

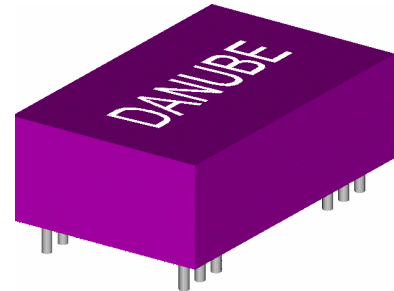
# CW SERIES

**3W-8W WIDE INPUT RANGE**

# DANUBE

## FEATURES

- 3W TO 8W DIL PACKAGE
- 4.5-9V,9-18V,18-36V,36-72V,9-36V,18-72V WIDE INPUT RANGE
- 100% BURNED IN
- HIGH EFFICIENCY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- RoHS COMPLIANT
- 3 YEARS WARRANTY



## OUTPUT SPECIFICATIONS

Voltage Setpoint Accuracy		
Single/Dual		+/-2% max
Dual Separate	Out1	+/-2% max
	Out2	+/-5% max
Triple	Out1	+/-2% max
	Out2/Out3	+/-5% max
Temperature Coefficient		+/-0.05%/ °C
Ripple & Noise(20MHz BW) <sup>2</sup>		100mVp-p max
Line Regulation <sup>3</sup>		
Single/Dual		+/-1% max
Dual Separate	Out1	+/-1% max
	Out2	+/-3% max
Triple	Out1	+/-1% max
	Out2/Out3	+/-3% max
Load Regulation <sup>5</sup>		
Single/Dual		+/-0.5% max
Dual Separate	Out1	+/-1% max
	Out2	+/-5% max
Triple	Out1	+/-1% max
	Out2/Out3	+/-5% max
Minimum Load		10% of Full Load
Short Circuit Protection		Continuous
Short Circuit Restart		Automatic
Over Load Protection		180% Typ
Transient Response <sup>6</sup>		200uS max

## INPUT SPECIFICATIONS

Input Voltage Range	2:1 or 4:1 Input Range
Input Filter	Pi Network
Protection	Fuse Recommended

## GENERAL SPECIFICATIONS

Efficiency	70% min
Isolation Voltage <sup>1</sup>	
Single/Dual	1000VDCor 3000VDC min
Dual Separate/Triple	In to Out 1000VDC min
	Out1 to Out2 500VDC min
Isolation Resistance	10 <sup>9</sup> ohms min
Isolation Capacitance	250pF max
Switching Frequency	50KHz min
MTBF <sup>4</sup>	>900,000 Hours
Weight	17.5g Typ
Case Material	Five-Side Shielded Case
Case Size	31.8mm*20.3mm*12.2mm
Potting Material	Epoxy(UL94-V0)
Conducted Emissions	EN55022 Class A
Radiated Emissions	EN55022 Class A

## ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40 °C to +71 °C
Storage Temperature	-55 °C to +125 °C
Humidity	95% max
Cooling	Free-Air Convection

ALL SPECIFICATIONS TYPICAL AT NOMINAL LINE, FULL LOAD, AND 25 °C UNLESS OTHERWISE NOTED.

<sup>1</sup> 1000VDC~1500VDC for 10 seconds,2000VDC~3000VDC for 3 seconds.

<sup>2</sup> Measured with 1uF ceramic capacitor connect to the output pins.

<sup>3</sup> High Line to Low Line.

<sup>4</sup> MIL-HDBK-217F @25 °C, Ground Benign.

<sup>5</sup> Load Regulation is for output load current change from 20% to 100%.

<sup>6</sup> 25% Step Load Change.

# DANUBE

<http://www.danube.com.tw>

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● **SELECTION GUIDE(1)**  
**2:1 3W OUTPUT**

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>7</sup> CURRENT(mA)		EFF (%) <sup>8</sup>	PACKAGE
				FULL LOAD	NO LOAD		
CWS-0505(ABCD)3M	4.5-9	5	500	684	40	73	A or B or C or D
CWS-0512(ABCD)3M	4.5-9	12	250	789	40	76	A or B or C or D
CWS-0515(ABCD)3M	4.5-9	15	200	789	40	76	A or B or C or D
CWD-0505A3M	4.5-9	+/-5	+/-300	855	40	70	A
CWD-0512(ABC)3M	4.5-9	+/-12	+/-125	810	40	74	A or B or C
CWD-0515(ABC)3M	4.5-9	+/-15	+/-100	800	50	75	A or B or C
CWS-1203.3(ABCD)3M	9-18	3.3	700	275	18	70	A or B or C or D
CWS-1205(ABCD)3M	9-18	5	600	338	18	74	A or B or C or D
CWS-1209(ABCD)3M	9-18	9	330	316	18	79	A or B or C or D
CWS-1212(ABCD)3M	9-18	12	250	313	18	80	A or B or C or D
CWS-1215(ABCD)3M	9-18	15	200	313	18	80	A or B or C or D
CWD-1205(ABC)3M	9-18	+/-5	+/-300	338	18	74	A or B or C
CWD-1212(ABC)3M	9-18	+/-12	+/-125	316	18	79	A or B or C
CWD-1215(ABC)3M	9-18	+/-15	+/-100	316	18	79	A or B or C
CWS-2403.3(ABCD)3M	18-36	3.3	910	163	10	76	A or B or C or D
CWS-2405(ABCD)3M	18-36	5	600	167	10	75	A or B or C or D
CWS-2409(ABCD)3M	18-36	9	330	158	10	79	A or B or C or D
CWS-2412(ABCD)3M	18-36	12	250	156	10	80	A or B or C or D
CWS-2415(ABCD)3M	18-36	15	200	156	10	80	A or B or C or D
CWD-2405(ABC)3M	18-36	+/-5	+/-300	167	10	75	A or B or C
CWD-2412(ABC)3M	18-36	+/-12	+/-125	156	10	80	A or B or C
CWD-2415(ABC)3M	18-36	+/-15	+/-100	156	10	80	A or B or C
CWS-4803.3(ABCD)3M	36-72	3.3	700	69	5	72	A or B or C or D
CWS-4805(ABCD)3M	36-72	5	600	82	5	76	A or B or C or D
CWS-4809(ABCD)3M	36-72	9	330	79	5	79	A or B or C or D
CWS-4812(ABCD)3M	36-72	12	250	76	5	82	A or B or C or D
CWS-4815(ABCD)3M	36-72	15	200	76	5	82	A or B or C or D
CWD-4805(ABC)3M	36-72	+/-5	+/-300	82	5	76	A or B or C
CWD-4812(ABC)3M	36-72	+/-12	+/-125	80	5	78	A or B or C
CWD-4815(ABC)3M	36-72	+/-15	+/-100	76	5	82	A or B or C

*Note: Other input to output voltages may be available. Please contact factory.*

**ORDERING INFORMATION:**

**FOR EXAMPLE: CWS-1205B3M (B PACKAGE 3W SINGLE OUTPUT)**

<sup>6</sup> NOMINAL INPUT VOLTAGE.

