

## 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

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

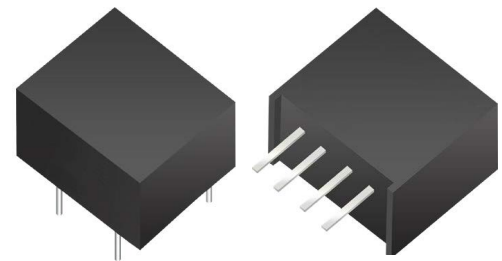
2: No "P" suffix = no short circuit protection, e.g., EC3-05S05  
 \*add suffix "P" for short circuit protection, e.g., EC3T-05S05P, EC3R-05S12P3

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

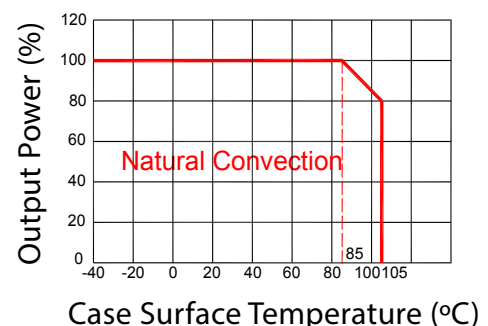


## DC-DC Converter EC3 Series

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



### 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	%
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

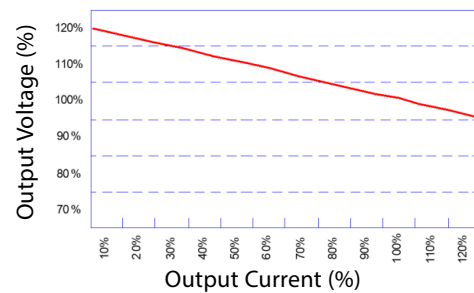
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input @5V Vin		370		KHz
	Full load, nominal input @other Vin		250		KHz
Operating Temperature		-40		+105	°C
Storage Temperature		-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	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

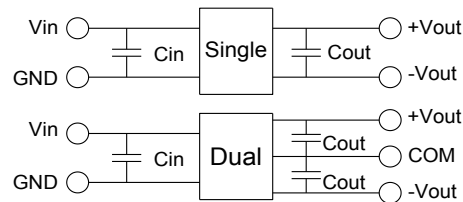
## Tolerance Envelope Graph



## Electromagnetic Compatibility (EMC)

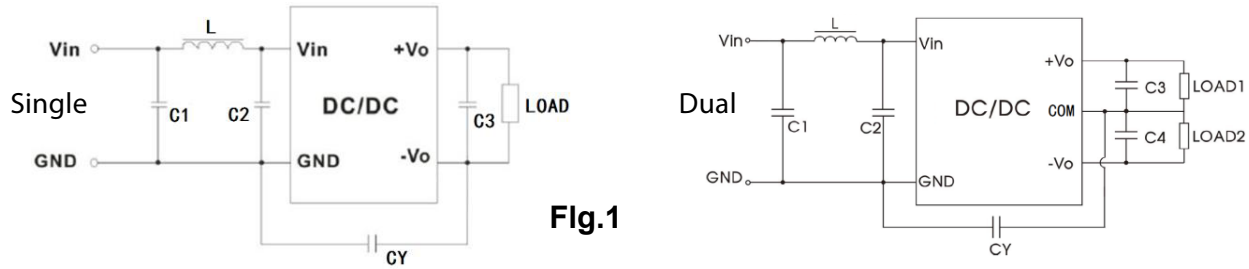
EMI	CE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
	RE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air ±8kV , Contact ±4kV perf. Criteria B

## 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

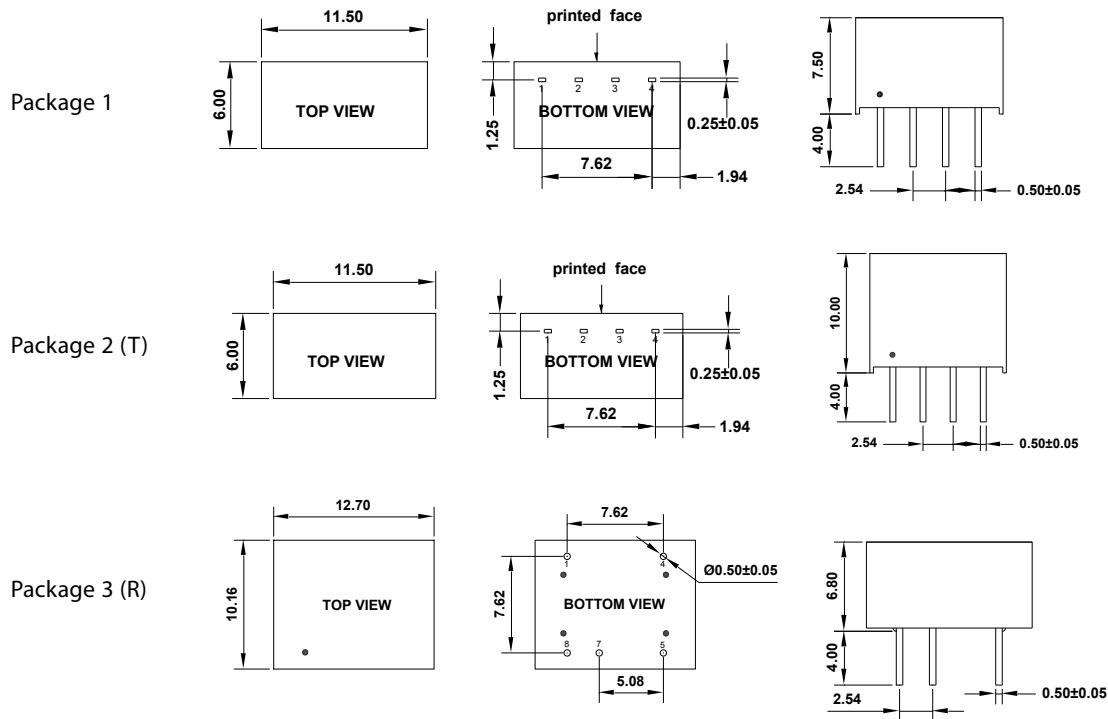
**EMC (CLASS B) Compliance Circuit**



**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	3	4	5	7	8
4Pin	-Vin	+Vin	-Vout	+Vout			
8Pin-S	-Vin			+Vin	+Vout	-Vout	
8Pin-D	-Vin			+Vin	+Vout	Com	-Vout