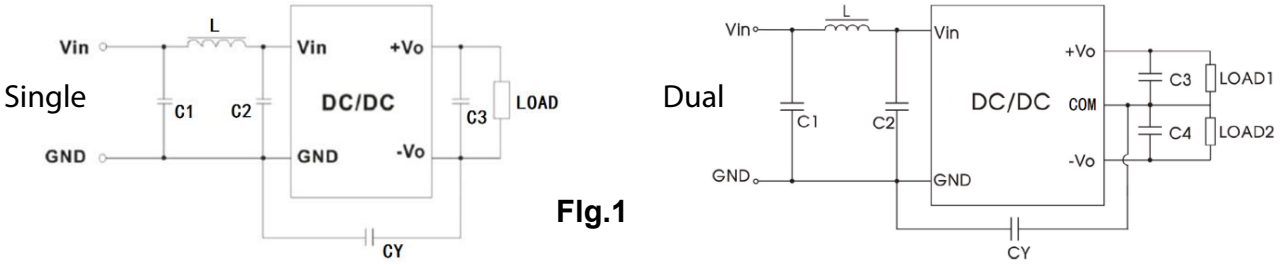
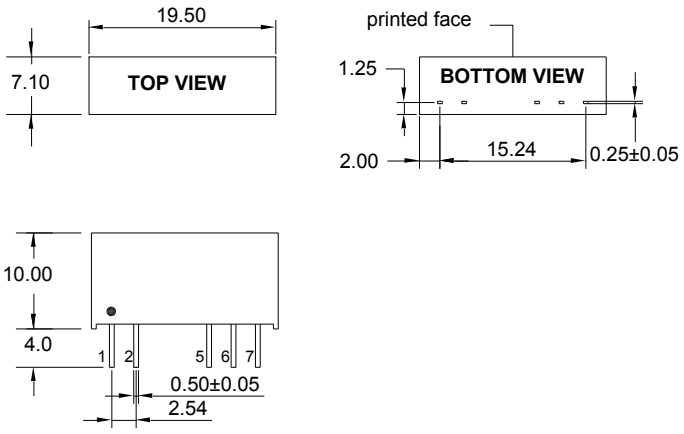


Fig.1

EMC Recommended Circuit Value Table		
EMI	C1	4.7μF /50V
	C2	4.7μF /50V
	CY	1nF/4kV
	C3, C4	Recommended Test Circuit
	L	6.8μH

Markings and Dimensions



UNIT: mm unless otherwise specified, all tolerances are ±0.25

PIN Connection

PIN	1	2	5	6	7
Single	+Vin	-Vin	-Vout	No Pin	+Vout
Dual	+Vin	-Vin	-Vout	Com	+Vout

FEATURES:

- 4 pin SIP and 8 pin DIL package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- High Efficiency up to 87%
- Unregulated Output Types
- 1.5KVDC ~ 3KVDC Isolation
- Industry Standard Pinout
- Designed to IEC62368, UL62368, EN62368
- UL Recognized

ADAM TECH

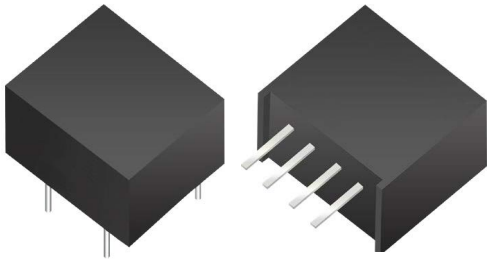
DC-DC Converter

EC3 Series

1 Watt
1.5KV ~ 3KV Isolated
Single & Dual Output
SIP4 & DIL8

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Output Voltage	Output Current	Efficiency	Capacitive Load(μF)	Package Style
	Vdc	Vdc	mA	%TYP	Max.	
EC3T-05S03P	4.5~5.5	3.3	303	76	2400	T
EC3T-05S05	4.5~5.5	5	200	82	2400	T
EC3T-05S05P	4.5~5.5	5	200	82	2400	T
EC3T-05S09P	4.5~5.5	9	112	83	1000	T
EC3T-05S12P	4.5~5.5	12	84	84	470	T
EC3T-12S05P	9.6~14.4	5	200	82	2400	T
EC3T-12S12P	9.6~14.4	12	84	85	680	T
EC3T-24S12P	19.2~28.8	12	84	85	680	T
EC3T-05S05P3	4.5~5.5	5	200	82	2400	T
EC3R-05S05P3	4.5~5.5	5	200	82	2400	R
EC3T-12S12P3	9.6~14.4	12	84	85	680	T
EC3-24S03P3	19.2~28.8	3.3	303	78	2400	blank

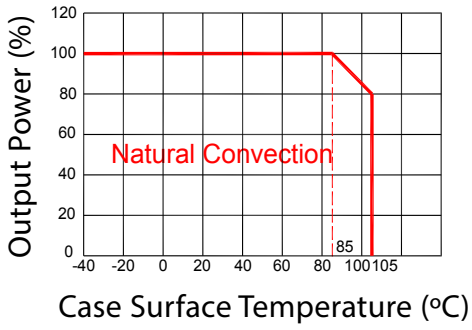


Note:
1: No suffix is standard isolation (1.5KVDC) e.g., EC3-15S05P
*add suffix "3" for 3KVDC isolation, e.g., EC3-12S05P3, EC3-15S12P3
Package style: no suffix = package 1, T = package 2, R = package 3
e.g., EC3T-12S05P, EC3R-24S12P3

2: No "P" suffix = no short circuit protection, e.g., EC3-05S05
*add suffix "P" for short circuit protection, e.g., EC3T-05S05P, EC3R-05S12P3

3: Character after "-" is Input Voltage: 12=12Vdc, 15=15Vdc, 24=24Vdc
e.g., EC3R-12S05P, EC3-15S12P3, EC3T-24S15P.

Temperature Derating Graph



Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Range	Vo,Io Nom @Vin:5V		±10		%
	Vo,Io Nom@ Vin:12V,15V,24V		±20		%
Filter	Capacitor				

Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±5	%
Short Circuit Protection	without suffix "P"			1	Sec
	With Suffix "P"		Continuous		
Line Regulation	For 1.0% OF Vin		1.2		%
Load Regulation	3.3V (10% To 100% F.L)		15	20	%
	5V (10% To 100% F.L)		10	15	%
	9V (10% To 100% F.L)		8	10	%
	12V (10% To 100% F.L)		7	10	%
	15V (10% To 100% F.L)		6	10	%
	24V (10% To 100% F.L)		5	10	%
Ripple & Noise	BW=DC To 20MHz @Vo:3.3V,5V,9V,12V,15V		30	75	mVp-p
	BW=DC To 20MHz @ Vo:24V		50	100	mVp-p

General Specifications

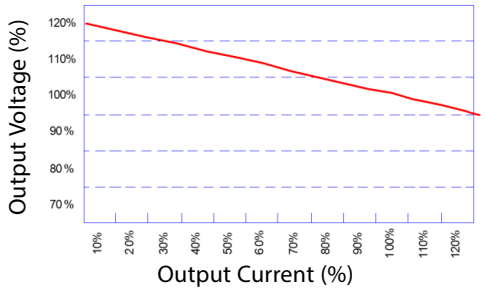
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input @5V Vin		370		KHz
	Full load, nominal input @other Vin		250		KHz
Operating Temperature		-40		+105	ºC
Storage Temperature		-55		+125	ºC
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case Material	DAP				
MTBF	MIL-HDBK-217F@25ºC	3,500,000			Hours
Weight	Package 1/2/3		1.1/1.5/1.5		g
Dimensions	Package 1		11.5x6.0x7.5		mm
	Package 2		11.5x6.0x10.0		mm
	Package 3		12.7x10.16x6.8		mm

Part Number

EC3	X	-	XX	X	XX	X	X
A	B		C	D	E	F	G

A: Series
B: Package
C: Input Voltage
D: Single (S) / Dual Output (D)
E: Output Voltage
F: Protection (P)
G: Isolation Voltage

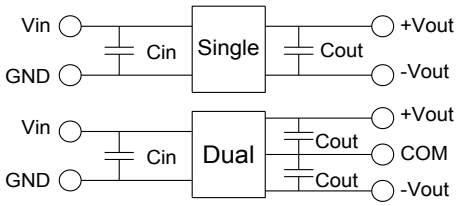
Tolerance Envelope Graph



Electromagnetic Compatibility (EMC)

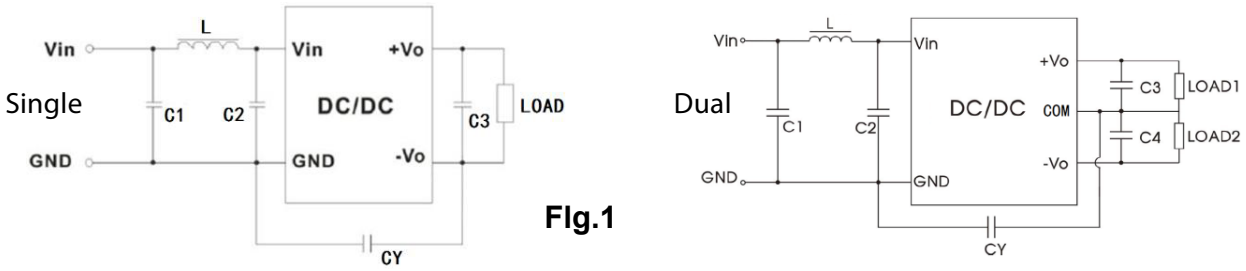
EMI	CE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
	RE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air ±8kV , Contact ±4kV perf. Criteria B

Recommended Test Circuit



Vin	Cin	Single Vout	Cout	Dual Vout	Cout
5Vdc	4.7μF/25V	3.3Vdc	10μF/16V	±3.3Vdc	±4.7μF/16V
12Vdc	2.2μF/25V	5Vdc	10μF/16V	±5Vdc	±4.7μF/16V
15Vdc	2.2μF/25V	9Vdc	2.2μF/16V	±9Vdc	±1μF/16V
24Vdc	1μF/50V	12Vdc	2.2μF/25V	±12Vdc	±1μF/25V
- -	- -	15Vdc	1μF/25V	±15Vdc	±1μF/25V
- -	- -	24Vdc	1μF/50V	±24Vdc	±1μF/50V

EMC (CLASS B) Compliance Circuit

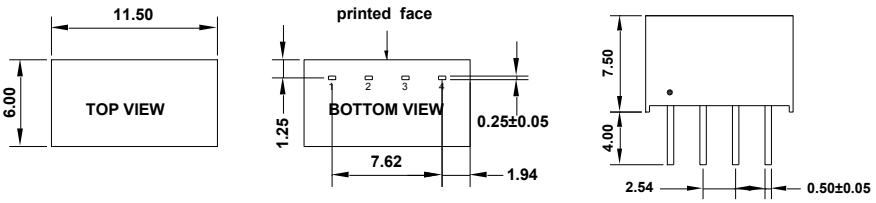


Flg.1

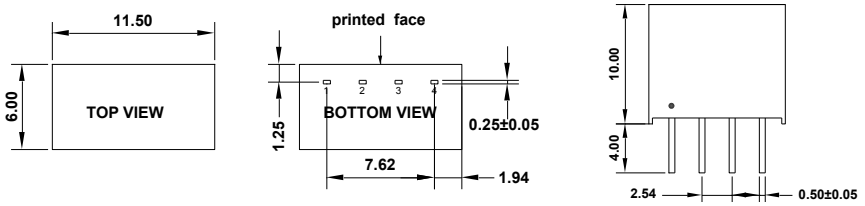
EMC Recommended Circuit Value Table		
EMI	C1	4.7μF /50V
	C2	4.7μF /50V
	CY	1nF/4kV
	C3	Recommended Test Circuit
	L	6.8μH

Markings and Dimensions

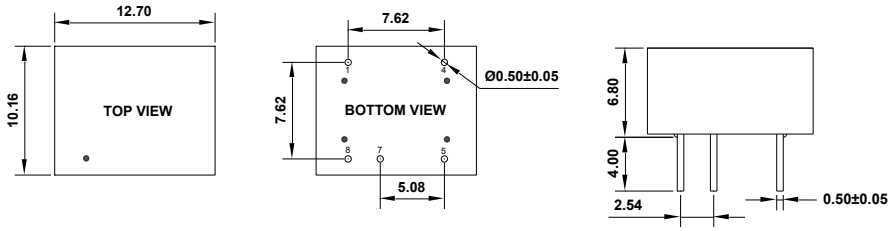
Package 1



Package 2 (T)



Package 3 (R)



UNIT: mm unless otherwise specified, all tolerances are ±0.25

PIN Connection

PIN	1	2	3	4	5	7	8
4Pin	-Vin	+Vin	-Vout	+Vout			
8Pin-S	-Vin			+Vin	+Vout	-Vout	
8Pin-D	-Vin			+Vin	+Vout	Com	-Vout

FEATURES:

- 4 pin SIP and 8 pin DIL package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- High Efficiency up to 89%
- Unregulated Output Types
- 1.5KVDC ~ 3KVDC Isolation
- Industry Standard Pinout
- Design refer to IEC62368, UL62368, EN62368
- UL Recognized