<sup>7</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

● **SELECTION GUIDE(2)**  
**2:1 3W 2000VDC ISOLATION**  
**PACKAGE: P**

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>9</sup> CURRENT(mA)		EFF (%) <sup>10</sup>	ISOLATION(V/DC)
				FULL LOAD	NO LOAD		
CWS-0505P3(M)	4.5-9	5	500	684	40	73	2000V
CWS-0512P3(M)	4.5-9	12	250	789	40	76	2000V
CWS-0515P3(M)	4.5-9	15	200	789	40	76	2000V
CWS-1203.3P3(M)	9-18	3.3	910	358	18	70	2000V
CWS-1205P3(M)	9-18	5	600	338	18	74	2000V
CWS-1209P3(M)	9-18	9	330	316	18	79	2000V
CWS-1212P3(M)	9-18	12	250	313	18	80	2000V
CWS-1215P3(M)	9-18	15	200	313	18	80	2000V
CWS-2403.3P3(M)	18-36	3.3	910	163	10	76	2000V
CWS-2405P3(M)	18-36	5	600	167	10	75	2000V
CWS-2409P3(M)	18-36	9	330	158	10	79	2000V
CWS-2412P3(M)	18-36	12	250	156	10	80	2000V
CWS-2415P3(M)	18-36	15	200	156	10	80	2000V
CWS-4803.3P3(M)	36-72	3.3	910	87	5	72	2000V
CWS-4805P3(M)	36-72	5	600	82	5	76	2000V
CWS-48093(M)	36-72	9	330	79	5	79	2000V
CWS-4812P3(M)	36-72	12	250	76	5	82	2000V
CWS-4815P3(M)	36-72	15	200	76	5	82	2000V

*Note: Other input to output voltages may be available. Please contact factory.*

**ORDERING INFORMATION:**

**FOR EXAMPLE: CWS-1205P3M (P PACKAGE 3W SINGLE OUTPUT)**

<sup>6</sup> NOMINAL INPUT VOLTAGE.

<sup>7</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

● **SELECTION GUIDE(3)**  
**4:1 3W OUTPUT**

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>11</sup> CURRENT(mA)		EFF (%) <sup>12</sup>	PACKAGE
				FULL LOAD	NO LOAD		
CWS-1203.3(ABC)3TM	9-36	3.3	700	285	20	68	A or B or C
CWS-1205(ABC)3TM	9-36	5	600	347	18	72	A or B or C
CWS-1212(ABC)3TM	9-36	12	250	320	18	78	A or B or C
CWS-1215(ABC)3TM	9-36	15	200	320	18	78	A or B or C
CWD-1205(ABC)3TM	9-36	+/-5	+/-300	352	18	71	A or B or C
CWD-1212(ABC)3TM	9-36	+/-12	+/-125	320	18	78	A or B or C
CWD-1215(ABC)3TM	9-36	+/-15	+/-100	320	18	78	A or B or C
CWS-2403.3(ABC)3TM	18-72	3.3	700	136	10	71	A or B or C
CWS-2405(ABC)3TM	18-72	5	600	169	10	74	A or B or C
CWS-2412(ABC)3TM	18-72	12	250	156	10	80	A or B or C
CWS-2415(ABC)3TM	18-72	15	200	156	10	80	A or B or C
CWD-2405(ABC)3TM	18-72	+/-5	+/-300	169	10	74	A or B or C
CWD-2409(ABC)3TM	18-72	+/-9	+/-167	158	10	79	A or B or C
CWD-2412(ABC)3TM	18-72	+/-12	+/-125	160	10	78	A or B or C
CWD-2415(ABC)3TM	18-72	+/-15	+/-100	160	10	78	A or B or C

*Note: Other input to output voltages may be available. Please contact factory.*

**ORDERING INFORMATION:**

**FOR EXAMPLE:      CWS-1205B3TM (B PACKAGE 3W SINGLE OUTPUT)**  
**CWD-2405A3TM(A PACKAGE 3W DUAL OUTPUT)**

<sup>8</sup> NOMINAL INPUT VOLTAGE.

<sup>9</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

● **SELECTION GUIDE(4)**  
**2:1 4W-6W OUTPUT**

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>13</sup> CURRENT(mA)		EFF (%) <sup>14</sup>	PACKAGE
				FULL LOAD	NO LOAD		
CWS-0505(AB)5M	4.5-9	5	800	1080	40	74	A or B
CWS-0512(AB)5M	4.5-9	12	333	1060	40	75	A or B
CWD-0512(AB)5M	4.5-9	+/-12	+/-167	1061	40	75	A or B
CWD-0515(AB)5M	4.5-9	+/-15	+/-133	1060	40	75	A or B
CWS-1203.3(AB)5M	9-18	3.3	1200	438	40	75	A or B
CWS-1205(AB)5M	9-18	5	1000	556	40	75	A or B
CWS-1209(AB)5M	9-18	9	556	520	40	80	A or B
CWS-1212(AB)5M	9-18	12	470	587	40	80	A or B
CWS-1215(AB)5M	9-18	15	400	617	41	81	A or B
CWD-1205(AB)5M	9-18	+/-5	+/-500	556	40	75	A or B
CWD-1212(AB)5M	9-18	+/-12	+/-230	585	40	79	A or B
CWD-1215(AB)5M	9-18	+/-15	+/-190	586	41	81	A or B
CWS-2403.3(AB)5M	18-36	3.3	1200	217	20	76	A or B
CWS-2405(AB)5M	18-36	5	1000	270	20	77	A or B
CWS-2409(AB)5M	18-36	9	556	257	20	81	A or B
CWS-2412(AB)5M	18-36	12	470	287	22	82	A or B
CWS-2415(AB)5M	18-36	15	400	301	21	83	A or B
CWD-2405(AB)5M	18-36	+/-5	+/-500	270	20	77	A or B
CWD-2412(AB)5M	18-36	+/-12	+/-230	279	20	82	A or B
CWD-2415(AB)5M	18-36	+/-15	+/-190	286	21	83	A or B
CWS-4803.3(AB)5M	36-72	3.3	1200	108	10	76	A or B
CWS-4805(AB)5M	36-72	5	1000	135	10	77	A or B
CWS-4809(AB)5M	36-72	9	556	126	9	83	A or B
CWS-4812(AB)5M	36-72	12	470	142	9	83	A or B
CWS-4815(AB)5M	36-72	15	400	147	10	85	A or B
CWD-4805(AB)5M	36-72	+/-5	+/-500	135	10	77	A or B
CWD-4812(AB)5M	36-72	+/-12	+/-230	138	12	83	A or B
CWD-4815(AB)5M	36-72	+/-15	+/-190	139	10	85	A or B

*Note: Other input to output voltages may be available. Please contact factory.*

**ORDERING INFORMATION:**

**FOR EXAMPLE:      CWS-1205A5M (A PACKAGE 5W SINGLE OUTPUT)**  
**CWD-2405A5M(A PACKAGE 5W DUAL OUTPUT)**

<sup>10</sup> NOMINAL INPUT VOLTAGE.

