

TDK DC to DC Converters, DC to AC Inverters

For fluorescent display panels

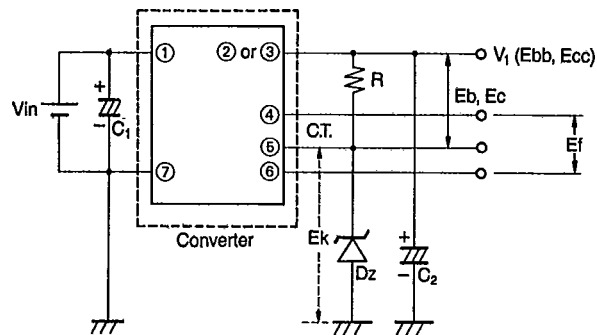
4DE D ■ 8821248 0005007 6 ■ TDKA

T D K CORP

T-57-29

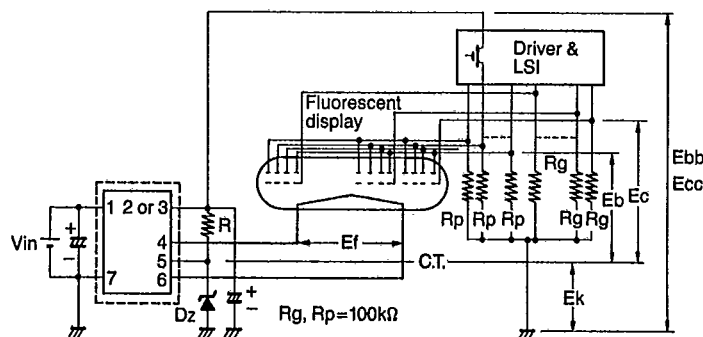
B. Positive voltage output type

Connections



- Ef (filament voltage): A center tap (CT) is provided. Floating (insulated) A.C. r.m.s. output.
- V_1 (Ebb, Ecc): D.C. positive output voltage; anode and grid supply voltage inclusive of cathode bias voltage (E_k).
- C_1, C_2 : External smoothing capacitors; dielectric strength and capacitance are shown when samples are supplied.
- D_z, R : D_z and R are connected to obtain the cathode bias voltage (E_k) and for the zener voltage (V_z), select 0.5 to 1.0V above the E_k voltage of display panel. Set the zener current (I_z) by R from 1 to 2 mA. However, with display panels which do not require E_k , D_z and R are not necessary, and the V_1 output voltage is the supply voltage of only the anode and grid.
- Set the E_k voltage for a dot type panel to the grid elimination voltage (Ecco) plus 2 to 3V. When E_k is not required D_z and R are not necessary and the V_1 output voltage becomes the supply voltage for the anode and grid only.

Drive circuit



DC positive output (V_1) terminal

Shapes and dimensions*1	Terminal No.
C-1	2
C-2	2 or 3*2
C-3	3
C-4	3
C-5	2 or 3*2

*1 See page 175

*2 Please consult us.

TDK DC to DC Converters, DC to AC Inverters

For fluorescent display panels

4DE D ■ 8821248 0005008 8 ■ TDKA

T D K CORP

T-57-29

ELECTRICAL CHARACTERISTICS

Applications: Electronic cash registers (ECRs, POS systems) and others

For NEC fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type NEC No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAac) max.	I ₂ (mAac) max.		
CD-1601N	3.5	78	-42	-48	19.5	3.9	C-3	FIP8A11
CD-1601P	3.5	78	48	—	25.4	—		
CD-1602N	4.6	75	-45	-56	15.9	5.1	C-3	FIP9A13A
CD-1602P	4.6	75	56	—	23	—	C-4	
CD-1603N	5.1	75	-45	-56	20.4	5.1	C-4	FIP10A13
CD-1603P	5.1	75	56	—	27.5	—		
CD-1604N	5.0	120	-35	-43	19.5	4.3	C-4	FIP10B13
CD-1604P	5.0	120	43	—	25.8	—		
CD-1605N	5.2	120	-42	-50	27	5.0	C-4	FIP13B13
CD-1605P	5.2	120	50	—	34	—		

* Refer to page 175.