ADAM TECH

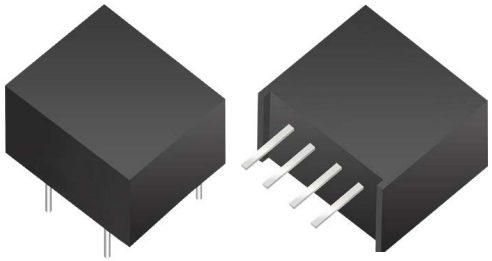
DC-DC Converter

EC3-2W Series

2 Watt
1.5KV ~ 3KV Isolated
Single & Dual Output
SIP4 & DIL8

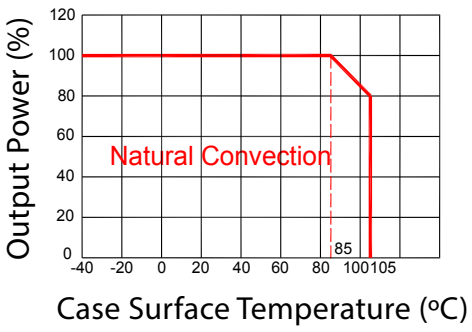
Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Output Voltage	Output Current	Efficiency	Capacitive Load(μF)	Package Style
	Vdc	Vdc	mA	%TYP	Max.	
EC3T-12S122P	10.8~13.2	12	167	87	470	T
EC3T-24S242P	21.6~26.4	24	84	89	100	T



Note:
1: No suffix is standard isolation (1.5KVDC) e.g., EC3-15S052P
*add suffix "3" for 3KVDC isolation, e.g., EC3T-12S052P3, EC3R-15S122P3
Package style: T = package 2, R = package 3
e.g., EC3T-12S052P, EC3R-24D122P3

Temperature Derating Graph



Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Range	Vo,Io Nom		±10		%
Filter	Capacitor				

Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±5	%
Short Circuit Protection	Continuous				
Line Regulation	For 1.0% OF Vin		1.2		%
Load Regulation	5V (10% To 100% F.L)		8	15	%
	9V (10% To 100% F.L)		6	10	%
	12V (10% To 100% F.L)		5	10	%
	15V (10% To 100% F.L)		4	10	%
	24V (10% To 100% F.L)		3	10	%
Ripple & Noise	BW=DC To 20MHz		75	150	mVp-p

General Specifications

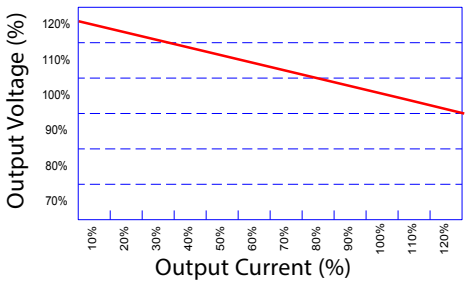
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input		250		KHz
Operating Temperature		-40		+105	ºC
Storage Temperature		-55		+125	ºC
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case Material	DAP				
MTBF	MIL-HDBK-217F@25ºC	3,500,000			Hours
Weight	Package 2/3		1.5/1.5		g
Dimensions	Package 2		11.5x6.0x10.0		mm
	Package 3		12.7x10.16x6.8		mm

Part Number

EC3	X	-	XX	X	XX	X	X	X
A	B		C	D	E	F	G	H

A: Series
B: Package
C: Input Voltage
D: Single (S) / Dual Output (D)
E: Output Voltage
F: Output Power
G: Protection (P)
H: Isolation Voltage

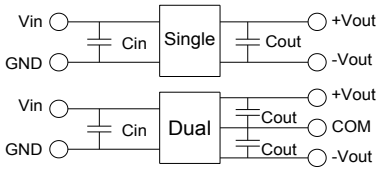
Tolerance Envelope Graph



Electromagnetic Compatibility (EMC)

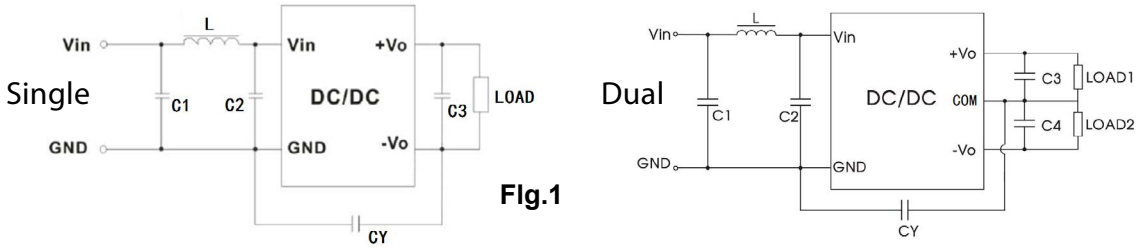
EMI	CE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
	RE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air ±8kV , Contact ±4kV perf. Criteria B

Recommended Test Circuit



Vin	Cin	Single Vout	Cout	Dual Vout	Cout
12Vdc	2.2μF/25V	5Vdc	10μF/16V	±5Vdc	±4.7μF/16V
15Vdc	2.2μF/25V	9Vdc	2.2μF/16V	±9Vdc	±1μF/16V
24Vdc	1μF/50V	12Vdc	2.2μF/25V	±12Vdc	±1μF/25V
- -	- -	15Vdc	1μF/25V	±15Vdc	±1μF/25V
- -	- -	24Vdc	1μF/50V	±24Vdc	±1μF/50V

EMC (CLASS B) Compliance Circuit

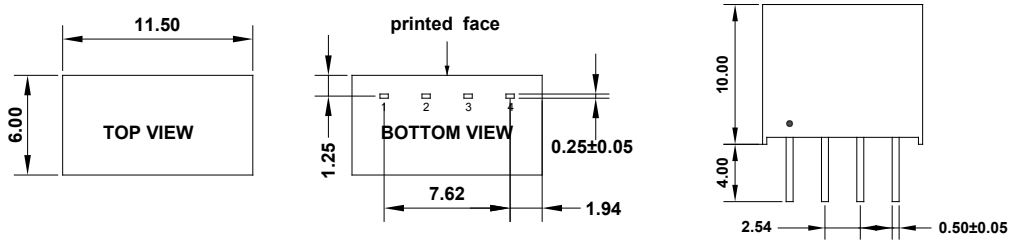


Flg.1

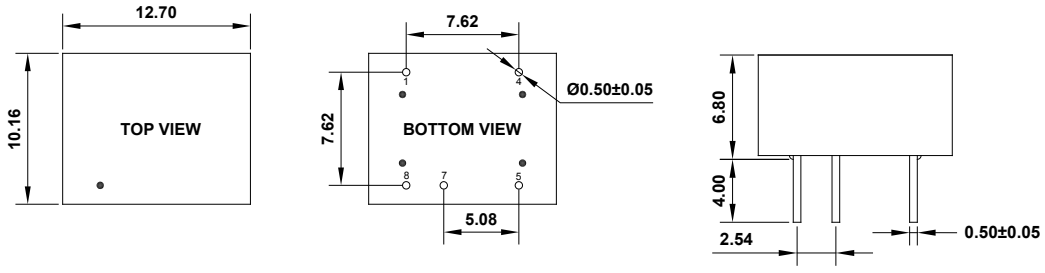
EMC Recommended Circuit Value Table		
EMI	C1	4.7μF /50V
	C2	4.7μF /50V
	CY	1nF/4kV
	C3	Recommended Test Circuit
	L	6.8μH

Markings and Dimensions

Package 2 (T)



Package 3 (R)



UNIT: mm unless otherwise specified, all tolerances are ±0.25

PIN Connection

PIN	1	2	3	4	5	7	8
4Pin	-Vin	+Vin	-Vout	+Vout			
8Pin-S	-Vin			+Vin	+Vout	-Vout	
8Pin-D	-Vin			+Vin	+Vout	Com	-Vout

FEATURES:

- 7 pin SMD package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- High Efficiency up to 87%
- Unregulated Output Types
- 1.5KVDC ~ 3KVDC Isolation
- Industry Standard Pinout
- Designed to IEC62368, UL62368, EN62368
- UL Recognized

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Output Voltage	Output Current	Efficiency	Capacitive Load(μF)
	Vdc	Vdc	mA	%TYP	Max.
EC4-05S05	4.5~5.5	5	200	82	2400
EC4-05S05P	4.5~5.5	5	200	82	2400
EC4-12S05P	9.6~14.4	5	200	82	2400
EC4-12S12P	9.6~14.4	12	84	85	680
EC4-12D05P	9.6~14.4	±5	±100	82	±1200
EC4-15D12P	12~18	±12	±42	85	±330

Note:
1: No suffix is standard isolation (1.5KVDC) e.g., EC4-05S05
*add suffix "3" for 3KVDC isolation

2: No "P" suffix = no short circuit protection, e.g., EC4-05S05
*add suffix "P" for short circuit protection, e.g., EC4-05S05P, EC4-05S12P3

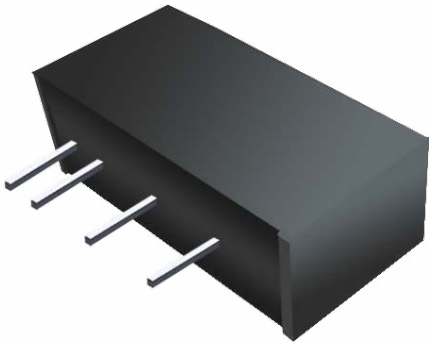
3: Character after "-" is Input Voltage: 12=12Vdc, 15=15Vdc, 24=24Vdc
e.g., EC4-12S05P, EC4-15S12P3, EC4-24S15P.

ADAM TECH

DC-DC Converter

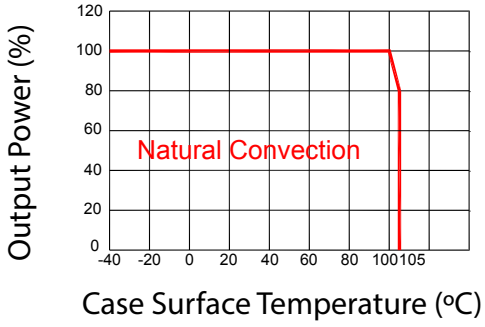
EC4 Series

1 Watt
1.5KV ~ 3KV Isolated
Single & Dual Output
SIP7



RoHS COMPLIANT

Temperature Derating Graph



Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Range	Vo,Io Nom@Vin:5V		±10		%
	Vo,Io Nom@ Vin:12V,15V,24V		±20		%
Filter	Capacitor				

Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±5	%
Short Circuit Protection	without suffix "P"			1	Sec
	With Suffix "P"		Continuous		
Line Regulation	For 1.0% OF Vin		1.2		%
Load Regulation	3.3V (10% To 100% F.L)		15	20	%
	5V (10% To 100% F.L)		10	15	%
	9V (10% To 100% F.L)		8	10	%
	12V (10% To 100% F.L)		7	10	%
	15V (10% To 100% F.L)		6	10	%
	24V (10% To 100% F.L)		5	10	%
Ripple & Noise	BW=DC To 20MHz @Vo:3.3V,5V,9V,12V,15V		30	75	mVp-p
	BW=DC To 20MHz @ Vo:24V		50	100	mVp-p

General Specifications

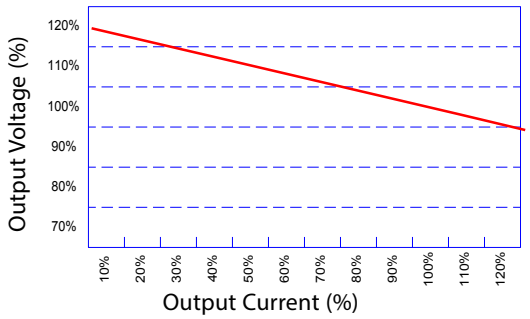
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input @5V Vin		370		KHz
	Full load, nominal input @other Vin		250		KHz
Operating Temperature		-40		+105	ºC
Storage Temperature		-55		+125	ºC
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case Material	DAP				
MTBF	MIL-HDBK-217F@25ºC	3,500,000			Hours
Weight			2.1		g
Dimensions			19.5x6.0x10.0		mm

Part Number

EC4 / A – XX / B X / C XX / D X / E X / F X / G

A: Series
B: Input Voltage
C: Single (S) / Dual Output (D)
D: Output Voltage
E: Regulated (R)
F: Protection (P)
G: Isolation Voltage

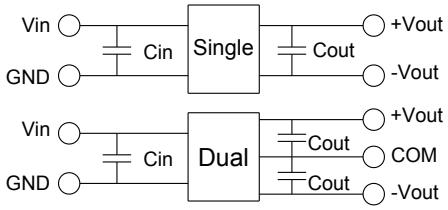
Tolerance Envelope Graph



Electromagnetic Compatibility (EMC)

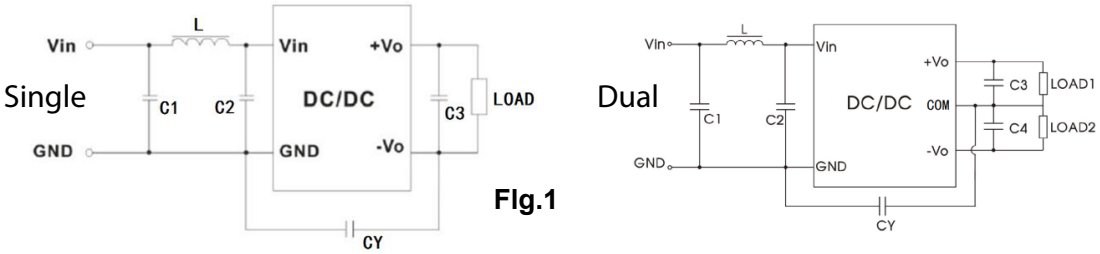
EMI	CE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
	RE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air ±8kV , Contact ±4kV perf. Criteria B

Recommended Test Circuit



Vin	Cin	Single Vout	Cout	Dual Vout	Cout
5Vdc	4.7μF/25V	3.3Vdc	10μF/16V	±3.3Vdc	±4.7μF/16V
12Vdc	2.2μF/25V	5Vdc	10μF/16V	±5Vdc	±4.7μF/16V
15Vdc	2.2μF/25V	9Vdc	2.2μF/16V	±9Vdc	±1μF/16V
24Vdc	1μF/50V	12Vdc	2.2μF/25V	±12Vdc	±1μF/25V
- -	- -	15Vdc	1μF/25V	±15Vdc	±1μF/25V
- -	- -	24Vdc	1μF/50V	±24Vdc	±1μF/50V