<sup>11</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

● **SELECTION GUIDE(5)**  
**4:1 4W-5W OUTPUT**

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>15</sup> CURRENT(mA)		EFF (%) <sup>16</sup>	PACKAGE
				FULL LOAD	NO LOAD		
CWS-1203.3A5TM	9-36	3.3	1200	455	40	73	A
CWS-1205A5TM	9-36	5	1000	550	40	76	A
CWS-1209A5TM	9-36	9	556	540	40	77	A
CWS-1212A5TM	9-36	12	417	540	20	77	A
CWS-1215A5TM	9-36	15	333	535	20	78	A
CWD-1205A5TM	9-36	+/-5	+/-500	560	40	74	A
CWD-1212A5TM	9-36	+/-12	+/-208	535	40	78	A
CWD-1215A5TM	9-36	+/-15	+/-167	536	40	78	A
CWS-2403.3A5TM	18-72	3.3	1200	230	20	72	A
CWS-2405A5TM	18-72	5	1000	270	20	77	A
CWS-2412A5TM	18-72	12	417	265	20	79	A
CWS-2415A5TM	18-72	15	333	260	20	80	A
CWD-2405A5TM	18-72	+/-5	+/-500	280	20	74	A
CWD-2412A5TM	18-72	+/-12	+/-208	270	10	77	A
CWD-2415A5TM	18-72	+/-15	+/-167	260	10	80	A

*Note: Other input to output voltages may be available. Please contact factory.*

**ORDERING INFORMATION:**

**FOR EXAMPLE: CWD-2405A5TM(A PACKAGE 5W DUAL OUTPUT)**

<sup>12</sup> NOMINAL INPUT VOLTAGE.

<sup>13</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

● **SELECTION GUIDE(6)**  
**2:1 7.5W-8W OUTPUT**

MODEL <sup>17</sup> NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>18</sup>		EFF (%) <sup>19</sup>	PACKAGE
				CURRENT(mA)			
				FULL LOAD	NO LOAD		
CWD-0512A8M	4.5-7	+/-12	+/-310	1870	20	80	A
CWS-1203.3A8M	9-18	3.3	2000	735	20	75	A
CWS-1205A8M	9-18	5	1600	888	50	75	A
CWS-1209A8M	9-18	9	888	833	50	80	A
CWS-1212A8M	9-18	12	670	833	50	80	A
CWS-1215A8M	9-18	15	533	833	50	80	A
CWD-1205A8M	9-18	+/-5	+/-800	867	50	77	A
CWD-1209A8M	9-18	+/-9	+/-444	860	40	78	A
CWD-1212A8M	9-18	+/-12	+/-335	833	50	80	A
CWD-1215A8M	9-18	+/-15	+/-267	833	50	80	A
CWS-2403.3A8M	18-36	3.3	2000	355	25	78	A
CWS-2405A8M	18-36	5	1600	426	25	78	A
CWS-2409A8M	18-36	9	888	423	25	79	A
CWS-2412A8M	18-36	12	670	417	25	80	A
CWS-2415A8M	18-36	15	533	417	25	80	A
CWD-2405A8M	18-36	+/-5	+/-800	426	25	78	A
CWD-2409A8M	18-36	+/-9	+/-444	423	30	79	A
CWD-2412A8M	18-36	+/-12	+/-335	417	25	80	A
CWD-2415A8M	18-36	+/-15	+/-267	417	25	80	A
CWS-4805A8M	36-72	5	1600	215	15	78	A
CWS-4809A8M	36-72	9	888	210	15	79	A
CWS-4812A8M	36-72	12	670	208	15	80	A
CWS-4815A8M	36-72	15	533	208	15	80	A
CWD-4805A8M	36-72	+/-5	+/-800	215	15	78	A
CWD-4809A8M	36-72	+/-9	+/-444	210	15	79	A
CWD-4812A8M	36-72	+/-12	+/-335	208	15	80	A
CWD-4815A8M	36-72	+/-15	+/-267	208	15	80	A

**Note: Other input to output voltages may be available. Please contact factory.**

<sup>14</sup> CW\*.\*\*\*\*A8M (Isolation For 1000 VDC)

<sup>15</sup> NOMINAL INPUT VOLTAGE.

<sup>16</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

● **SELECTION GUIDE(7)**  
**4:1 3W DUAL SEPARATE OUTPUT**

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>20</sup> CURRENT(mA)		EFF (%) <sup>21</sup>	PACKAGE
				FULL LOAD	NO LOAD		
CWD-120505F3TM	9-36	V1:5V V2:5V	V1:300 V2:300	347	20	72	F
CWD-121212F3TM	9-36	V1:12V V2:12V	V1:125 V2:125	320	20	78	F
CWD-121515F3TM	9-36	V1:15V V2:15V	V1:100 V2:100	320	20	78	F
CWD-122424F3TM	9-36	V1:24V V2:24V	V1:63 V2:63	318	20	79	F
CWD-240505F3TM	18-72	V1:5V V2:5V	V1:300 V2:300	169	15	74	F
CWD-241212F3TM	18-72	V1:12V V2:12V	V1:125 V2:125	156	15	80	F
CWD-241515F3TM	18-72	V1:15V V2:15V	V1:100 V2:100	156	15	80	F
CWD-242424F3TM	18-72	V1:24V V2:24V	V1:63 V2:63	152	15	82	F

*Note: Other input to output voltages may be available. Please contact factory.*

<sup>17</sup> NOMINAL INPUT VOLTAGE.

<sup>18</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

● **SELECTION GUIDE(8)**  
**4:1 5W DUAL SEPARATE OUTPUT**

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>22</sup> CURRENT(mA)		EFF (%)	PACKAGE
				FULL LOAD	NO LOAD		
CWD-120505E5TM	9-36	V1:5V	V1:450	520	40	72	E
		V2:5V	V2:450				
CWD-121515E5TM	9-36	V1:15V	V1:150	510	40	74	E
		V2:15V	V2:150				
CWD-122424E5TM	9-36	V1:24V	V1:95	510	40	74	E
		V2:24V	V2:95				

*Note: Other input to output voltages may be available. Please contact factory.*

<sup>22</sup> NOMINAL INPUT VOLTAGE.