For ISE fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type ISE No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAac) max.	I ₂ (mAac) max.		
CD-1701N	4.0	18	-22	-26.5	3.5	2.4	C-1	FG116C6
CD-1701P	4.0	18	26.5	—	7.9	—		
CD-1702N	5.5	55	-30	-36.5	9.6	3.3	C-3	FG139A1
CD-1702P	5.5	55	36.5	—	14.9	—		
CD-1703N	5.2	55	-15	-21	22	8.4	C-3	FG79C6
CD-1703P	5.2	55	21	—	32.4	—		
CD-1704N	3.0	55	-24	-28	11.3	2.6	C-2	FG511E6
CD-1704P	3.0	55	28	—	15.9	—		
CD-1705N	4.7	120	-35	-40	15.8	3.5	C-3	FG913ES1
CD-1705P	4.7	120	40	—	21.3	—		
CD-1706N	5.0	120	-35	-40	19.5	3.8	C-3	FG1013RS1
CD-1706P	5.0	120	40	—	25.3	—		
CD-1707N	5.7	73	-30	-36	22.5	3.6	C-3	FG914RB1
CD-1707P	5.7	73	36	—	28.1	—		

* Refer to page 175.

For FUTABA fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type FUTABA No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAac) max.	I ₂ (mAac) max.		
CD-1801N	4.2	78	-26.5	-34	15	3.4	C-3	11-MT-61ZA
CD-1801P	4.2	78	34	—	20.4	—		
CD-1802N	4.6	75	-34	-41	19.5	4.1	C-3	9-LT-03Z
CD-1802P	4.6	75	41	—	25.6	—		

* Refer to page 175.

TDK DC to DC Converters, DC to AC Inverters

For fluorescent display panels

40E D ■ 8821248 0005009 T ■ TDKA

T D K CORP

T-57-29

Applications: Digital clocks, timers and others

For NEC fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type NEC No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAac) max.	I ₂ (mAac) max.		
CD-1621N	—	—	-24	-27	11.6	2.5	C-1	FIP4A8 FIP4A8A FIP4B8 FIP4C9
CD-1621P	—	—	27	—	16.1	—	C-2	
CD-1622N	2.3	75	-26	-30.5	9	2.8	C-2	FIP5D3
CD-1622P	2.3	75	30.5	—	13.8	—		FIP5D13A
CD-1623N	3.0	75	-18	—	26.2	—	C-3	FIP5A15S FIP5A15CS FIP5D15S FIP5E15S
CD-1623P	3.0	75	18	—	26.2	—		

* Refer to page 175.

For ISE fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type ISE No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAac) max.	I ₂ (mAac) max.		
CD-1721N	2.5	120	-26	-29.5	18.8	3.0	C-3	FG413D1
CD-1721P	2.5	120	29.5	—	23.8	—		
CD-1722N	4.0	73	-26	-31	24.5	3.4	C-3	FG515F1
CD-1722P	4.0	73	31	—	30	—		

* Refer to page 175.

For FUTABA fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type FUTABA No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAac) max.	I ₂ (mAac) max.		
CD-1821N	2.4	75	-26	-30.5	13.2	3.1	C-2	4-MT-032A 4-MT-072B 5-LT-31Z 5-LT-33Z
CD-1821P	2.4	75	30.5	—	16.5	—	C-3	
CD-1822N	3.0	120	-26	-30.5	24	3.1	C-3	4-LT-21ZA1
CD-1822P	3.0	120	30.5	—	29.1	—		
CD-1823N	3.0	75	-18	—	29.6	—	C-3	4-LT-16Z
CD-1823P	3.0	75	18	—	29.6	—		5-LT-16Z
CD-1824N	2.4	75	-15	—	22.8	—	C-2	4-LT-26Z
CD-1824P	2.4	75	15	—	22.8	—		5-LT-36Z

* Refer to page 175.

TDK DC to DC Converters, DC to AC Inverters

For fluorescent display panels

4DE D ■ 8821248 0005010 6 ■ TDKA

T D K CORP

T-57-29

Applications: Audio equipment, video equipment, analog instrumentation and others