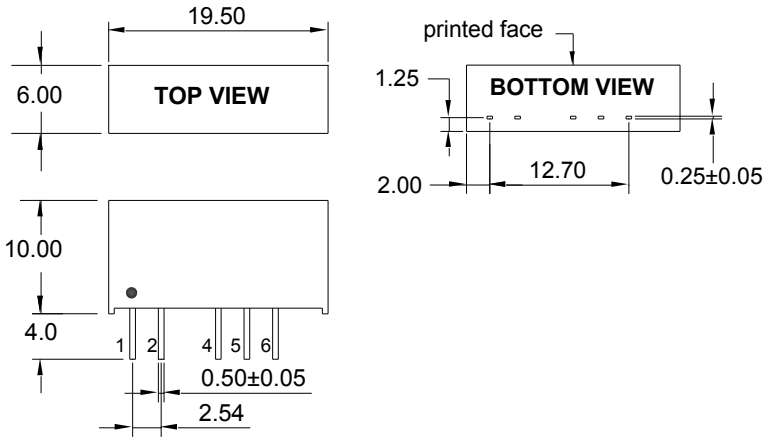
EMC (CLASS B) Compliance Circuit



Flg.1

EMC Recommended Circuit Value Table		
EMI	C1	4.7μF /50V
	C2	4.7μF /50V
	CY	1nF/4kV
	C3	Recommended Test Circuit
	L	6.8μH

Markings and Dimensions

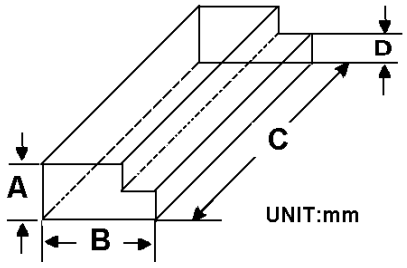


UNIT: mm unless otherwise specified, all tolerances are ±0.25

PIN Connection

PIN	1	2	4	5	6
Single	+Vin	-Vin	-Vout	No Pin	+Vout
Dual	+Vin	-Vin	-Vout	Com	+Vout

Packaging



Size (mm)			
A	B	C	D
9.5	16.5	522	5.0

FEATURES:

- 14 pin SMD package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- High Efficiency up to 87%
- Unregulated Output Types
- 1.5KVDC ~ 3KVDC Isolation
- Industry Standard Pinout
- Designed to IEC62368, UL62368, EN62368
- UL Recognized

ADAM TECH

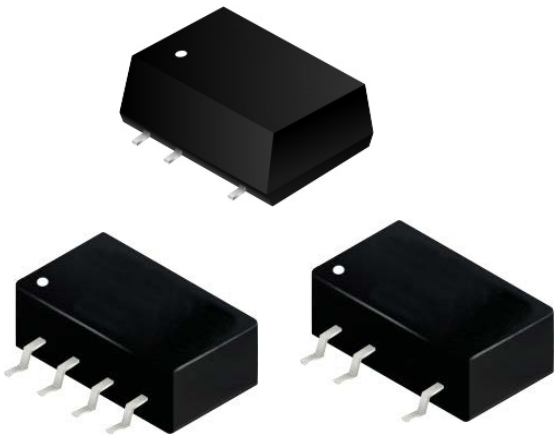
DC-DC Converter

ES3 Series

1 Watt
1.5KV ~ 3KV Isolated
Single Output
SMD14

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Output Voltage	Output Current	Efficiency	Capacitive Load(μF)	Package Style
	Vdc	Vdc	mA	%TYP	Max.	
ES3R-05S05P3	4.5~5.5	5	200	82	2400	R
ES3-05S05P3	4.5~5.5	5	200	82	2400	blank'
ES3R-24S09P3	19.2~28.8	9	112	85	1000	R

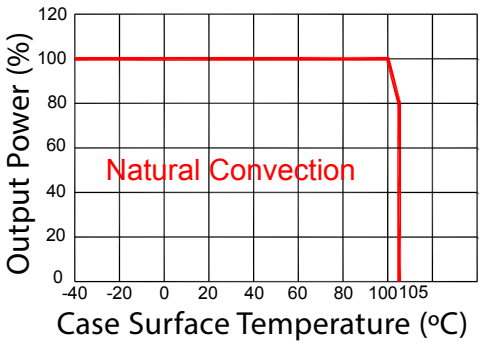


Note:
1: No suffix is standard isolation (1.5KVDC) e.g., ES3-12S05P
*add suffix "3" for 3KVDC isolation, e.g., ES3-12S05P3, ES3-15S12P3,
Package style: no suffix = package 1, T = package 2, R = package 3
e.g., ES3T-15S05P, ES3R-24S12P3
When the I / O is equal to 24V, package 1 and 2 are not available

2: No "P" suffix = no short circuit protection, e.g., ES3-05S05
*add suffix "P" for short circuit protection, e.g., ES3T-05S05P, ES3R-05S12P3

3: Character after "-" is Input Voltage: 12=12Vdc, 15=15Vdc, 24=24Vdc
e.g., ES3R-12S05P, ES3-15S12P3, ES3T-24S15P.

Temperature Derating Graph



Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Range	Vo,Io Nom@Vin:5V		±10		%
	Vo,Io Nom@ Vin:12V,15V,24V		±20		%
Filter	Capacitor				

Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±5	%
Short Circuit Protection	without suffix "P"			1	Sec
	With Suffix "P"		Continuous		
Line Regulation	For 1.0% OF Vin		1.2		%
Load Regulation	3.3V (10% To 100% F.L)		15	20	%
	5V (10% To 100% F.L)		10	15	%
	9V (10% To 100% F.L)		8	10	%
	12V (10% To 100% F.L)		7	10	%
	15V (10% To 100% F.L)		6	10	%
	24V (10% To 100% F.L)		5	10	%
Ripple & Noise	BW=DC To 20MHz @Vo:3.3V,5V,9V,12V,15V		30	75	mVp-p
	BW=DC To 20MHz @ Vo:24V		50	100	mVp-p

General Specifications

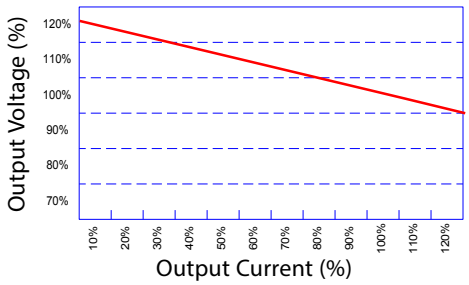
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input @5V Vin		370		KHz
	Full load, nominal input @other Vin		250		KHz
Operating Temperature		-40		+105	ºC
Storage Temperature		-55		+125	ºC
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case Material	DAP				
MTBF	MIL-HDBK-217F@25ºC	3,500,000			Hours
Weight	Package 1/2/3		1.2/1.2/1.28		g
Dimensions	Package 1		12.7x7.6x6.25		mm
	Package 2		12.7x7.6x6.25		mm
	Package 3		12.8x10.8x6.9		mm

Part Number

ES3 X - XX X XX X X
A B C D E F G

A: Series
B: Package
C: Input Voltage
D: Single (S) / Dual Output (D)
E: Output Voltage
F: Protection (P)
G: Isolation Voltage

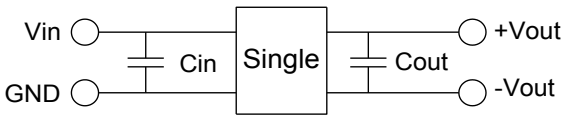
Tolerance Envelope Graph



Electromagnetic Compatibility (EMC)

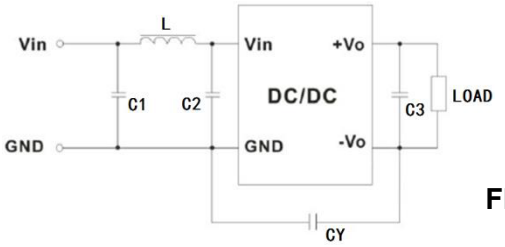
EMI	CE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
	RE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air ±8kV , Contact ±4kV perf. Criteria B

Recommended Test Circuit



Vin	Cin	Single Vout	Cout
5Vdc	4.7μF/25V	3.3Vdc	10μF/16V
12Vdc	2.2μF/25V	5Vdc	10μF/16V
15Vdc	2.2μF/25V	9Vdc	2.2μF/16V
24Vdc	1μF/50V	12Vdc	2.2μF/25V
- -	- -	15Vdc	1μF/25V
- -	- -	24Vdc	1μF/50V

EMC (CLASS B) Compliance Circuit

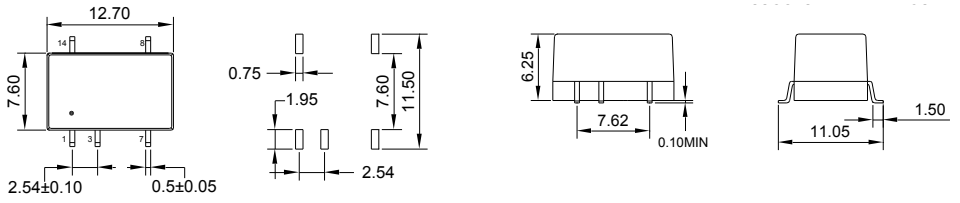


Flg.1

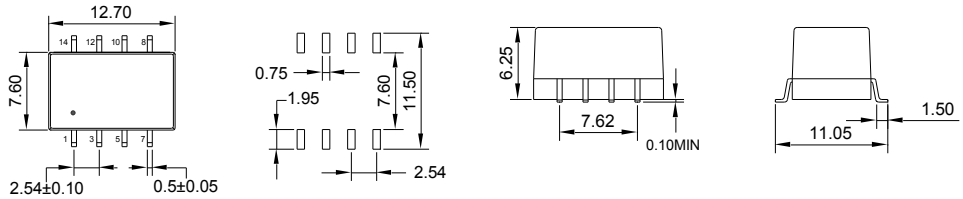
EMC Recommended Circuit Value Table		
EMI	C1	4.7μF /50V
	C2	4.7μF /50V
	CY	1nF/4kV
	C3	Recommended Test Circuit
	L	6.8μH

Markings and Dimensions

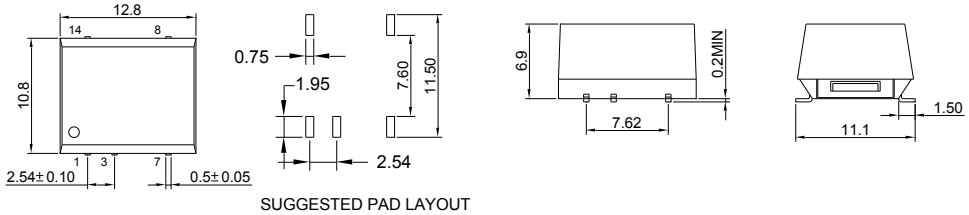
Package 1



Package 2 (T)



Package 3 (R)



UNIT: mm unless otherwise specified, all tolerances are ±0.25

PIN Connection

PIN	1	3	7	8	14	Other
Package 1/3	-Vin	+Vin	-Vout	+Vout	NC	NO PIN
Package 2	-Vin	+Vin	-Vout	+Vout	NC	NC

FEATURES:

- 3 pin SIP package
- Pin-out compatible with LM78XX Linear
- Efficiency up to 96%,Non isolated, no need for heatsink
- Customized Solutions Available
- UL94V-0 Package Material
- Short circuit protection
- UL Recognized

ADAM TECH

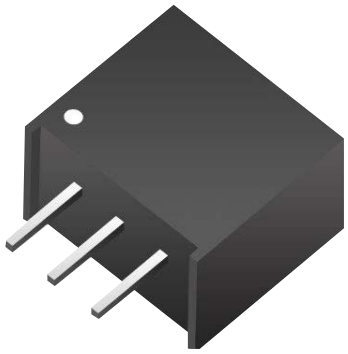
DC-DC Converter

NL1-1A Series

Non-Isolated
Single Output
0.45"*0.3"*0.4"

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

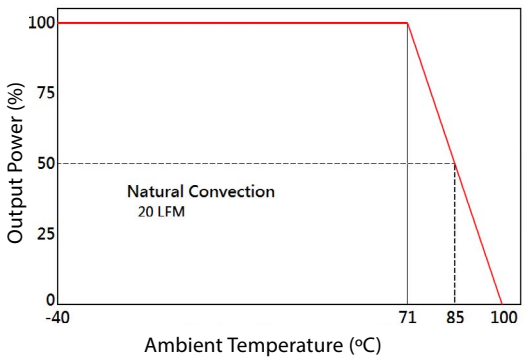
Part Number	Input Voltage Range	Output Voltage	Output Current	Efficiency	
	Vdc	Vdc	mA	Min.Vin(%)	Max.Vin(%)
NL1-3P3-1A	4.75~36	3.3	1000	90	78
NL1-05-1A	6.5~36	5	1000	92	85
NL1-6P5-1A	9.0~36	6.5	1000	93	88
NL1-09-1A	12~36	9	1000	95	90
NL1-12-1A	15~36	12	1000	95	92
NL1-15-1A	18~36	15	1000	96	94



Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance				±2	%
Short Circuit Protection	Hiccup, automatic recovery				
Line Regulation	1.2V to 1.5V			0.3	%
	1.8V to 15V			0.3	%
Load Regulation	1.2V to 1.5V (10% To 100% F.L)			0.6	%
	1.8V to 15V (10% To 100% F.L)			0.4	%
Ripple & Noise (Without Output Capacitor)	1.2V to 6.5V (BW=DC To 20MHz)			50	mVp-p
	9V to 15V (BW=DC To 20MHz)			75	mVp-p
Transient Response Setting Time	25% load step change		250		us
Capacitive Load				470	uF