● **SELECTION GUIDE(9)**  
**2:1 4W TRIPLE OUTPUT**

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)			OUTPUT CURRENT (mA)			INPUT <sup>23</sup> CURRENT (mA)		EFF (%) <sup>24</sup>	PACKAGE
		OUT1	OUT2	OUT3	OUT1	OUT2	OUT3	FULL LOAD	NO LOAD		
CWT-0505-15	4.5-9	+5	+15	-15	300	80	80	1080	20	74	T
CWT-1205-12	9-18	+5	+12V	-12V	300	100	100	457	20	73	T
CWT-1205-15	9-18	+5	+15	-15	300	80	80	450	20	74	T
CWT-2405-12	18-36	+5	+12V	-12V	300	100	100	228	20	73	T
CWT-2405-15	18-36	+5	+15	-15	300	80	80	225	20	74	T
CWT-4805-12	36-72	+5	+12V	-12V	300	100	100	114	20	73	T
CWT-4805-15	36-72	+5	+15	-15	300	80	80	113	20	74	T

*Note: Other input to output voltages may be available. Please contact factory.*

<sup>19</sup> NOMINAL INPUT VOLTAGE.

<sup>20</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

● **SELECTION GUIDE(10)**  
**2:1 3W 3000VDC ISOLATION**  
**PACKAGE: A**

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>21</sup> CURRENT(mA)		EFF (%) <sup>22</sup>	ISOLATION (VDC) <sup>23</sup>
				FULL LOAD	NO LOAD		
CWS-1203.3A3M-3K	9-18	3.3	700	275	18	70	3000
CWS-1205A3M-3K	9-18	5	600	338	18	74	3000
CWS-1209A3M-3K	9-18	9	330	316	18	79	3000
CWS-1212A3M-3K	9-18	12	250	313	18	80	3000
CWS-1215A3M-3K	9-18	15	200	313	18	80	3000
CWD-1205A3M-3K	9-18	+/-5	+/-300	338	18	74	3000
CWD-1212A3M-3K	9-18	+/-12	+/-125	316	18	79	3000
CWD-1215A3M-3K	9-18	+/-15	+/-100	316	18	79	3000
CWS-2403.3A3M-3K	18-36	3.3	910	163	10	77	3000
CWS-2405A3M-3K	18-36	5	600	167	10	75	3000
CWS-2409A3M-3K	18-36	9	330	158	10	79	3000
CWS-2412A3M-3K	18-36	12	250	156	10	80	3000
CWS-2415A3M-3K	18-36	15	200	156	10	80	3000
CWD-2405A3M-3K	18-36	+/-5	+/-300	167	10	75	3000
CWD-2412A3M-3K	18-36	+/-12	+/-125	156	10	80	3000
CWD-2415A3M-3K	18-36	+/-15	+/-100	156	10	80	3000
CWS-4803.3A3M-3K	36-72	3.3	700	69	5	72	3000
CWS-4805A3M-3K	36-72	5	600	82	5	76	3000
CWS-4809A3M-3K	36-72	9	330	79	5	79	3000
CWS-4812A3M-3K	36-72	12	250	76	5	82	3000
CWS-4815A3M-3K	36-72	15	200	76	5	82	3000
CWD-4805A3M-3K	36-72	+/-5	+/-300	82	5	76	3000
CWD-4812A3M-3K	36-72	+/-12	+/-125	80	5	78	3000
CWD-4815A3M-3K	36-72	+/-15	+/-100	76	5	82	3000

*Note: Other input to output voltages may be available. Please contact factory.*

**ORDERING INFORMATION:**

**FOR EXAMPLE: CWS-1205A3M-3K (A PACKAGE 3W SINGLE OUTPUT)**

<sup>21</sup> NOMINAL INPUT VOLTAGE.

<sup>22</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

<sup>23</sup> FOR 3 SECONDS.

● **SELECTION GUIDE(11)**  
**4:1 3W 3000VDC ISOLATION**  
**PACKAGE: A**

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>24</sup> CURRENT(mA)		EFF (%) <sup>25</sup>	ISOLATION (VDC) <sup>26</sup>
				FULL LOAD	NO LOAD		
CWS-1203.3A3TM-3K	9-36	3.3	700	285	20	68	3000
CWS-1205A3TM-3K	9-36	5	600	347	18	72	3000
CWS-1212A3TM-3K	9-36	12	250	320	18	78	3000
CWS-1215A3TM-3K	9-36	15	200	320	18	78	3000
CWD-1205A3TM-3K	9-36	+/-5	+/-300	352	18	71	3000
CWD-1212A3TM-3K	9-36	+/-12	+/-125	320	18	78	3000
CWD-1215A3TM-3K	9-36	+/-15	+/-100	320	18	78	3000
CWS-2403.3A3TM-3K	18-72	3.3	700	136	10	71	3000
CWS-2405A3TM-3K	18-72	5	600	169	10	74	3000
CWS-2412A3TM-3K	18-72	12	250	156	10	80	3000
CWS-2415A3TM-3K	18-72	15	200	156	10	80	3000
CWD-2405A3TM-3K	18-72	+/-5	+/-300	169	10	74	3000
CWD-2412A3TM-3K	18-72	+/-12	+/-125	160	10	78	3000
CWD-2415A3TM-3K	18-72	+/-15	+/-100	160	10	78	3000

*Note: Other input to output voltages may be available. Please contact factory.*

**ORDERING INFORMATION:**

**FOR EXAMPLE:      CWS-1205A3TM-3K (A PACKAGE 3W SINGLE OUTPUT)**  
**CWD-2405A3TM-3K(A PACKAGE 3W DUAL OUTPUT)**

<sup>24</sup> NOMINAL INPUT VOLTAGE.

<sup>25</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

<sup>26</sup> FOR 3 SECONDS.