For NEC fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type NEC No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAdc) max.	I ₂ (mAdc) max.		
CD-1641N	2.6	53	-24	-28	11.6	2.5	C-2	FIP5E8 FIP6A8A FIP6A8B
CD-1641P	2.6	53	28	—	16.1	—		
CD-1642N	2.7	73	-24	-27.5	10.8	2.6	C-2	FIP6B8
CD-1642P	2.7	73	27.5	—	15.4	—		
CD-1643N	2.3	75	-26	-31	7.5	2.7	C-2	FIP6C8
CD-1643P	2.3	75	31	—	12.2	—		
CD-1644N	3.0	100	-16	-17.5	32.1	4.2	C-3	FIP24B17YS FIP24A15YS FIP24A17YS
CD-1644P	3.0	100	17.5	—	38.3	—		
CD-1645N	5.4	78	-24	-31	84	6.2	C-4	FIP101B8Y FIP101B8AY
CD-1645P	5.4	78	31	—	92.2	—		
CD-1646N	2.7	196	-30	-33.5	74	21	C-4	FIP60B30T
CD-1646P	2.7	196	33.5	—	97	—		

* Refer to page 175.

For ISE fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type ISE No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAdc) max.	I ₂ (mAdc) max.		
CD-1741N	2.7	115	-15	-22	31	3.3	C-3	FG28SJ1
CD-1741P	2.7	115	22	—	36.3	—		
CD-1742N	5.5	37	-40	-47	13	10.4	C-3	FG100SA1 FG202SA1
CD-1742P	5.5	37	47	—	25.4	—		

* Refer to page 175.

For FUTABA fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type FUTABA No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAdc) max.	I ₂ (mAdc) max.		
CD-1841N	2.1	75	-8	—	11.3	—	C-1	7-BT-02Z
CD-1841P	2.1	75	8	—	11.3	—		
CD-1842N	3.6	75	-30	-36	10.5	3.6	C-3	8-MT-01Z
CD-1842P	3.6	75	36	—	16.1	—		
CD-1843N	3.3	75	-15	—	30.6	—	C-2	7-LT-02Z
CD-1843P	3.3	75	15	—	30.6	—		
CD-1844N	3.0	75	-16	—	24	—	C-2	BG-41Z
CD-1844P	3.0	75	16	—	24	—		
CD-1845N	3.0	75	-18	—	28.8	—	C-3	BG-42Z
CD-1845P	3.0	75	18	—	28.8	—		
CD-1846N	4.5	22	-22	-30	4.4	3	C-1	17-ST-22ZA
CD-1846P	4.5	22	30	—	9.4	—		
CD-1847N	3.3	78	-26	-30.5	12	3.1	C-2	6-LT-15Z
CD-1847P	3.3	78	30.5	—	17.1	—		
CD-1848N	5.2	120	-34.5	-43	32.3	4.3	C-4	6-JS-03Z
CD-1848P	5.2	120	43	—	38.6	—		

* Refer to page 175.

TDK DC to DC Converters, DC to AC Inverters

For fluorescent display panels

40E D ■ 8821248 0005011 8 ■ TDKA

T D K CORP

T-57-29

Applications: Data terminals and others (dot type)

For NEC fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type NEC No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAdc) max.	I ₂ (mAdc) max.		
CD-1661N	5.5	55	-30	-37	7.8	7.8		
CD-1661P	5.5	55	37	—	17.6	—	C-3	FIP11A8X
CD-1662N	6.8	90	-35	-43	14.4	9.1		
CD-1662P	6.8	90	43	—	25.5	—	C-4	FIP16A11X
CD-1663N	5.1	78	-35	-43	15.0	10.9	C-3	
CD-1663P	5.1	78	43	—	27.9	—	C-4	FIP20B9X
CD-1664N	6.1	60	-45	-53	6.3	11.2		
CD-1664P	6.1	60	53	—	19.5	—	C-3	FIP32A5X
CD-1665N	8.4	78	-42	-51.5	22.5	12.9		
CD-1665P	8.4	78	51.5	—	37.4	—	C-4	FIP32A9X
CD-1666N	8.9	78	-45	-54	9.3	11.4		
CD-1666P	8.9	78	54	—	22.7	—	C-4	FIP40A5X
CD-1667N	9.7	78	-45	-54	24.0	14.3		
CD-1667P	9.7	78	54	—	40.3	—	C-4	FIP40B9X
CD-1668N	4.8	156	-48	-54.5	30	11.9		
CD-1668P	4.8	156	54.5	—	43.9	—	C-4	FIP60A5X
CD-1669N	9.0	156	-45	-56	45	12.2		
CD-1669P	9.0	156	56	—	59.2	—	C-5	FIP80A5X
CD-1670N	9.3	160	-55	-66.5	30	16.6		
CD-1670P	9.3	160	66.5	—	48.6	—	C-5	FIP80A6X
CD-1671N	9.0	208	-45	-56	45	14		
CD-1671P	9.0	208	56	—	61	—	C-5	FIP80A9X
CD-1672N	8.2	200	-48	-58.5	27	12.7		
CD-1672P	8.2	200	58.5	—	41.7	—	C-5	FIP160A4X

* Refer to page 175.