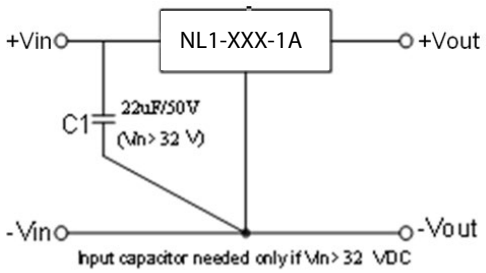
Temperature Derating Graph



General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Switching Frequency			500		KHz
Operation Temperature	With derating	-40		+85	ºC
Storage Temperature		-55		+125	ºC
Humidity	Non Condensing			95	%
Cooling	Natural Convection (20LFM)				
Case Material	Non-Conductive Black Plastic				
Weight			2.0		g
Dimensions			11.6x7.6x10.4		mm
MTBF (+25ºC)	using MIL-HDBK 217F		5000x10^3		hours
MTBF (+71ºC)	using MIL-HDBK 217F		1000x10^3		hours

Application Examples

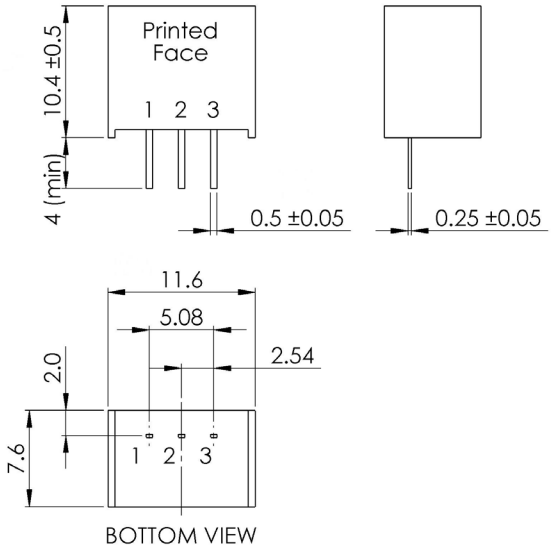


Part Number

$$\frac{NL1}{A} - \frac{XXX}{B} - \frac{1A}{C}$$

A: Series
B: Output Voltage
C: Output Current

Markings and Dimensions



UNIT: mm
Tolerance: XX.X ±0.5, XX.XX ±0.25,

PIN Connection

PIN	1	2	3
Function	+Vin	GND	+Vout

FEATURES:

- 3 pin SIP package
- Pin-out compatible with LM78XX Linear
- Efficiency up to 97%,Non isolated, no need for heatsink
- Customized Solutions Available
- UL94V-0 Package Material
- Short circuit protection, thermal shutdown
- UL Recognized

ADAM TECH

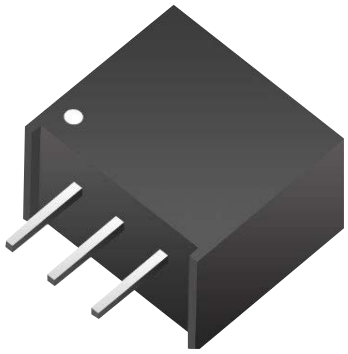
DC-DC Converter

NL1-P5 Series

Non-Isolated
Single Output
0.45"*0.3"*0.4"

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Output Voltage	Output Current	Efficiency	
	Vdc	Vdc	mA	Min.Vin(%)	Max.Vin(%)
NL1-3P3-P5	4.75~34	3.3	500	91	81
NL1-05-P5	6.5~34	5	500	94	86

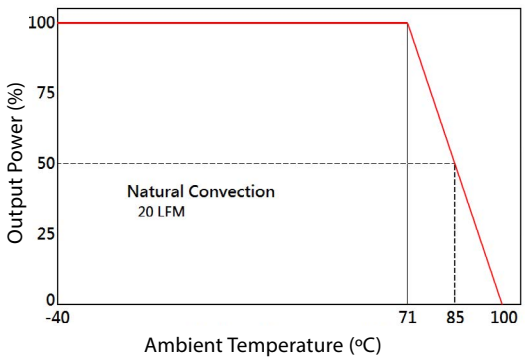


RoHS COMPLIANT

Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance				±3	%
Short Circuit Protection	Hiccup, automatic recovery				
Line Regulation	1.5V to 6.5V			0.4	%
	9V to 15.5V			0.2	%
Load Regulation	1.5V to 6.5V (10% To 100% F.L)			0.6	%
	9V to 15.5V (10% To 100% F.L)			0.4	%
Ripple & Noise (Without Output Capacitor)	1.5V to 6.5V (BW=DC To 20MHz)			30	mVp-p
	9V to 15.5V (BW=DC To 20MHz)			40	mVp-p
Transient Response Setting Time	25% load step change		350		us

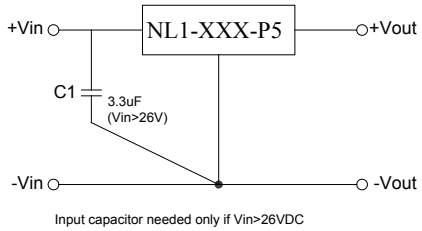
Temperature Derating Graph



General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Switching Frequency			330		KHz
Operation Temperature	With derating	-40		+85	°C
Humidity	Non Condensing			95	%
Cooling	Natural Convection (20LFM)				
Case material	Non-Conductive Black Plastic				
Weight			2.0		g
Dimensions			11.6x7.6x10.4		mm
MTBF(+25°C)	using MIL-HDBK 217F		$21098x10^3$		hours
MTBF(+71°C)	using MIL-HDBK 217F		$4212x10^3$		hours

Application Examples

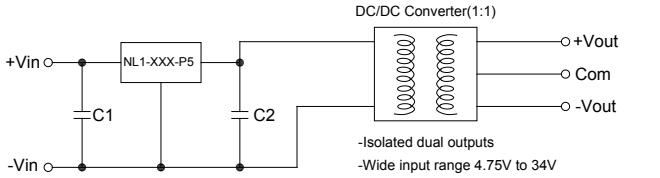


Input capacitor needed only if Vin>26VDC

Add a blocking diode to Vout if current can flow backwards into the output, as this can damage the converter when it is powered down. See Application Examples for details.

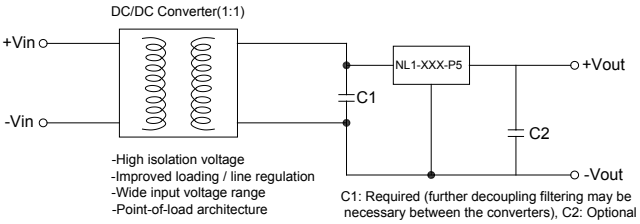
Application Examples

High efficiency, isolated, dual unregulated outputs

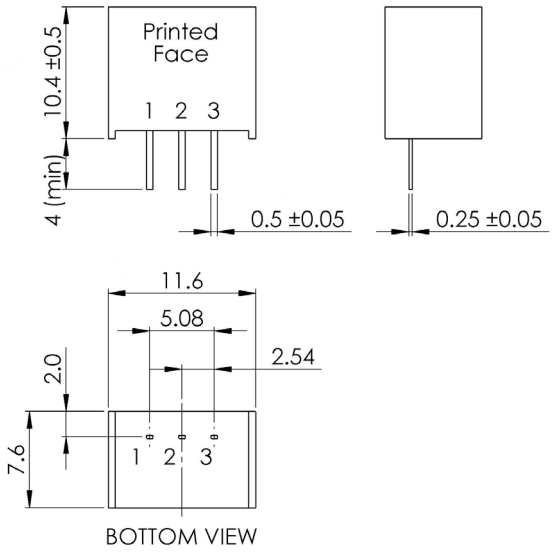


C1: Optional, C2: Required (further decoupling filtering may be necessary between the two converters).

Isolated (up to 6KV), wide input range regulated output



Markings and Dimensions



UNIT: mm
Tolerance: XX.X ±0.5, XX.XX ±0.25,

Part Number

$$\frac{NL1}{A} - \frac{XXX}{B} - \frac{P5}{C}$$

A: Series
B: Output Voltage
C: Output Current

PIN Connection

PIN	1	2	3
Function	+Vin	GND	+Vout

FEATURES:

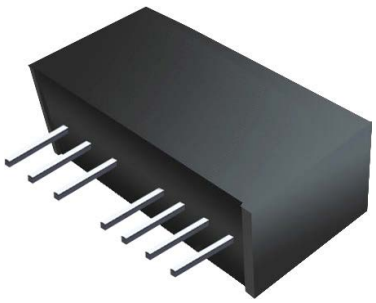
- 2:1 Wide Input Voltages Range
- High Efficiency up to 85%
- Regulated Output Types
- Low Ripple and Noise
- Internal SMD Construction
- 1KVDC & 3KVDC Isolation
- Industry Standard Pinout
- Continuous Short-Circuit Protection With Current Foldback
- UL Recognized

ADAM TECH

DC-DC Converter

RD7 Dual Series

2 Watt 1KV & 3KV Isolated
2:1 Input Voltage Range
Dual Output
SIP7



Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

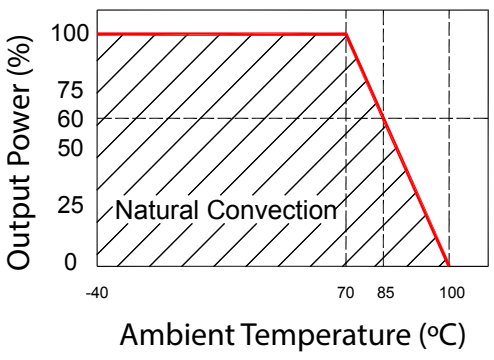
Part Number	Input Voltage Range	Output Voltage	Output Current	Efficiency
	Vdc	Vdc	mA	%TYP
RD7-12D12R	9~18	±12	±84	80
RD7-24D12R	18~36	±12	±84	80

Note:
1: No suffix is standard isolation (1KVDC) e.g., RD7-12D05R
*add suffix "3" for 3KVDC isolation, e.g., RD7-12D05R3

Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Types	Vo,Io Nom			2:1	
Filter	Capacitor				

Temperature Derating Graph



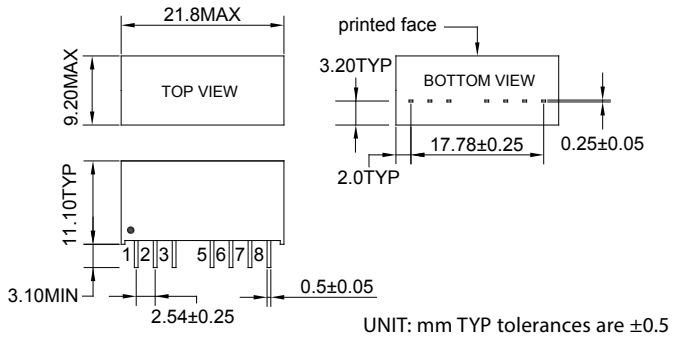
Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±3	%
Short Circuit Protection	Continuous				
Line Regulation	Regulated			±0.5	%
Load Regulation	Regulated			±0.8	%
Ripple & Noise	Output:5-9V TYPES BW=DC To 20MHz			100	mVp-p
	Output:12-24V TYPES BW=DC To 20MHz			1% of Vout	mVp-p
Transient Response Setting Time	50% load step change		350		us

General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Switching Frequency	Full load, nominal input		100		KHz
Operating Temperature		-40		+85	ºC
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case Material	DAP				
MTBF	MIL-HDBK-217F@25ºC	1,500,000			Hours
Weight			4.5		g
Dimensions			21.8x9.2x11.1		mm

Markings and Dimensions



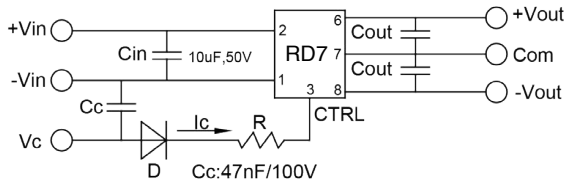
UNIT: mm TYP tolerances are ±0.5

Part Number

RD7 – XX X XX X X
A B C D E F

A: Series
B: Input Voltage
C: Dual Output (D)
D: Output Voltage
E: Regulated (R)
F: Isolation Voltage

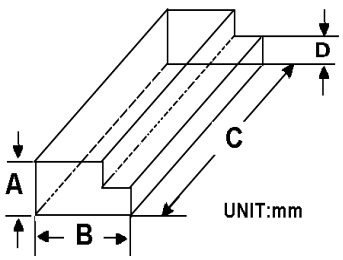
Recommended Test Circuit



5V:Cin 10uF,25V	5V :Cout 100uF/25V
12V:Cin 10uF,50V	9V :Cout 100uF/25V
24V:Cin 10uF,100V	12V:Cout 100uF/25V
48V:Cin 10uF,100V	15V:Cout 100uF/50V
	24V:Cout 100uF/50V

1. When open or high impedance, the converter works well; when this pin is 'high', the converter shuts down. It should be noted that the input current should be between 5-10mA, exceeding the maximum 20mA will cause permanent damage to the converter.
2. To make sure the product works at perfect operation status, a full loading external capacitor is necessary and it is recommended to use a high frequency low resistance electrolytic capacitor.