● **SELECTION GUIDE(12)**  
**2:1 4W-6W 3000VDC ISOLATION**  
**PACKAGE: A**

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>27</sup> CURRENT(mA)		EFF (%) <sup>28</sup>	ISOLATION (VDC) <sup>29</sup>
				FULL LOAD	NO LOAD		
CWS-1203.3A5M-3K	9-18	3.3	1200	438	40	75	3000
CWS-1205A5M-3K	9-18	5	1000	556	40	75	3000
CWS-1209A5M-3K	9-18	9	556	520	40	80	3000
CWS-1212A5M-3K	9-18	12	470	587	40	80	3000
CWS-1215A5M-3K	9-18	15	400	617	41	81	3000
CWD-1205A5M-3K	9-18	+/-5	+/-500	556	40	75	3000
CWD-1212A5M-3K	9-18	+/-12	+/-230	585	40	79	3000
CWD-1215A5M-3K	9-18	+/-15	+/-190	586	41	81	3000
CWS-2403.3A5M-3K	18-36	3.3	1200	217	20	76	3000
CWS-2405A5M-3K	18-36	5	1000	270	20	77	3000
CWS-2409A5M-3K	18-36	9	556	257	20	81	3000
CWS-2412A5M-3K	18-36	12	470	287	22	82	3000
CWS-2415A5M-3K	18-36	15	400	301	21	83	3000
CWD-2405A5M-3K	18-36	+/-5	+/-500	270	20	77	3000
CWD-2412A5M-3K	18-36	+/-12	+/-230	279	20	82	3000
CWD-2415A5M-3K	18-36	+/-15	+/-190	286	21	83	3000
CWS-4803.3A5M-3K	36-72	3.3	1200	112	10	74	3000
CWS-4805A5M-3K	36-72	5	1000	135	10	77	3000
CWS-4809A5M-3K	36-72	9	556	126	9	83	3000
CWS-4812A5M-3K	36-72	12	470	146	9	80	3000
CWS-4815A5M-3K	36-72	15	400	147	10	85	3000
CWD-4805A5M-3K	36-72	+/-5	+/-500	135	10	77	3000
CWD-4812A5M-3K	36-72	+/-12	+/-230	138	12	83	3000
CWD-4815A5M-3K	36-72	+/-15	+/-190	139	10	85	3000

*Note: Other input to output voltages may be available. Please contact factory.*

**ORDERING INFORMATION:**

**FOR EXAMPLE: CWS-1205A5M-3K (A PACKAGE 5W SINGLE OUTPUT)**

**CWD-2405A5M-3K(A PACKAGE 5W DUAL OUTPUT)**

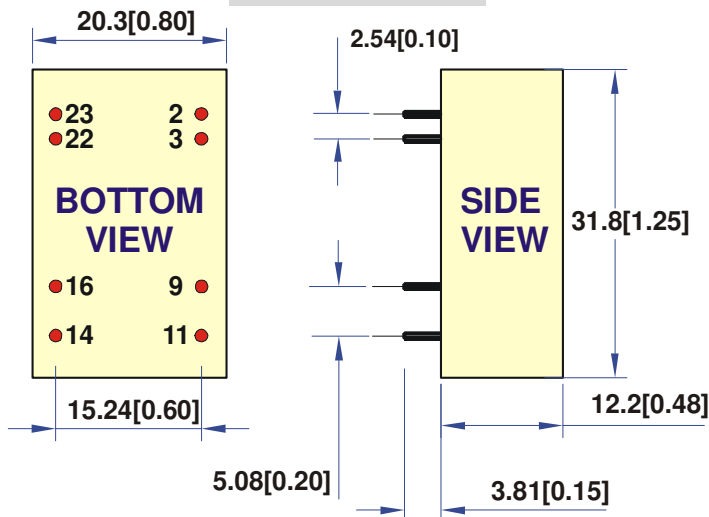
<sup>27</sup> NOMINAL INPUT VOLTAGE.

<sup>28</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

<sup>29</sup> FOR 3 SECONDS.

## MECHANICAL DIMENSIONS

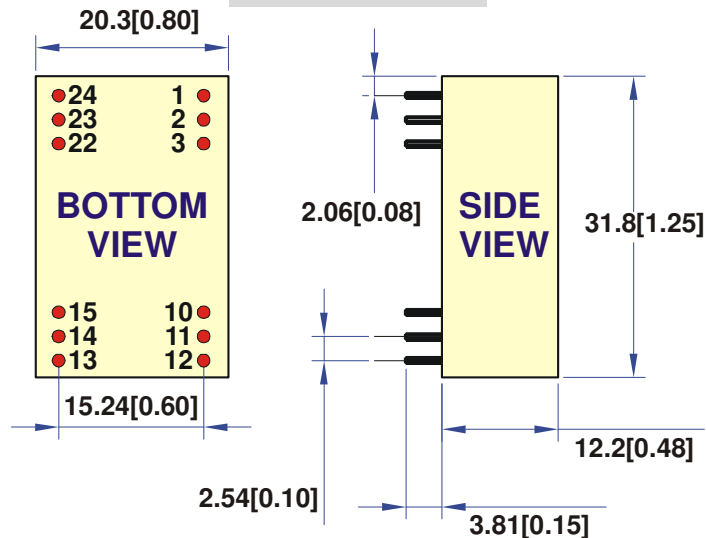
### PACKAGE "A"



PIN	SINGLE	DUAL
2 & 3	-Vin	-Vin
9	NC	Common
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Common
22 & 23	+Vin	+Vin

All dimensions are in mm[inchs]

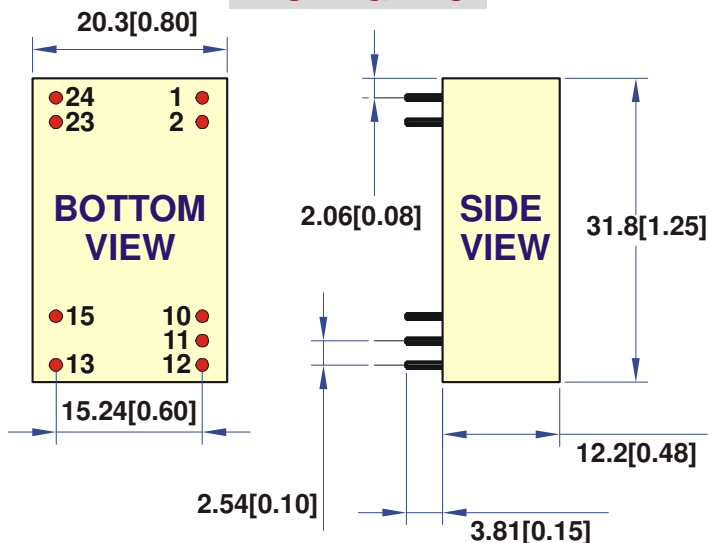
### PACKAGE "B"



PIN	SINGLE	DUAL
1 & 24	+Vin	+Vin
2 & 23	NP	-Vout
3 & 22	NP	Common
10 & 15	-Vout	Common
11 & 14	+Vout	+Vout
12 & 13	-Vin	-Vin

All dimensions are in mm[inchs]