For ISE fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type ISE No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAdc) max.	I ₂ (mAdc) max.		
CD-1761N	3.6	22	-24	-30	4.5	6.3	C-1	
CD-1761P	3.6	22	30	—	12.8	—	C-2	DC95A2
CD-1762N	5.3	120	-35	-44	18	9.2		
CD-1762P	5.3	120	44	—	29.2	—	C-4	DC1015A2
CD-1763N	6.0	20	-28	-36	4.5	7.5		
CD-1763P	6.0	20	36	—	14	—	C-2	DC165A2
CD-1764N	4.8	120	-35	-43.5	13	9.1		
CD-1764P	4.8	120	43.5	—	24.1	—	C-4	DC169A2A
CD-1765N	5.7	37	-35	-43.5	6.3	9.1		
CD-1765P	5.7	37	43.5	—	17.4	—	C-3	DC205A2
CD-1766N	6.4	120	-35	-45	13	9.4		
CD-1766P	6.4	120	45	—	24.4	—	C-4	DC209A2
CD-1767N	9.0	78	-45	-55	13	11.5		
CD-1767P	9.0	78	55	—	26.7	—	C-4	DC406A2
CD-1769N	9.7	78	-45	-57	22.5	11.9		
CD-1769P	9.7	78	57	—	36.4	—	C-4	DC409A2
CD-1770N	9.3	160	-55	-72	16.5	18		
CD-1770P	9.3	160	72	—	36.5	—	C-5	DC806A2
CD-1771N	10.7	230	-60	-77	27	19.3		
CD-1771P	10.7	230	77	—	48.3	—	C-5	DC809B2
CD-1772N	9.0	156	-45	-55	33.8	12		
CD-1772P	9.0	156	55	—	47.8	—	C-5	DC40026B2
CD-1773N	9.3	240	-55	-72	22.5	18		
CD-1773P	9.3	240	72	—	42.5	—	C-5	DC80025C2
CD-1774N	7.6	200	-60	-77	19.8	16.7		
CD-1774P	7.6	200	77	—	38.5	—	C-5	DM256X26F

* Refer to page 175.

TDK DC to DC Converters, DC to AC Inverters

For fluorescent display panels

40E D ■ 8821248 0005012 T ■ TDKA

T D K CORP

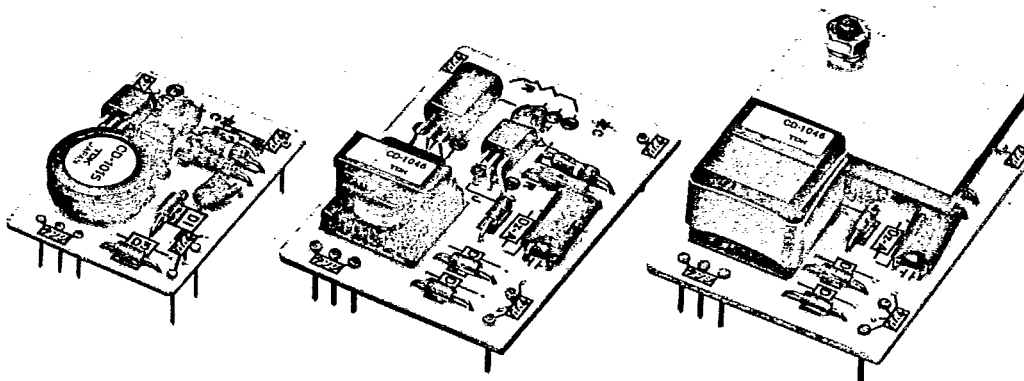
T-57-29

Applications: Data terminals and others (dot type)