Packaging



Size (mm)			
A	B	C	D
12.0	28.55	550	6.00

PIN Connection

PIN	1	2	3	5	6	7	8
1KV	-Vin	+Vin	Ctrl-Control input can (can be left open)	NE-No external connection allowed	+Vout	COM	-Vout
3KV	-Vin	+Vin	Ctrl-Control input can (can be left open)	No Pin	+Vout	COM	-Vout

FEATURES:

- 2:1 Wide Input Voltages Range
- High Efficiency up to 85%
- Regulated Output Types
- Low Ripple and Noise
- Internal SMD Construction
- 1KVDC & 3KVDC Isolation
- Industry Standard Pinout
- Continuous Short-Circuit Protection With Current Foldback
- UL Recognized

ADAM TECH

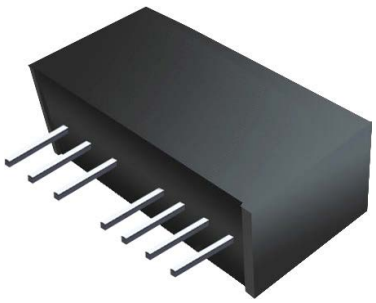
DC-DC Converter

RD7 Single Series

2 Watt 1KV & 3KV Isolated
2:1 Input Voltage Range
Single Output
SIP7

Specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Output Voltage	Output Current	Efficiency
	Vdc	Vdc	mA	%TYP
RD7-05S05R	5~9	5	400	65
RD7-12S09R	9~18	9	222	80
RD7-24S12R	18~36	12	167	80
RD7-05S05R3	5~9	5	400	65
RD7-24S05R3	18~36	5	400	75

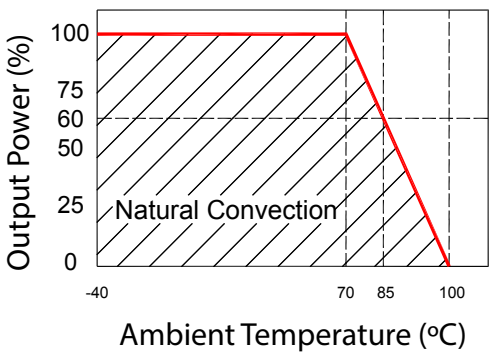


Note:
1: No suffix is standard isolation (1KVDC) e.g., RD7-12S05R
*add suffix "3" for 3KVDC isolation, e.g., RD7-12S05R3

Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Types	Vo,Io Nom			2:1	
Filter	Capacitor				

Temperature Derating Graph



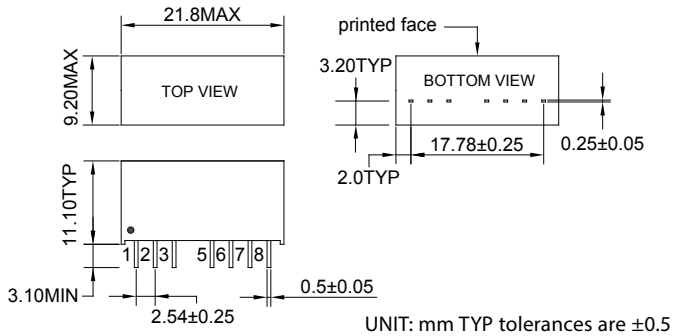
Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±3	%
Short Circuit Protection	Continuous				
Line Regulation	Regulated			±0.5	%
Load Regulation	Regulated			±0.8	%
Ripple & Noise	Output:5-9V TYPES BW=DC To 20MHz			100	mVp-p
	Output:12-24V TYPES BW=DC To 20MHz			1% of Vout	mVp-p
Transient Response Setting Time	50% load step change		350		us

General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Switching Frequency	Full load, nominal input		100		KHz
Operating Temperature		-40		+85	ºC
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case Material	DAP				
MTBF	MIL-HDBK-217F@25ºC	1,500,000			Hours
Weight			4.5		g
Dimensions			21.8x9.2x11.1		mm

Markings and Dimensions



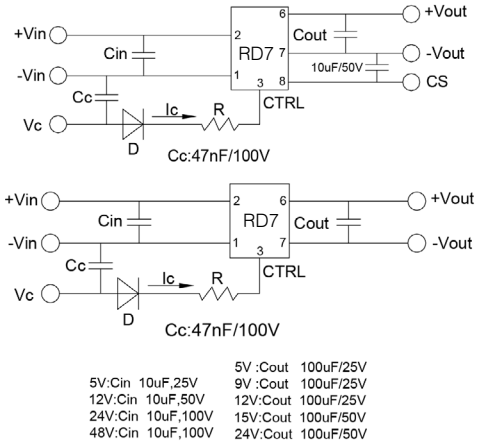
UNIT: mm TYP tolerances are ±0.5

Part Number

$$\frac{RD7}{A} - \frac{XX}{B}\ \frac{X}{C}\ \frac{XX}{D}\ \frac{X}{E}\ \frac{X}{F}$$

A: Series
B: Input Voltage
C: Single Output (S)
D: Output Voltage
E: Regulated (R)
F: Isolation Voltage

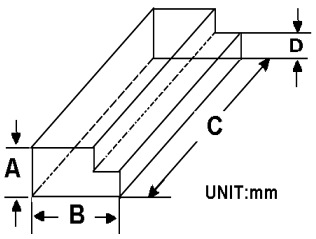
Recommended Test Circuit



5V:Cin 10uF,25V	5V :Cout 100uF/25V
12V:Cin 10uF,50V	9V :Cout 100uF/25V
24V:Cin 10uF,100V	12V:Cout 100uF/25V
48V:Cin 10uF,100V	15V:Cout 100uF/50V
	24V:Cout 100uF/50V

1. When open or high impedance, the converter works well; when this pin is 'high', the converter shuts down. It should be noted that the input current should be between 5-10mA, exceeding the maximum 20mA will cause permanent damage to the converter.
2. To make sure the product works at perfect operation status, a full loading external capacitor is necessary and it is recommended to use a high frequency low resistance electrolytic capacitor.

Packaging



Size (mm)			
A	B	C	D
12.0	28.55	550	6.00

PIN Connection

PIN	1	2	3	5	6	7	8
1KV	-Vin	+Vin	Ctrl-Control input can (can be left open)	NE-No external connection allowed	+Vout	-Vout	CS Optional External capacitor
3KV	-Vin	+Vin	Ctrl-Control input can (can be left open)	No Pin	+Vout	-Vout	NC

FEATURES:

- 2:1 Wide Input Voltages Range
- High Efficiency up to 80%
- Regulated Output Types
- Low Ripple and Noise
- Internal SMD Construction
- 1.5KVDC ~ 3KVDC Isolation
- Industry Standard Pinout
- Continuous Short-Circuit Protection With Current Foldback
- UL Recognized

ADAM TECH

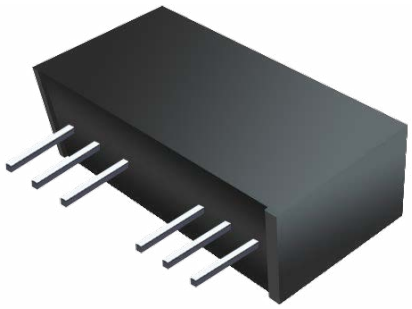
DC-DC Converter

RD7-3W Dual Series

3 Watt 1.5KV ~ 3KV Isolated
2:1 Input Voltage Range
Dual Output
SIP8

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Output Voltage	Output Current	Efficiency
	Vdc	Vdc	mA	%TYP
RD7-24D053R	18~36	±5	±300	70
RD7-12D153R3	9~18	±15	±100	80
RD7-24D123R3	18~36	±12	±125	78
RD7-24D153R3	18~36	±15	±100	80

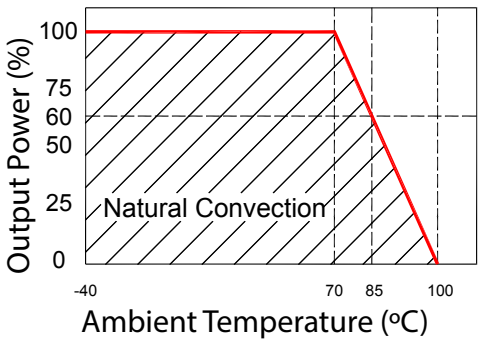


Note:
1: No suffix is standard isolation (1.5KVDC) e.g., RD7-12D053R
*add suffix "3" for 3KVDC isolation, e.g., RD7-12D053R3

Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Types	Vo,Io Nom			2:1	
Filter	Capacitor				

Temperature Derating Graph



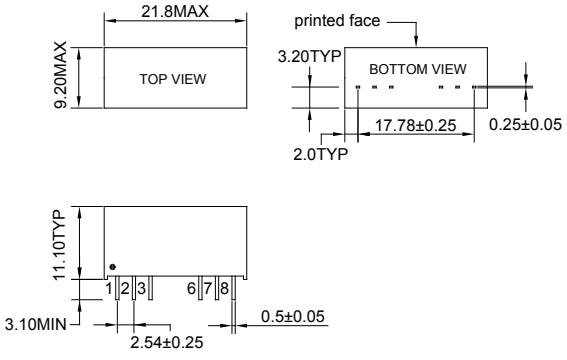
Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±3	%
Short Circuit Protection	Continuous				
Line Regulation	Regulated			±0.5	%
Load Regulation	Regulated			±0.8	%
Ripple & Noise	Output:5-9V TYPES BW=DC To 20MHz			100	mVp-p
	Output:12-15V TYPES BW=DC To 20MHz			1% of Vout	mVp-p
Transient Response Setting Time	50% load step change		350		us

General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Switching Frequency	Full load, nominal input		100		KHz
Operating Temperature		-40		+85	ºC
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case Material	DAP				
MTBF	MIL-HDBK-217F@25ºC	1,500,000			Hours
Weight			4.5		g
Dimensions			21.8x9.2x11.1		mm

Markings and Dimensions



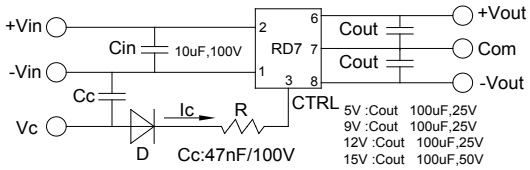
UNIT: mm TYP tolerances are ±0.5

Part Number

RD7 – XX X XX X X X
A B C D E F G

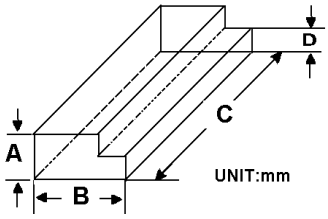
A: Series
B: Input Voltage
C: Dual Output (D)
D: Output Voltage
E: Output Power
F: Regulated (R)
G: Isolation Voltage

Recommended Test Circuit



1. When open or high impedance, the converter works well; when this pin is 'high', the converter shuts down. It should be noted that the input current should be between 5-10mA, exceeding the maximum 20mA will cause permanent damage to the converter.
2. To make sure the product works at perfect operation status, a full loading external capacitor is necessary and it is recommended to use a high frequency low resistance electrolytic capacitor.

Packaging



Size (mm)			
A	B	C	D
12.0	28.55	550	6.00

PIN Connection

PIN	1	2	3	6	7	8
Dual	-Vin	+Vin	Ctrl-Control input can (can be left open)	+Vout	Com	-Vout

FEATURES:

- 2:1 Wide Input Voltages Range
- High Efficiency up to 80%
- Regulated Output Types
- Low Ripple and Noise
- Internal SMD Construction
- 1.5KVDC ~ 3KVDC Isolation
- Industry Standard Pinout
- Continuous Short-Circuit Protection With Current Foldback
- UL Recognized

ADAM TECH

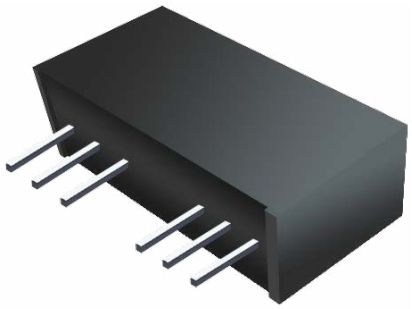
DC-DC Converter

RD7-3W Single Series

3 Watt 1.5KV ~ 3KV Isolated
2:1 Input Voltage Range
Single Output
SIP8

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Output Voltage	Output Current	Efficiency
	Vdc	Vdc	mA	%TYP
RD7-12S033R	9~18	3.3	909	70
RD7-12S123R	9~18	12	250	78
RD7-24S033R	18~36	3.3	700	68
RD7-24S123R	18~36	12	250	78
RD7-24S153R	18~36	15	200	80
RD7-12S053R3	9~18	5	600	70
RD7-24S053R3	18~36	5	600	70
RD7-48S053R3	36~72	5	600	70

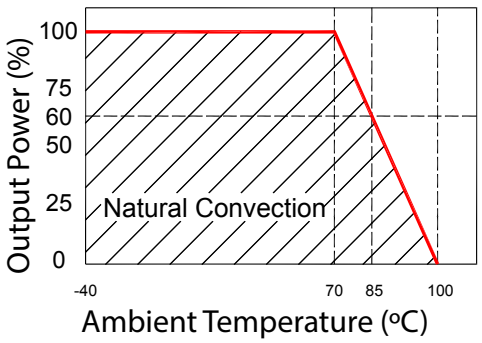


Note:
1: No suffix is standard isolation (1.5KVDC) e.g., RD7-12S053R
*add suffix "3" for 3KVDC isolation, e.g., RD7-12S053R3

Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Types	Vo,Io Nom			2:1	
Filter	Capacitor				