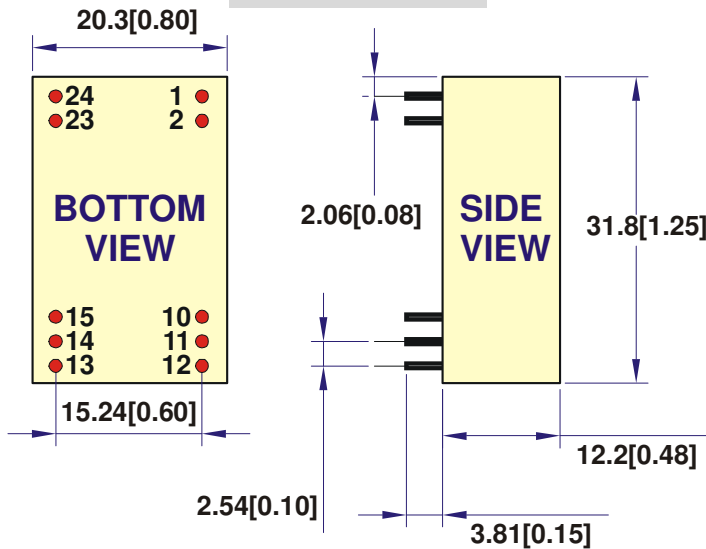
### PACKAGE "C"



PIN	SINGLE	DUAL
1 & 2	+Vin	+Vin
10 & 11	NC	Common
12	-Vout	NC
13	+Vout	-Vout
15	NC	+Vout
22 & 23	-Vin	-Vin

All dimensions are in mm[inchs]

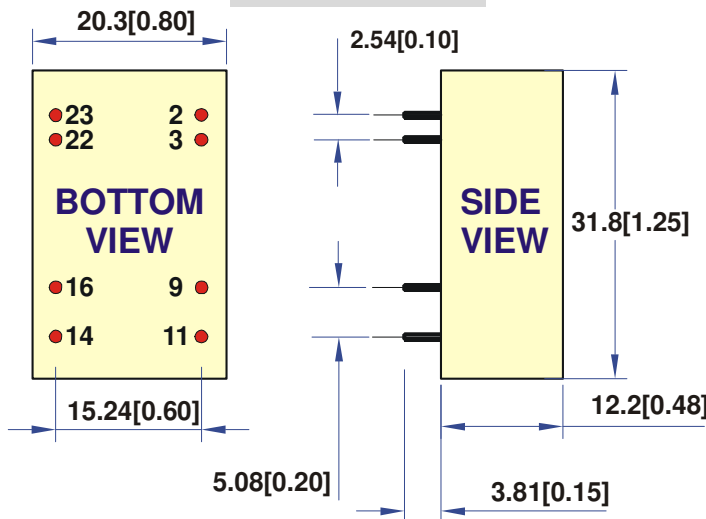
### PACKAGE "D"



PIN	SINGLE
1 & 24	+ Vin
2 & 23	-Vin
10 & 15	-Vout
11 & 14	NC
12 & 13	+Vout

All dimensions are in mm[inchs]

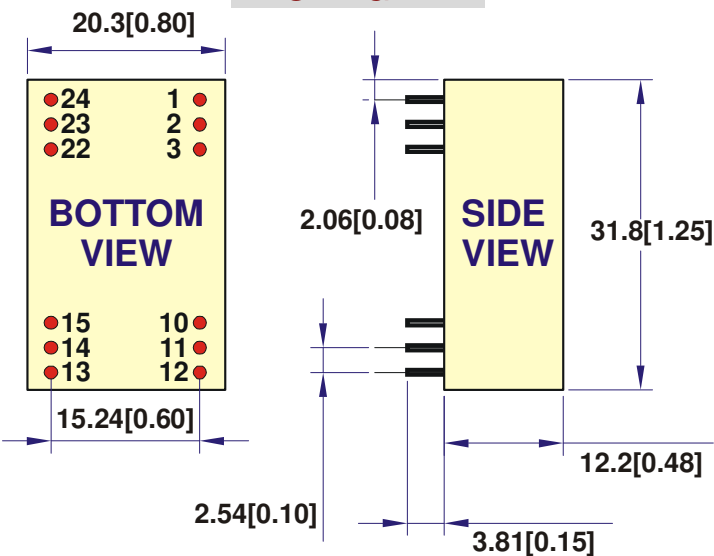
### PACKAGE "E"



PIN	SEPARATE
2 & 3	- Vin
9	-Vout2
11	+Vout2
14	+Vout1
16	-Vout1
22 & 23	+Vin

All dimensions are in mm[inchs]

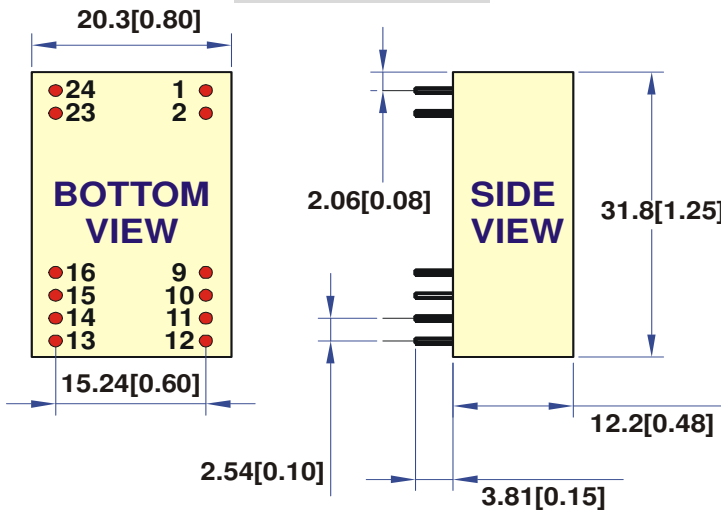
### PACKAGE "F"



PIN	SEPARATE
1 & 24	+ Vin
2 & 23	-Vout2
3 & 22	+Vout2
10 & 15	-Vout1
11 & 14	+Vout1
12 & 13	-Vin

All dimensions are in mm[inchs]

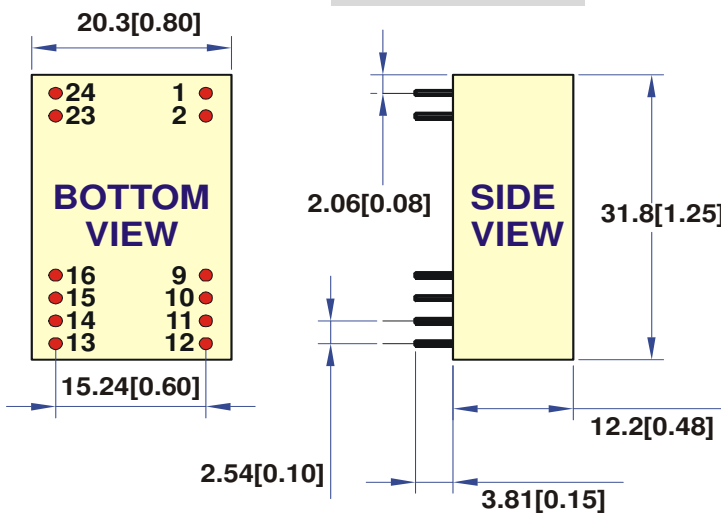
### PACKAGE "P"



