

## 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

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

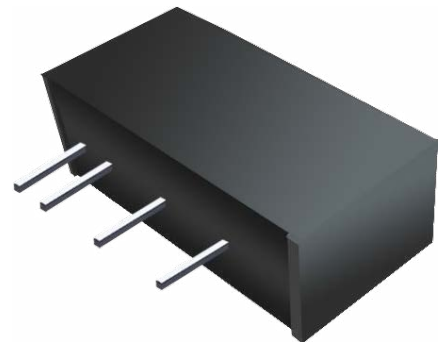
2: No "P" suffix = no short circuit protection, e.g., EC4-05S05  
\*add suffix "P" for short circuit protection, e.g., EC4-05S05P, EC4-05S12P3

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

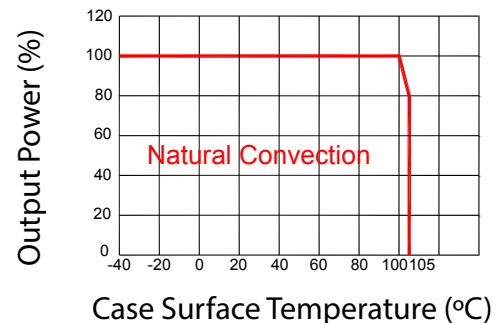
# ADAM TECH

## DC-DC Converter EC4 Series

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



### 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		%
	3.3V (10% To 100% F.L)		15	20	%
Load Regulation	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

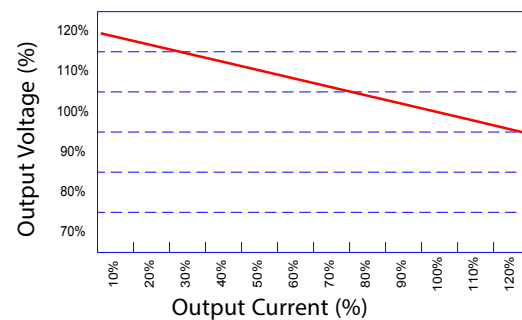
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input @5V Vin		370		KHz
	Full load, nominal input @other Vin		250		KHz
Operating Temperature		-40		+105	°C
Storage Temperature	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

## Part Number

EC4 - XX X XX X 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: Regulated (R)  
F: Protection (P)  
G: Isolation Voltage

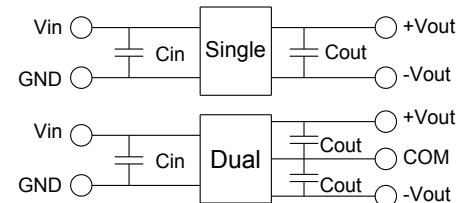
## Tolerance Envelope Graph



## Electromagnetic Compatibility (EMC)

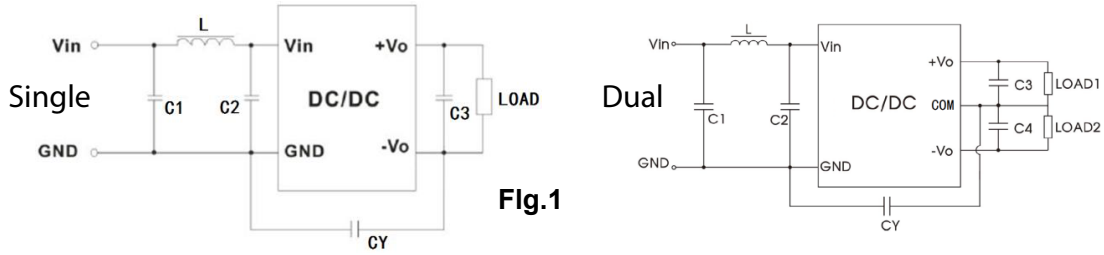
EMI	CE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
	RE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air ±8kV , Contact ±4kV perf. Criteria B

## Recommended Test Circuit



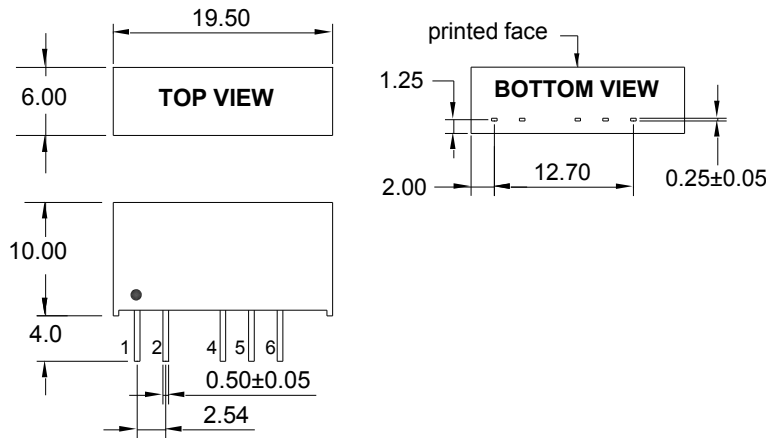
Vin	Cin	Single Vout	Cout	Dual Vout	Cout
5Vdc	4.7µF/25V	3.3Vdc	10µF/16V	±3.3Vdc	±4.7µF/16V
12Vdc	2.2µF/25V	5Vdc	10µF/16V	±5Vdc	±4.7µF/16V
15Vdc	2.2µF/25V	9Vdc	2.2µF/16V	±9Vdc	±1µF/16V
24Vdc	1µF/50V	12Vdc	2.2µF/25V	±12Vdc	±1µF/25V
--	--	15Vdc	1µF/25V	±15Vdc	±1µF/25V
--	--	24Vdc	1µF/50V	±24Vdc	±1µF/50V

**EMC (CLASS B) Compliance Circuit**



EMC Recommended Circuit Value Table		
EMI	C1	4.7 $\mu$ F / 50V
	C2	4.7 $\mu$ F / 50V
	CY	1nF/4kV
	C3	Recommended Test Circuit
	L	6.8 $\mu$ H

**Markings and Dimensions**

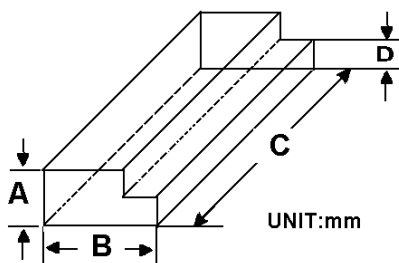


UNIT: mm unless otherwise specified, all tolerances are  $\pm 0.25$

**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