Temperature Derating Graph



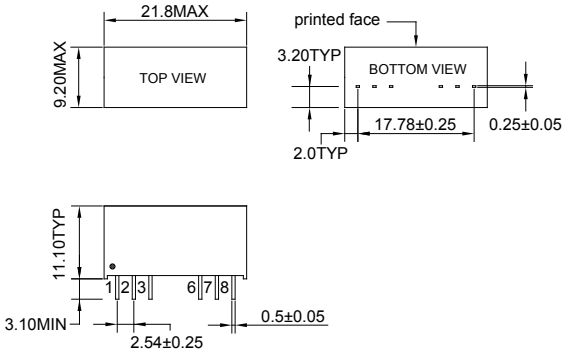
Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±3	%
Short Circuit Protection	Continuous				
Line Regulation	Regulated			±0.5	%
Load Regulation	Regulated			±0.8	%
Ripple & Noise	Output:3.3V-9V TYPES BW=DC To 20MHz			100	mVp-p
	Output:12-15V TYPES BW=DC To 20MHz			1% of Vout	mVp-p
Transient Response Setting Time	50% load step change		350		us

General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Switching Frequency	Full load, nominal input		100		KHz
Operating Temperature		-40		+85	ºC
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case Material	DAP				
MTBF	MIL-HDBK-217F@25ºC	1,500,000			Hours
Weight			4.5		g
Dimensions			21.8x9.2x11.1		mm

Markings and Dimensions



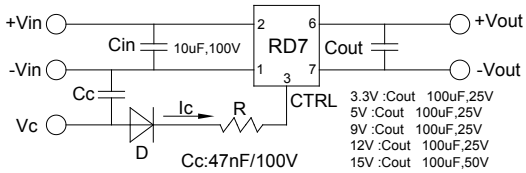
UNIT: mm TYP tolerances are ±0.5

Part Number

RD7 – XX X XX X X X
A B C D E F G

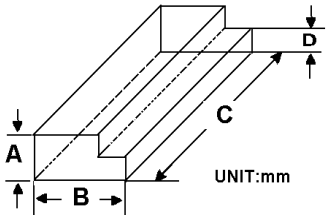
A: Series
B: Input Voltage
C: Single Output (S)
D: Output Voltage
E: Output Power
F: Regulated (R)
G: Isolation Voltage

Recommended Test Circuit



1. When open or high impedance, the converter works well; when this pin is 'high', the converter shuts down. It should be noted that the input current should be between 5-10mA, exceeding the maximum 20mA will cause permanent damage to the converter.
2. To make sure the product works at perfect operation status, a full loading external capacitor is necessary and it is recommended to use a high frequency low resistance electrolytic capacitor.

Packaging



Size (mm)			
A	B	C	D
12.0	28.55	550	6.00

PIN Connection

PIN	1	2	3	6	7	8
Dual	-Vin	+Vin	Ctrl-Control input can (can be left open)	+Vout	-Vout	NC

FEATURES:

- 6 Watt SIP8 package
- 2:1 Wide Input Voltages Range
- 100% Burned In
- High Efficiency up to 86%
- Customized Solutions Available
- Remote Control: On/Off
- UL94V-0 Package Material
- UL Recognized

ADAM TECH

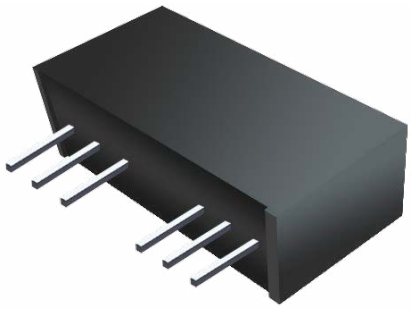
DC-DC Converter

RD7-6W Series

6 Watt 1.5KV Isolated
2:1 Input Voltage Range
Single & Dual Output
SIP8

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

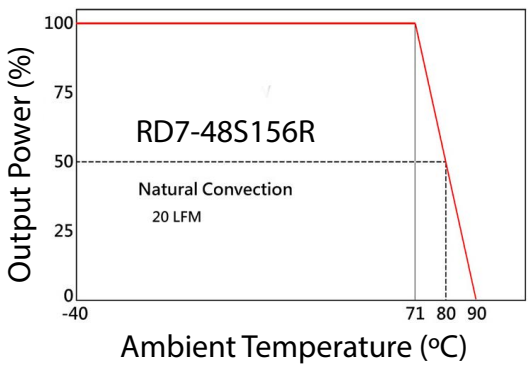
Part Number	Input Voltage Range	Input Current (mA TYP)		Output Voltage Range	Output Current	Efficiency
	Vdc	No Load	Full Load	Vdc	mA	%TYP
RD7-24S036R	18~36	7	255	3.3	1500	81
RD7-24S056R	18~36	7	301	5	1200	83
RD7-24S126R	18~36	7	294	12	500	85
RD7-24S156R	18~36	7	291	15	400	86
RD7-24S246R	18~36	7	294	24	250	85
RD7-12D126R	9~18	5	602	±12	±250	83
RD7-24D156R	18~36	7	298	±15	±200	84



Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Types	Vo,Io Nom			2:1	
Filter	Capacitor				

Temperature Derating Graph



Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±2	%
Short Circuit Protection	Continuous, Auto-Recovery				
Line Regulation		-0.5		+0.5	%
Load Regulation	Single output models Dual output models (Balance Load)	-0.5 -1.0		+0.5 +1.0	%
Ripple & Noise	Output:3V-10V TYPES BW=DC To 20MHz			100	mVp-p
	Output:>10V TYPES BW=DC To 20MHz			1% of Vout	mVp-p
Transient Response Setting Time	25% load step change		250		us

Part Number

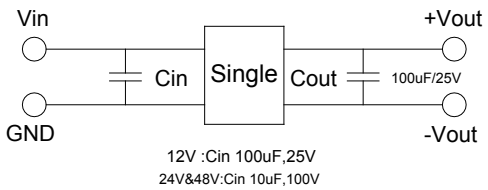
RD7 – XX X XX X X X
A B C D E F G

A: Series
B: Input Voltage
C: Single (S) / Dual Output (D)
D: Output Voltage
E: Output Power
F: Regulated (R)
G: Isolation Voltage

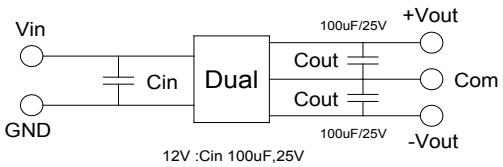
General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Isolation Voltage			1500		Vdc
Isolation Resistance	500Vdc	1000			MΩ
Switching Frequency	Single Dual		400 500		KHz
Operating Temperature		-40		+85	ºC
Storage Temperature		-55		+125	ºC
Humidity	Non Condensing			95	%
Cooling	Natural Convection (20LFM)				
Case Material	DAP				
MTBF	MIL-HDBK-217F@25ºC	1,500,000			Hours
Weight			4.5		g
Dimensions			21.8x9.2x11.1		mm

Recommended Test Circuit

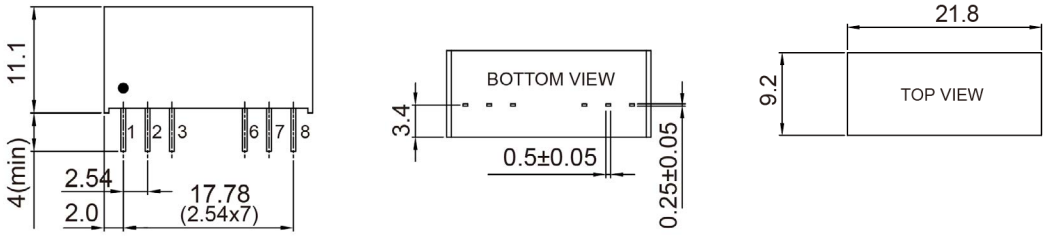


12V :Cin 100uF,25V
24V&48V:Cin 10uF,100V



12V :Cin 100uF,25V
24V & 48V :Cin 10uF,100V

Dimensions



UNIT: mm tolerances are XX.X±0.5, XX.XX±0.25, the tolerance of Pin size is ±0.05

PIN Connection

PIN	1	2	3	6	7	8
Single	-Vin	+Vin	Remote ON/OFF	+Vout	-Vout	NC
Dual	-Vin	+Vin	Remote ON/OFF	+Vout	COM	-Vout

FEATURES:

- 1" X 1" DIL Package
- 4:1 Wide Input Voltages Range
- Regulated Output Types
- High Efficiency Up To 92%
- Customized Solutions Available
- Remote Control: On/Off
- UL/cUL/IEC 60950-1 , 62368-1 Approved (5V/12V Single Output Only)
- EMC Standard of EMI EN55032:2012+AC:2013 (Class B) Approved
- MC Standard of EMS EN55024:2010 Approved
- UL Recognized

ADAM TECH

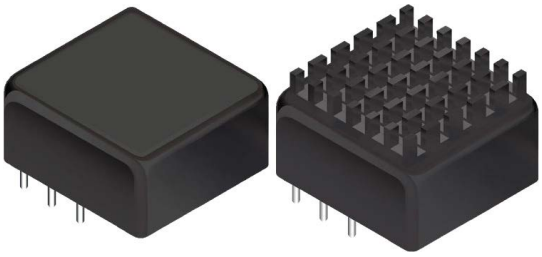
DC-DC Converter

RQ9S Series

30 Watt 1.5KV Isolated
4:1 Input Voltage Range
Single & Dual Output
1" x 1"

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Input Current (mA TYP)		Output Voltage Range	Output Current	Efficiency
	Vdc	No Load	Full Load	Vdc	mA	%TYP
RQ9S-24S12R	9~36	10	1404	12	2500	89
RQ9S-24S05R	9~36	10	1420	5	6000	88
RQ9S-24S24R	9~36	10	1389	24	1250	90
RQ9S-48S05R	18~75	7	702	5	6000	89



Input Specifications

Parameters	Conditions		Min	Typ	Max	Units
Voltage Types	Vo,Io Nom				4:1	
Surge Voltage (1 sec. max.)	24V models				50	Vdc
	48V models				100	
Remote ON/OFF	Positive logic	DC-DC ON			Open or 3 ~ 15VDC	
		DC-DC OFF			Short or 0 ~ 1.2VDC	
	Input current of Ctrl pin				-0.5 ~ +1.0 mA	
	Remote off input current				2.0 mA TYP	

Part Number

RQ9 X – XX X XX X X
A B C D E F G

A: Series
B: Package
C: Input Voltage
D: Single (S) / Dual Output (D)
E: Output Voltage
F: Regulated (R)
G: Isolation Voltage

Output Specifications

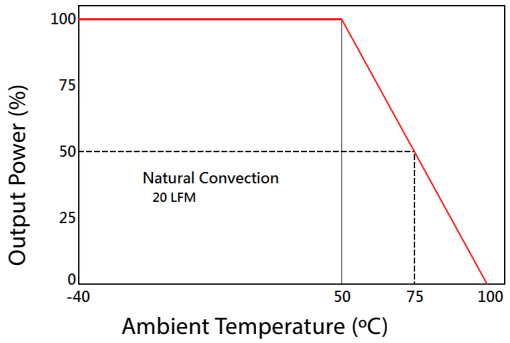
Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±2	%
Short Circuit Protection	Continuous, Auto-Recovery				
Output Power Protection	Continuous, Auto-Recovery	110		170	%
Over Voltage Protection	3.3Vdc	3.7		5.4	Vdc
	5Vdc	5.6		7.0	
	12Vdc	13.5		19.6	
	15Vdc	18.3		22.0	
	24Vdc	29.1		32.5	
Line Regulation	Nominal Input Voltage			±0.5	%
Load Regulation	Single			±0.5	%
Ripple & Noise	BW=DC To 20MHz Single: 3.3V & 5V with 22uF 12V & 15V with 2*22uF 24V with 2*6.8uF			100	mVp-p
Start up time	Nominal Input Voltage			30	ms
Transient Response Setting Time	25% load step change		350		us

General Specifications

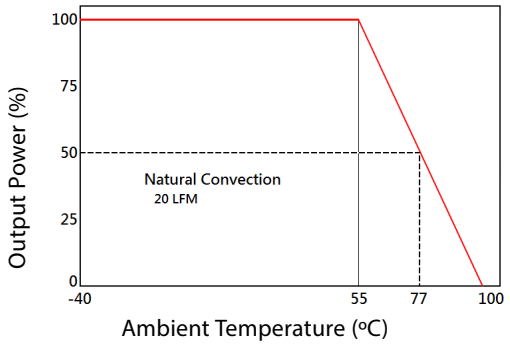
Parameters	Conditions	Min	Typ	Max	Units
Isolation Voltage	Input To Output Input (Output) To Case	1500 1000			Vdc
Isolation Resistance	500Vdc	1000			MΩ
Switching Frequency	3.3 & 5.0 Vout models: other models:	245 300	275 330	305 360	KHz
Operating Temperature	Without Heatsink With Heatsink	-40 -40		75 77	ºC
Case Temperature				105	ºC
Humidity	Non Condensing	5		95	%
Cooling	Natural Convection (20LFM)				
Case Material	Six-side shield case				
MTBF	MIL-HDBK-217F@25ºC	1,200,000			Hours
Weight	Without Heatsink With Heatsink		22 24.5		g
Dimensions			25.4x25.4x10.6		mm