PIN	SINGLE
1 & 2	+Vin
23 & 24	-Vin
9 & 10	-Vout
11 & 12	+Vout
13 & 14	NC
15 & 16	NC

All dimensions are in mm[inchs]

### PACKAGE "T"

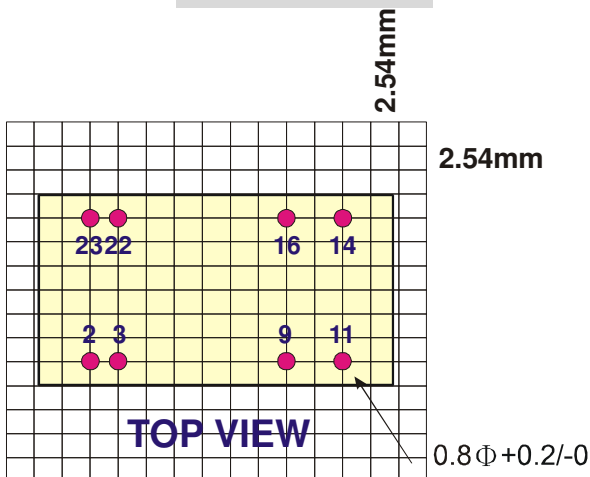


PIN	TRIPLE
1 & 2	-Vin
23 & 24	+Vin
9 & 16	-Vout(Out3)
10 & 15	Common
11 & 14	+5V/300mA(Out1)
12 & 13	+Vout(Out2)

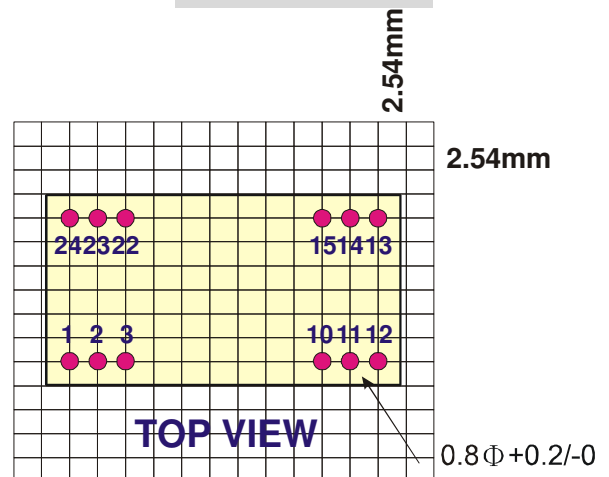
All dimensions are in mm[inchs]

## RECOMMENDED FOOTPRINT DETAILS

### PACKAGE "A"

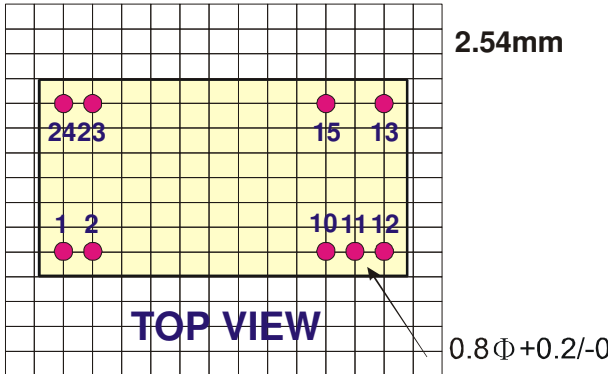


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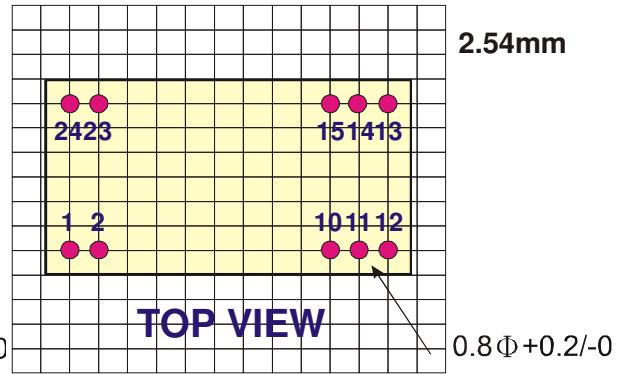
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2.54mm