For FUTABA fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type FUTABA No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAdc) max.	I ₂ (mAdc) max.		
CD-1861N	5.0	78	-25	-31.5	15	8.1		
CD-1861P	5.0	78	31.5	—	25.1	—	C-3	20-SD-41Z
CD-1862N	4.9	22	-25	-31	7.3	6.5	C-1	
CD-1862P	4.9	22	31	—	12.9	—	C-2	16-SD-01Z
CD-1863N	7.3	75	-32	-41	8.1	10.5		
CD-1863P	7.3	75	41	—	20.6	—	C-3	32-SD-41Z
CD-1864N	7.8	156	-40	-49	27	10.2		
CD-1864P	7.8	156	49	—	39.2	—	C-4	402-SD-02Z
CD-1865N	5.4	153	-30	-37.5	13.5	7.8		
CD-1865P	5.4	153	37.5	—	23.3	—	C-4	28-BD-01Z
CD-1866N	5.5	135	-34	-41	7.9	10.5		
CD-1866P	5.5	135	41	—	20.4	—	C-4	40-SD-41Z
CD-1867N	5.6	22	-27	-33.5	5.1	7		
CD-1867P	5.6	22	33.5	—	14.1	—	C-2	20-SD-01Z
CD-1868N	7.8	150	-31	-40	27	10.2		
CD-1868P	7.8	150	40	—	39.2	—	C-4	402-SD-04Z

* Refer to page 175.



TDK DC to DC Converters, DC to AC Inverters

For fluorescent display panels

40E D ■ 8821248 0005013 1 ■ TDKA

T D K CORP

T-57-29

Applications: Data terminals and others (alphanumeric)

For NEC fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type NEC No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAdc) max.	I ₂ (mAdc) max.		
CD-1681N	3.0	22	-24	-27.5	6.8	3.6	C-1	FIP8A5R
CD-1681P	3.0	22	27.5	—	12.4	—	C-2	
CD-1682N	3.9	16.5	-26	-32	6.8	4.2	C-1	FIP10A6R
CD-1682P	3.9	16.5	32	—	13.0	—	C-2	
CD-1683N	5.5	16.5	-24	-31	7.5	4.1	C-2	FIP16A5R
CD-1683P	5.5	16.5	31	—	13.6	—		
CD-1684N	7.8	120	-40	-51	27.6	6.7	C-4	FIP16A13R
CD-1684P	7.8	120	51	—	36.3	—		
CD-1685N	8.7	120	-45	-56	21.8	7.3	C-4	FIP18A14R
CD-1685P	8.7	120	56	—	31.1	—		

* Refer to page 175.

For ISE fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type ISE No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAdc) max.	I ₂ (mAdc) max.		
CD-1781N	3.3	12	-24	-28	2.2	3.6	C-1	FG85E2
CD-1781P	3.3	12	28	—	7.8	—	C-1	
CD-1782N	4.7	37	-26	-31	12	4.0	C-2	FG108M1
CD-1782P	4.7	37	31	—	18	—	C-3	
CD-1783N	6.4	120	-35	-43	24	5.6	C-4	FG209M2
CD-1783P	6.4	120	43	—	31.6	—		
CD-1784N	6.8	80	-45	-53	12	6.9	C-3	FG326A2
CD-1784P	6.8	80	53	—	20.9	—	C-4	

* Refer to page 175.

For FUTABA fluorescent display

TDK converter Part No.	Output characteristics						Shapes and dimensions*	Suitable display type FUTABA No.
	Ef r.m.s. (V)	If (mAac) typ.	V ₁ (Vdc)	V ₂ (Vdc)	I ₁ (mAdc) max.	I ₂ (mAdc) max.		
CD-1881N	5.8	17.5	-24	-31	5.4	4	C-1	16-SY-03Z
CD-1881P	5.8	17.5	31	—	11.4	—	C-2	
CD-1882N	4.7	50	-30	-37	10	4.8	C-3	20-SY-03ZL
CD-1882P	4.7	50	37	—	14.9	—		
CD-1883N	7.5	50	-35	-46	9.4	6	C-3	32-SY-03ZL
CD-1883P	7.5	50	46	—	17.4	—		
CD-1884N	7.2	75	-47	-58	20.4	7.5	C-4	16-LY-01ZL
CD-1884P	7.2	75	58	—	29.9	—		
CD-1885N	6.2	75	-31	-39.5	18	5.1	C-3	16-MY-01ZL
CD-1885P	6.2	75	39.5	—	25.1	—		

* Input voltage (V_{in}): +5 Vdc ± 10%

* Filament voltage is set to nominal value at V_{in} of +5.0V

* Correspondence with display panel specification table

N type-V₁: Voltage applied to grid and anode

V₂: Sum of voltage applied to grid, anode and cutoff voltage

P type-V₁: Sum of voltage applied to grid, anode and cutoff voltage

* Refer to page 175.