Temperature Derating Graph @20LFM

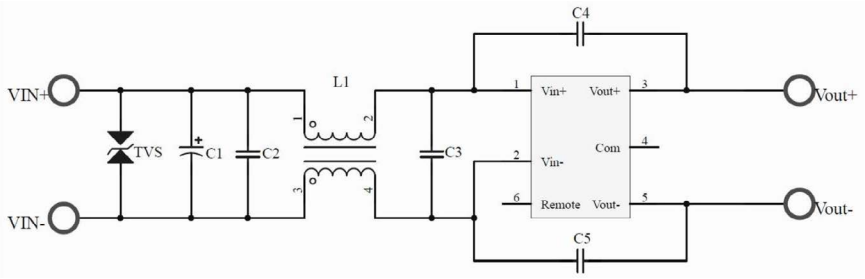
Derating Curve



Derating Curve With Heat-Sink

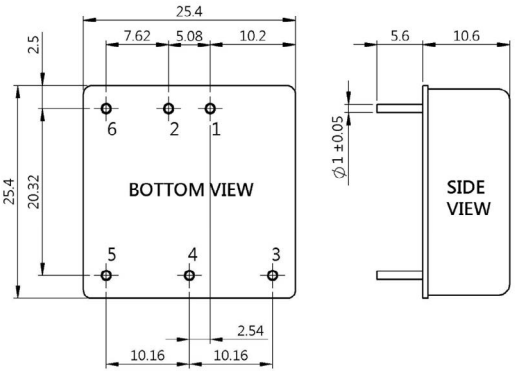


Recommended Test Circuit



24V	C1 220uF/100V&C2&C3 4.7uF/50V	C4&C5 2200pF/2kV	L1 0.94mH	TVS 3.0SMCJ58AG
48V	C1 220uF/100V&C2&C3 4.7uF/100V	C4&C5 3200pF/2kV	L1 6.20mH	TVS 3.0SMCJ120AG

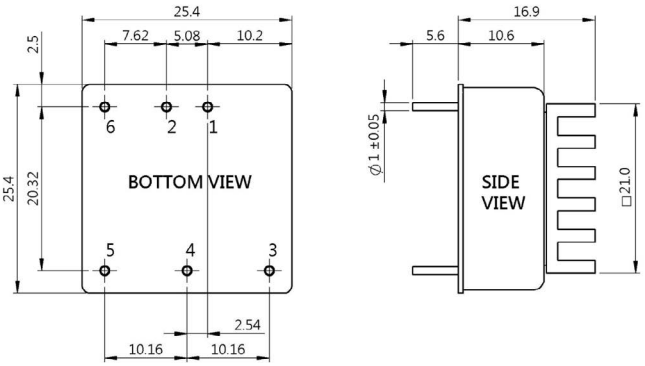
Dimensions



No Heat Sink

UNIT: mm

Tolerances are XX.X±0.5, XX.XX±0.25



Heat Sink

UNIT: mm

Tolerances are XX.X±0.5, XX.XX±0.25

PIN Connection

PIN	1	2	3	4	5	6
Single	+Vin	-Vin	+Vout	Trim	-Vout	Remote ON/OFF
Dual	+Vin	-Vin	+Vout	Com	-Vout	Remote ON/OFF

FEATURES:

- 15 Watt DIL Package
- 4:1 Wide Input Voltage Range
- High Efficiency Up To 91%
- Regulated Output Types
- No Minimum Load Required
- Over Power and Short Circuit Protection
- UL94V-0 Package Material
- 100% Burned In
- UL Recognized

ADAM TECH

DC-DC Converter

KR15 Series

15 Watt
1600Vdc Isolated
4:1 Input Voltage Range
Single & Dual Output
DIP24 Package

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Input Current (mA TYP)		Output Voltage Range	Output Current	Efficiency	Maximum Capacitor Load
		No-Load	Full-Load				
	Vdc	mA (typ)	mA (typ)	Vdc	mA (typ)	% (typ)	μ F
KR15-24S12	9~36	7	702	12	1250	89	1200
KR15-24S24	9~36	7	694	24	625	90	300

Part Number

KR 15 – XX X XX
A B C D E

A: Series
B: Output Power
C: Input Voltage
D: Single (S) / Dual Output (D)
E: Output Voltage

Input Specifications

Parameters	Conditions		Min	Typ	Max	Units
Input Voltage	24V models		9		36	Vdc
	48V models		18		75	
Input Surge Voltage (100 ms max.)	24V models		-0.7		50	Vdc
	48V models		-0.7		100	
Start-up Voltage	24V models				9	Vdc
	48V models				18	
Under Voltage Shutdown	24V models			7.5		Vdc
	48V models			16		
Start-up Time	Constant Resistive Load, Nominal Vin	Power-up		30		ms
		Remote ON/OFF		30		
Input Filter	All Models			Internal Pi type		
Remote ON/OFF (Ctrl PIN Refer to -Vin PIN)	Positive Logic	DC-DC ON		Open or 3.5 ~ 12VDC		
		DC-DC OFF		Short or 0 ~ 1.2VDC		
	Input Current of Ctrl Pin		-0.5		0.5	mA
	Remote Off Input Current			3		

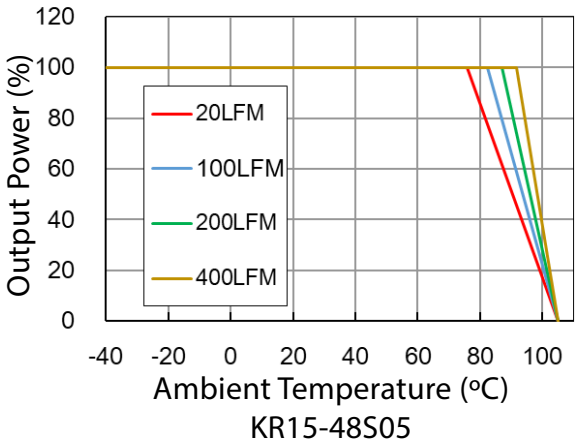
Output Specifications

Parameters	Conditions		Min	Typ	Max	Units
Voltage Tolerance	100% Load		-2		+2	%
Line Regulation	Vin (min) to Vin (max) @100% Load		-0.2		+0.2	%
Load Regulation	0% Load to 100% Load	5V Output	-1		+1	%
		Other Outputs	-0.5		+0.5	
Load Cross Regulation	Asymmetrical Load 25% / 100% Load	Dual Output	-5.0		+5.0	%
Ripple & Noise (BW=20MHz)	24Vout				150	mVp-p
	Other Outputs				100	
Transient Response Setting Time	25% Load Step Change			300	500	us
Transient Response Deviation	25% Load Step Change		-5	±3	+5	%
Temperature Coefficient			-0.02		+0.02	%/°C
Output Power Protection	% of Io, Hiccup mode, Auto-recovery		120	150	180	%
Short Circuit Protection	Continuous [Hiccup Mode], Auto-Recovery					
Over Voltage Protection	5Vout			6.2		Vdc
	12Vout			15		
	15Vout			18		
	24Vout			30		

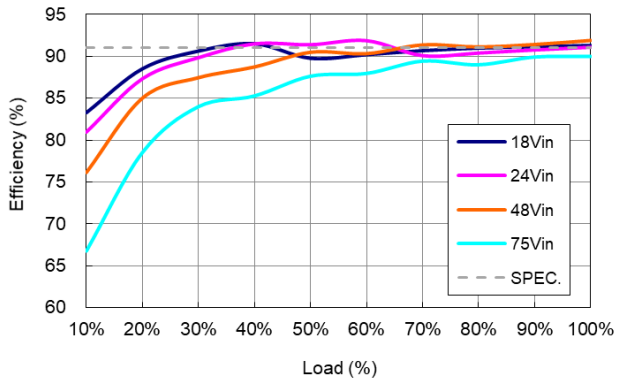
General Specifications

Parameters	Conditions		Min	Typ	Max	Units
Isolation Voltage	Input To Output (60 sec)		1600			Vdc
	Input (Output) To Case (60 sec)		1000			Vdc
Isolation Resistance	500Vdc		1000			MΩ
Isolation Capacitance	100kHz, 1V				2200	pF
Switching Frequency	100% Load, Nominal Input	5V Output		250		KHz
		Other Output		330		
Operating Ambient Temperature (Power Derating See Derating Graph)	Nominal Vin, 100% Load	KR15-24S05, KR15-48S05 KR15-48S15, KR15-48S24	-40		+75.9	ºC
		KR15-24S12, KR15-24D12			+68.7	
		KR15-24S15, KR15-24S24, KR15-24D15, KR15-48S12, KR15-48D12, KR15-48D15			+72.3	
Thermal Impedance	20LFM				19.6	ºC/W
	100LFM				15.3	
	200LFM				12.1	
	400LFM				8.9	
Maximum Case Temperature					+105	ºC
Storage Temperature			-55		+125	ºC
Humidity	Non Condensing		5		95	%
Cooling	Natural Convection					
Case Material	Copper					
Potting Material	Silicone (UL94-V0)					
MTBF	MIL-HDBK-217F@25ºC (calculated)			9.03X10^5		Hours
Weight				17		g
Dimensions	31.6 x 20.1 x 10.0					mm

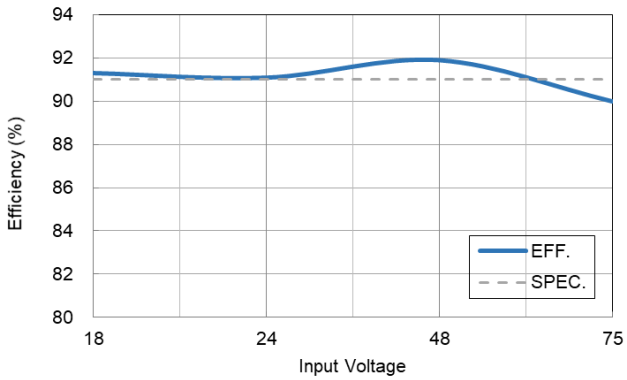
Temperature Derating Graph



Characteristic Curve

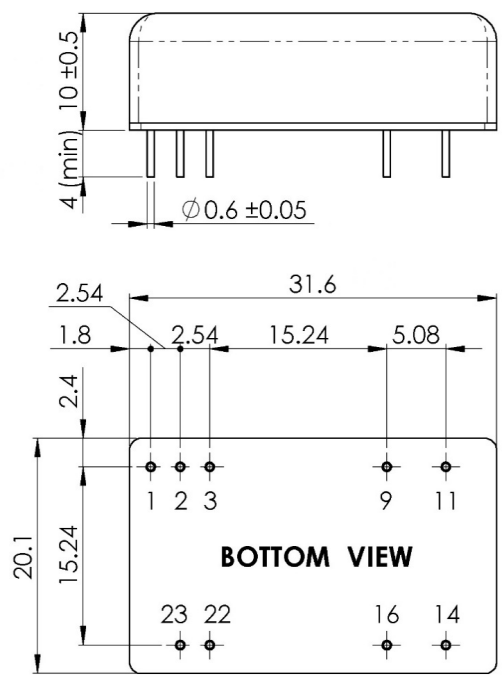


KR15-48S05



KR15-48S05

Dimensions



UNIT: mm
Tolerances are XX.X±0.5, XX.XX±0.25

PIN Assignment

PIN	Single	Dual	Diameter
1	Ctrl	Ctrl	0.6mm [0.024"]
2	-Vin	-Vin	0.6mm [0.024"]
3	-Vin	-Vin	0.6mm [0.024"]
9	NC	Com	0.6mm [0.024"]
11	NC	-Vout	0.6mm [0.024"]
14	+Vout	+Vout	0.6mm [0.024"]
16	-Vout	Com	0.6mm [0.024"]
22	+Vin	+Vin	0.6mm [0.024"]
23	+Vin	+Vin	0.6mm [0.024"]

FEATURES:

- 10 Watt DIL Package
- 4:1 Wide Input Voltage Range
- High Efficiency Up To 88%
- Regulated Output Types
- No Minimum Load Required
- Over Power and Short Circuit Protection
- UL94V-0 Package Material
- 100% Burned In
- UL Recognized

ADAM TECH

DC-DC Converter

UC10 Series

10 Watt
1600Vdc Isolated
4:1 Input Voltage Range
Single & Dual Output
DIP16 Package

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Input Current (mA TYP)		Output Voltage Range	Output Current	Efficiency	Maximum Capacitor Load
		No-Load	Full-Load				
	Vdc	mA (typ)	mA (typ)	Vdc	mA (typ)	% (typ)	µ F
UC10-24S12	9~36	9	479	12	833	87	660
UC10-24S24	9~36	9	483	24	416	88	240
UC10-24D15	9~36	9	473	±15	±333	88	±270

Part Number

$$\frac{UC}{A}\ \frac{10}{B}\ -\ \frac{XX}{C}\ \frac{X}{D}\ \frac{XX}{E}$$

A: Series
B: Output Power
C: Input Voltage
D: Single (S) / Dual Output (D)
E: Output Voltage

Input Specifications

Parameters	Conditions		Min	Typ	Max	Units
Input Voltage	24V models		9		36	Vdc
	48V models		18		75	
Input Surge Voltage (100 ms max.)	24V models		-0.7		50	Vdc
	48V models		-0.7		100	
Start-up Voltage	24V models				9	Vdc
	48V models				18	
Under Voltage Shutdown	24V models			8		Vdc
	48V models			15		
Start-up Time	Constant Resistive Load, Nominal Vin	Power-up		30		ms
Input Filter	All Models			Internal LC type		

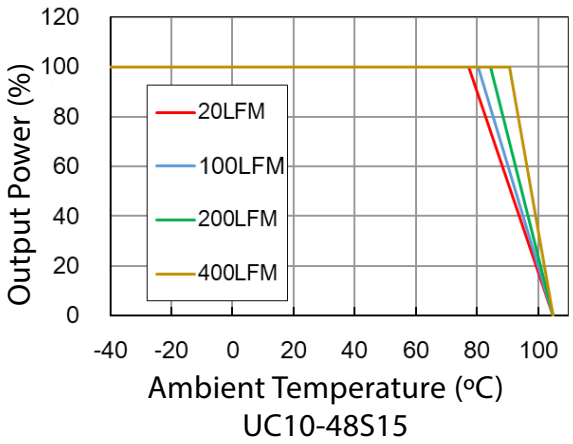
Output Specifications

Parameters	Conditions		Min	Typ	Max	Units
Voltage Tolerance	100% Load		-2		+2	%
Line Regulation	Vin (min) to Vin (max) @100% Load		-0.5		+0.5	%
Load Regulation	0% Load to 100% Load		-0.5		+0.5	%
Load Cross Regulation	Asymmetrical Load 25% / 100% Load	Dual Output	-5.0		+5.0	%
Ripple & Noise (BW=20MHz)	All models			60	100	mVp-p
Transient Response Setting Time	25% Load Step Change			350	500	us
Transient Response Deviation	25% Load Step Change		-5	±3	+5	%
Temperature Coefficient			-0.03		+0.03	%/°C
Output Power Protection	% of Io, Hiccup mode, Auto-recovery		120	155	190	%
Short Circuit Protection	Continuous [Hiccup Mode], Auto-Recovery					
Over Voltage Protection	5Vout			6.2		Vdc
	12Vout			15		
	15Vout			18		
	24Vout			30		

