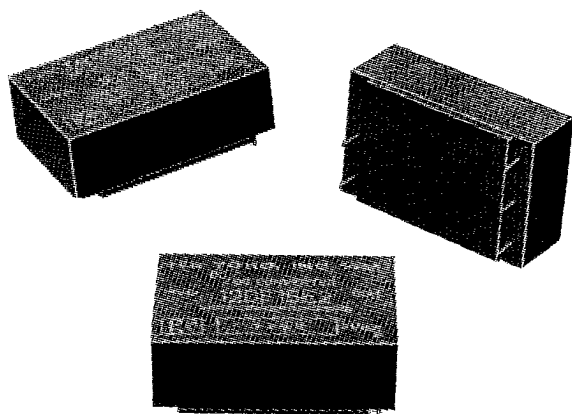


E Series DC-DC Converters (1.5W)



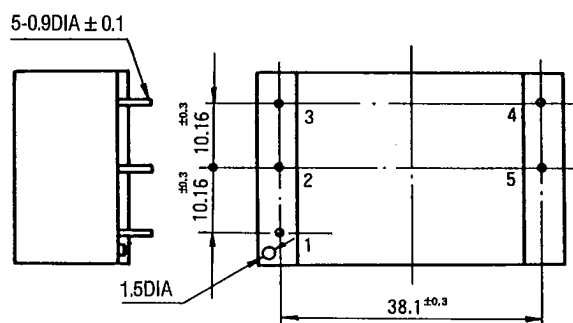
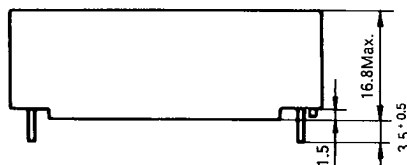
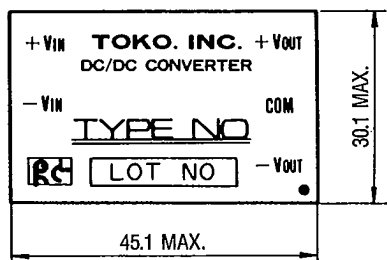
■ FEATURES

- Complete primary and secondary floating
- High conversion efficiency
- Optimum line and load regulation
- Inflammable epoxy case (94V-0) with silicon gum plugs for high reliability.
- Built-in filters for low ripple and spike noise.
- Ultra small and light; PC mountable

■ GENERAL SPECIFICATIONS

Operating Temperature Range: $-10 \sim +60^{\circ}\text{C}$
 Storage Temperature Range: $-25 \sim +85^{\circ}\text{C}$
 Operating Humidity Range: $10 \sim 85\%$ R.H.
 Storage Humidity Range: $10 \sim 90\%$ R.H. no
 Insulation Pressure Tightness: 1500VAC (1min.)
 between input and output sides.
 Insulation Resistance: Over $500\text{M}\Omega$ at 500 VDC between input and output sides.

■ DIMENSIONS AND PIN ASSIGNMENT

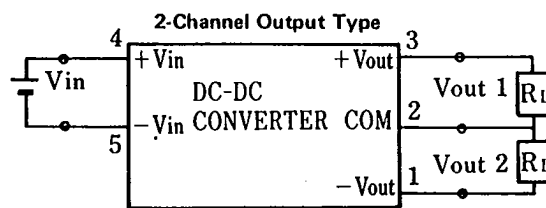
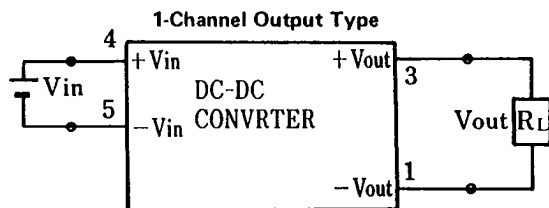


Unit: mm

1. $V_{out} (-)$
2. COM/NC
3. $V_{out} (+)$
4. $V_{in} (+)$
5. $V_{in} (-)$

*1-Channel Type, Pin No. 2 is not used (NC)

■ CONNECTIONS



NOTES

The above schematic shows the general connections. Although the converters include input/output filters, use of a suitable capacitor at the output side will reduce even more the ripple and spike noise.

E Series DC-DC Converters

■ SPECIFICATIONS

Type No.	Input Voltage V_{in} (V)	Output Voltage		Output Current I_o (mA)	Rated Output Power P_o (mW)	Regulation		Ripple & Spike Voltage (mV _{pp}) *4	Conversion Efficiency η (%) *5	Temp. Coeff. (%/°C) *6
		V_{out} (V)	TOL (%) *1			Line (%) *2	Load (%) *3			
12F15E1	5V±10%	12	±5	25~125	1500	±1.0	±4.5	150	55	0.1
15F15E1		15	±5	20~100		±1.0	±4.0	150	60	0.1
24F15E1		24	±5	15~60		±1.0	±4.0	150	65	0.1
12DF15E1		±12	±6	±12~±63		±1.0	±4.5	100	60	0.1
15DF15E1		±15	±6	±10~±50		±1.0	±4.5	100	60	0.1
5F15E2	12V±20%	5	±6	60~300		±1.0	±8.0	100	55	0.1
15F15E2		15	±5	20~100		±1.5	±4.0	150	65	0.1
12DF15E2		±12	±6	±12~±63		±1.5	±4.0	100	65	0.1
15DF15E2		±15	±6	±10~±50		±1.0	±4.0	100	65	0.1
5F15E3	24V±20%	5	±6	60~300		±1.0	±6.0	100	55	0.1
12F15E3		12	±5	25~125		±1.5	±4.0	150	65	0.1
15F15E3		15	±5	20~100		±1.5	±4.0	150	65	0.1
12DF15E3		±12	±6	±12~±63		±1.0	±4.0	100	65	0.1
15DF15E3		±15	±6	±10~±50		±1.0	±4.0	100	65	0.1

NOTES

- *1. Output Voltage Tolerance: V_{in} = TYP, $I_o = I_o$ max. X0.6
 *2. Regulation (Line): V_{in} at min ~ max.
 *3. Regulation (Load): V_{in} = TYP, I_o at min ~ max.
 *4. Ripple: V_{in} TYP, I_o max.
 *5. Efficiency: V_{in} TYP, I_o max. X0.6
 *6. Temp Coeff.: V_{in} TYP, I_o max., T_a = -10 ~ +60°C

Precautions in Use of DC-DC Converter:

- Conditions under which the specified performance of the converters may not be obtained and further cause possible damage are as follows:
 - Short-circuiting the output terminals, or excessive overloading for 30 seconds or longer.
 - Operating at over 1.5 times the rated output current for 10 minutes or longer.
 - Application of over-voltage, approximately X2, at the input side for 10 minutes or longer.
 - Others, such as use at abnormal conditions, i.e., with incorrect terminal connections other than as indicated, etc.
- When using the converter under conditions not within the specifications or range of application, or when there are questions, please contact a Toko engineer.
- For the 2-channel output type, when there is an unbalance in the + and - output currents, the total output must be within the min. to max. current rating.