TDK DC to DC Converters, DC to AC Inverters

For fluorescent display panels

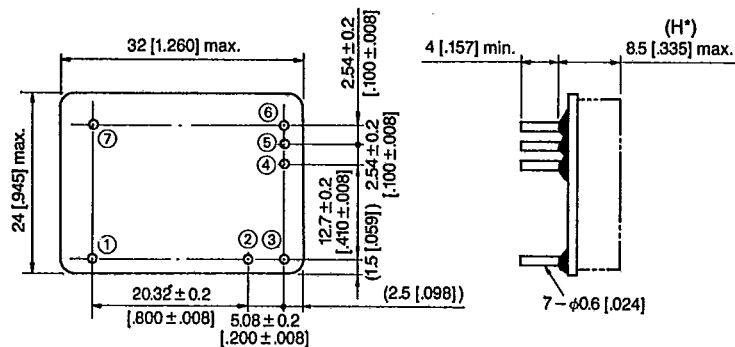
T D K CORP

40E D ■ 8821248 0005014 3 ■ TDKA

SHAPES AND DIMENSIONS

T-57-29

C-1



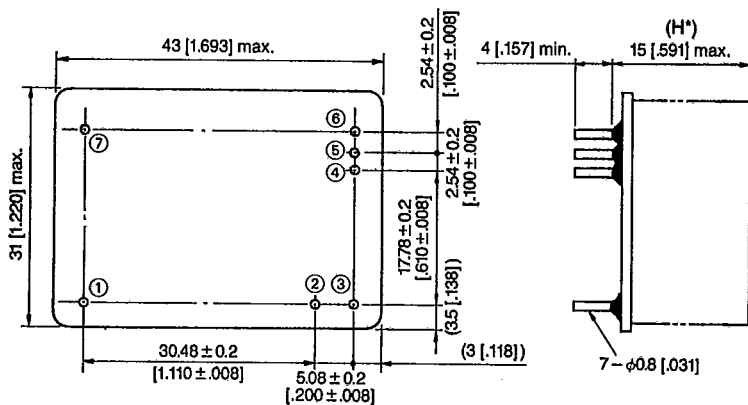
Output: 0.4W (400mW) max.
Weight: 4g

C-2

All dimensions are same as C-1, except (H*) changes to 10mm [.394 inches] max.

Output: 0.8W (800mW) max.
Weight: 6g

C-3



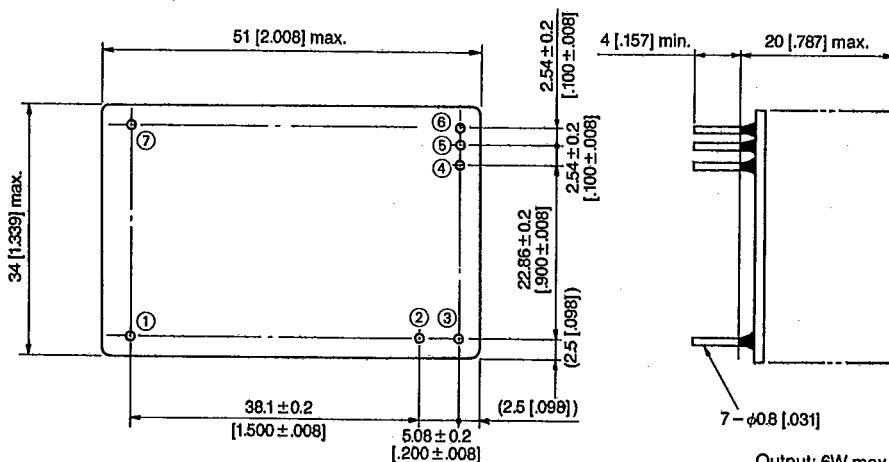
Output: 1.5W max.
Weight: 8g

C-4

All dimensions are same as C-3, except (H*) changes to 18mm [.709 inches] max.

Output: 3W max.
Weight: 16g

C-5



Output: 6W max.
Weight: 25g

Dimensions in mm [inches]