General Specifications

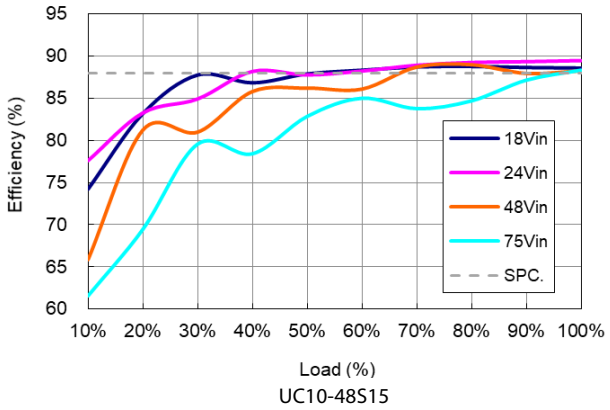
Parameters	Conditions		Min	Typ	Max	Units
Isolation Voltage	Input To Output (60 sec)		1600			Vdc
Isolation Resistance	500Vdc		1000			MΩ
Isolation Capacitance	100kHz, 1V				2200	pF
Switching Frequency	100% Load, Nominal Input	Other Output		390		KHz
Operating Ambient Temperature (Power Derating See Derating Graph)	Nominal Vin, 100% Load	UC10-24S05, UC10-48S05	-40		+66	ºC
		UC10-24S12, UC10-48S12			+74	
		UC10-24S15, UC10-48S15 UC10-24S24, UC10-48S24 UC10-24D12, UC10-48D12 UC10-24D15, UC10-48D15			+77	
Thermal Impedance	20LFM			20.4		ºC/W
	100LFM			18.1		
	200LFM			15.1		
	400LFM			10.5		
Maximum Case Temperature					+105	ºC
Storage Temperature			-55		+125	ºC
Humidity	Non Condensing		5		95	%
Cooling	Natural Convection					
Case Material	Copper, Black Coating					
Potting Material	Silicone (UL94-V0)					
MTBF	MIL-HDBK-217F@25ºC (calculated)			$1.1X10^6$		Hours
Weight				10		g
Dimensions	24.0 x 14.0 x 9.8					mm

Temperature Derating Graph

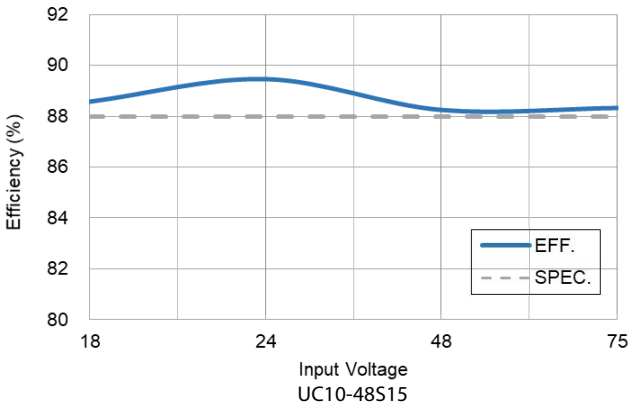


UC10-48S15

Characteristic Curve

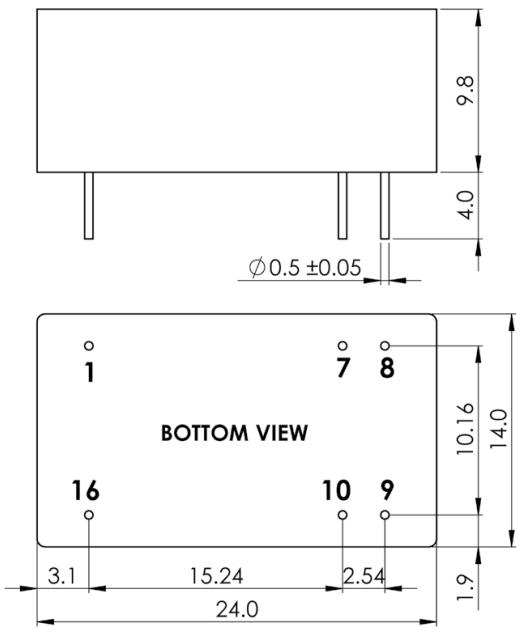


UC10-48S15



UC10-48S15

Dimensions



UNIT: mm
Tolerances are XX.X±0.5, XX.XX±0.25

PIN Assignment

PIN	Single	Dual	Diameter
1	-Vin	-Vin	0.5mm [0.02″]
7	NC	NC	0.5mm [0.02″]
8	NC	Com	0.5mm [0.02″]
9	+Vout	+Vout	0.5mm [0.02″]
10	-Vout	-Vout	0.5mm [0.02″]
16	+Vin	+Vin	0.5mm [0.02″]

FEATURES:

- 15 Watt DIL Package
- 4:1 Wide Input Voltage Range
- High Efficiency Up To 90%
- Regulated Output Types
- No Minimum Load Required
- Over Power and Short Circuit Protection
- UL94V-0 Package Material
- 100% Burned In
- UL Recognized

ADAM TECH

DC-DC Converter

UC15 Series

15 Watt
1600Vdc Isolated
4:1 Input Voltage Range
Single & Dual Output
DIP16 Package

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Input Current (mA TYP)		Output Voltage Range	Output Current	Efficiency	Maximum Capacitor Load
		No-Load	Full-Load				
	Vdc	mA (typ)	mA (typ)	Vdc	mA (typ)	% (typ)	μ F
UC15-24S12	9~36	10	702	12	1250	89	1000
UC15-24S24	9~36	10	702	24	625	89	360
UC15-24D15	9~36	10	702	±15	±500	89	±360

Part Number

$$\frac{UC}{A}\ \frac{15}{B}\ -\ \frac{XX}{C}\ \frac{X}{D}\ \frac{XX}{E}$$

A: Series
B: Output Power
C: Input Voltage
D: Single (S) / Dual Output (D)
E: Output Voltage

Input Specifications

Parameters	Conditions		Min	Typ	Max	Units
Input Voltage	24V models		9		36	Vdc
	48V models		18		75	
Input Surge Voltage (100 ms max.)	24V models		-0.7		50	Vdc
	48V models		-0.7		100	
Start-up Voltage	24V models				9	Vdc
	48V models				18	
Under Voltage Shutdown	24V models			8		Vdc
	48V models			15		
Start-up Time	Constant Resistive Load, Nominal Vin	Power-up		35		ms
Input Filter	All Models			Internal LC type		

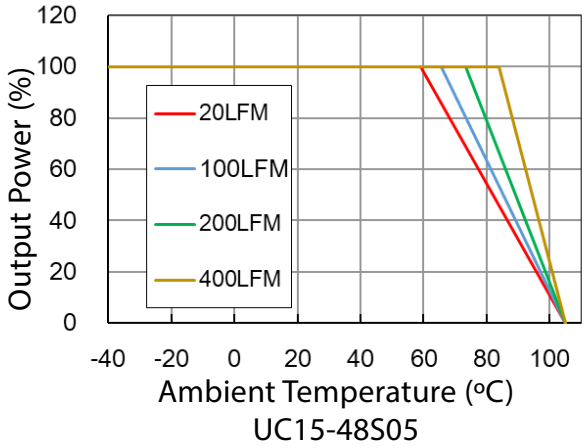
Output Specifications

Parameters	Conditions		Min	Typ	Max	Units
Voltage Tolerance	100% Load		-2		+2	%
Line Regulation	Vin (min) to Vin (max) @100% Load		-0.5		+0.5	%
Load Regulation	0% Load to 100% Load		-0.5		+0.5	%
Load Cross Regulation	Asymmetrical Load 25% / 100% Load	Dual Output	-5.0		+5.0	%
Ripple & Noise (BW=20MHz)	All models			60	100	mVp-p
Transient Response Setting Time	25% Load Step Change			350	500	us
Transient Response Deviation	25% Load Step Change		-5	±3	+5	%
Temperature Coefficient			-0.02		+0.02	%/°C
Output Power Protection	% of Io, Hiccup mode, Auto-recovery		120	155	190	%
Short Circuit Protection	Continuous [Hiccup Mode], Auto-Recovery					
Over Voltage Protection	5Vout			6.2		Vdc
	12Vout			15		
	15Vout			18		
	24Vout			30		

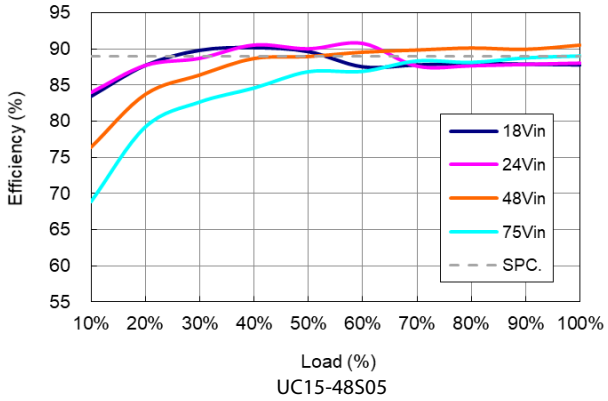
General Specifications

Parameters	Conditions		Min	Typ	Max	Units
Isolation Voltage	Input To Output (60 sec)		1600			Vdc
	Input (Output) To Case (60sec)		1000			Vdc
Isolation Resistance	500Vdc		1000			MΩ
Isolation Capacitance	100kHz, 1V				2200	pF
Switching Frequency	100% Load, Nominal Input	5V Output		270		KHz
		Other Output		390		
Operating Ambient Temperature (Power Derating See Derating Graph)	Nominal Vin, 100% Load	UC15-24S05, UC15-48S05 UC15-24S12, UC15-48S12 UC15-24S24, UC15-48S24 UC15-24D15, UC15-48D12	-40		+59.2	ºC
		UC15-24S15, UC15-48S15 UC15-24D12			+54.5	
		UC15-48D15			+63.8	
Thermal Impedance	20LFM			24.7		ºC/W
	100LFM			21.2		
	200LFM			17.1		
	400LFM			11.3		
Maximum Case Temperature					+105	ºC
Storage Temperature			-55		+125	ºC
Humidity	Non Condensing		5		95	%
Cooling	Natural Convection					
Case Material	Copper, Black Coating					
Potting Material	Silicone (UL94-V0)					
MTBF	MIL-HDBK-217F@25ºC (calculated)			7.5X10^5		Hours
Weight				11		g
Dimensions	24.0 x 14.0 x 9.8					mm

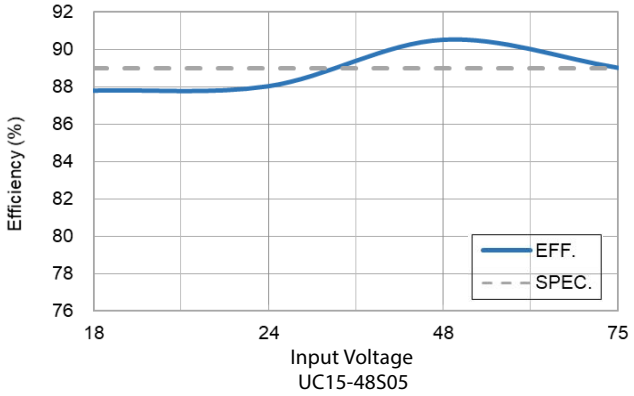
Temperature Derating Graph



Characteristic Curve

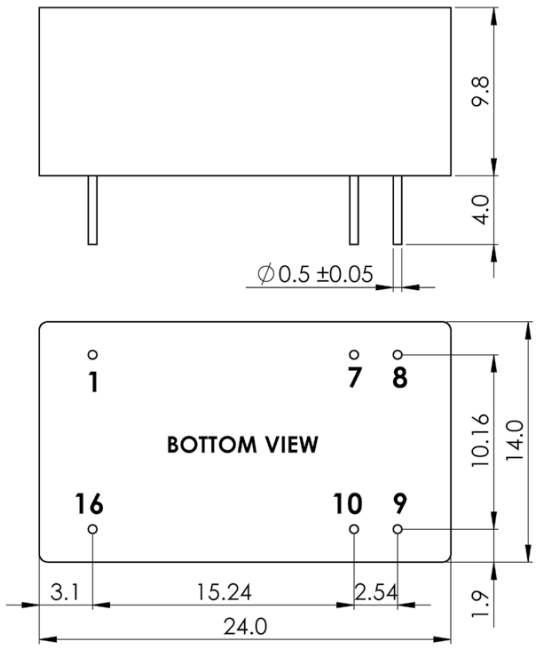


UC15-48S05



UC15-48S05

Dimensions



UNIT: mm
Tolerances are XX.X±0.5, XX.XX±0.25

PIN Assignment

PIN	Single	Dual	Diameter
1	-Vin	-Vin	0.5mm [0.02″]
7	NC	NC	0.5mm [0.02″]
8	NC	Com	0.5mm [0.02″]
9	+Vout	+Vout	0.5mm [0.02″]
10	-Vout	-Vout	0.5mm [0.02″]
16	+Vin	+Vin	0.5mm [0.02″]

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