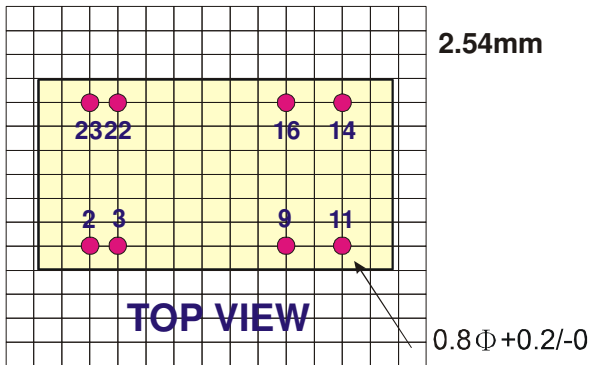
**PACKAGE "D"**

2.54mm



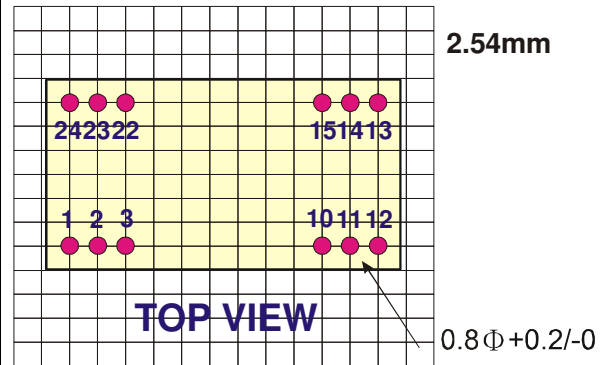
**PACKAGE "E"**

2.54mm



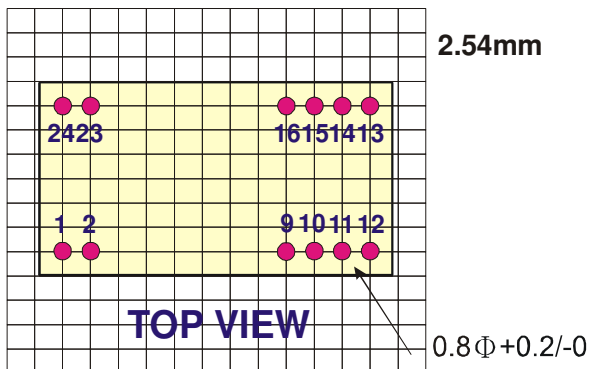
**PACKAGE "F"**

2.54mm



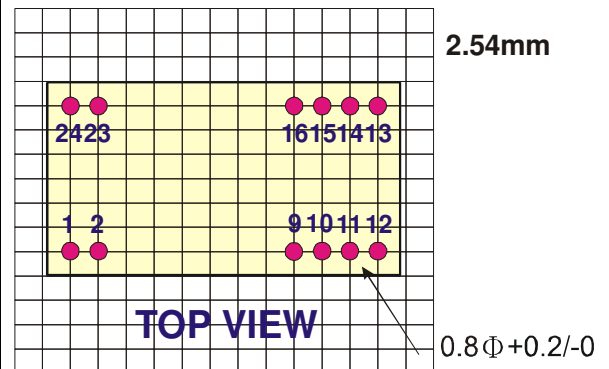
**PACKAGE "P"**

2.54mm

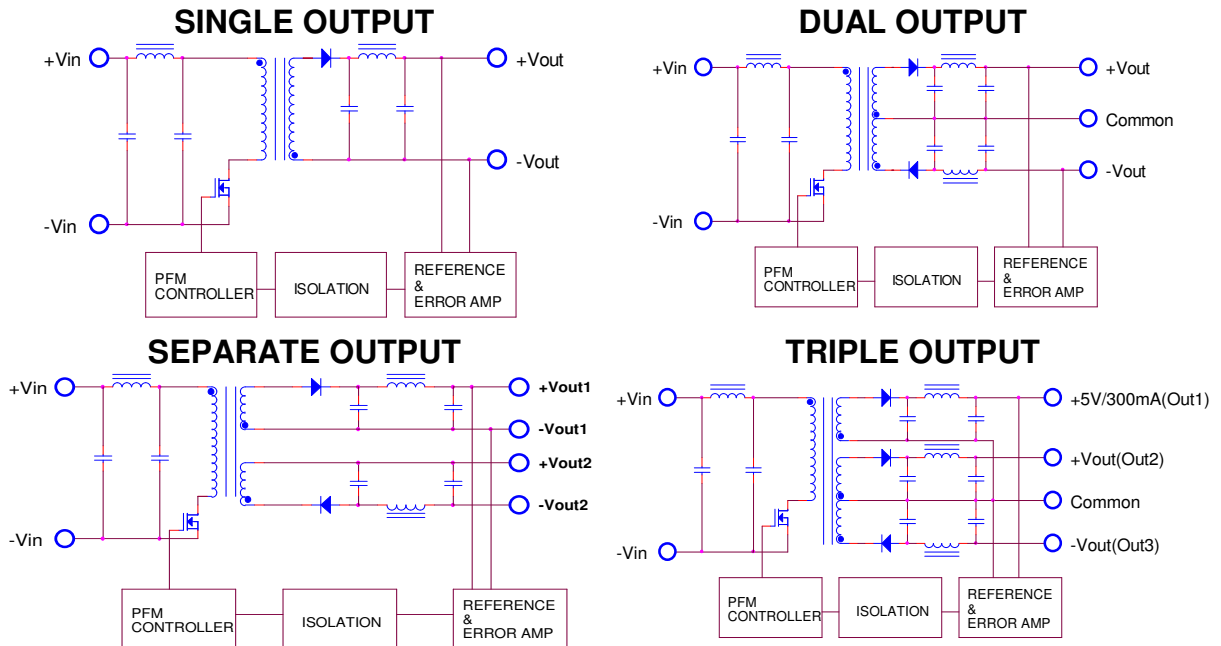


**PACKAGE "T"**

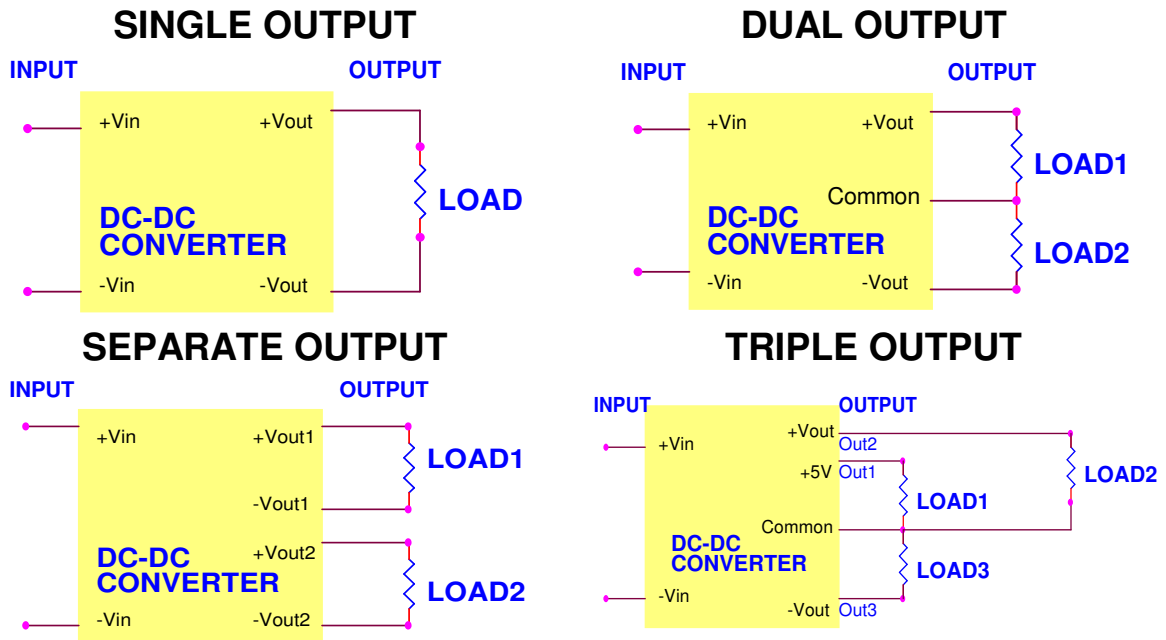
2.54mm



## ● SIMPLIFIED SCHEMATIC



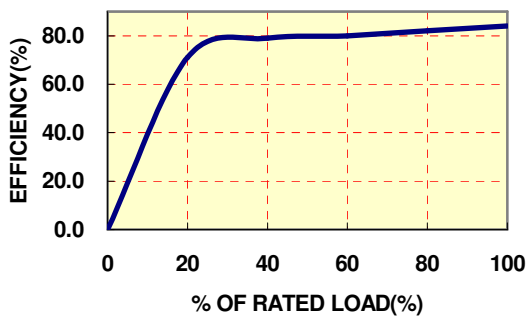
## ● TYPICAL APPLICATIONS



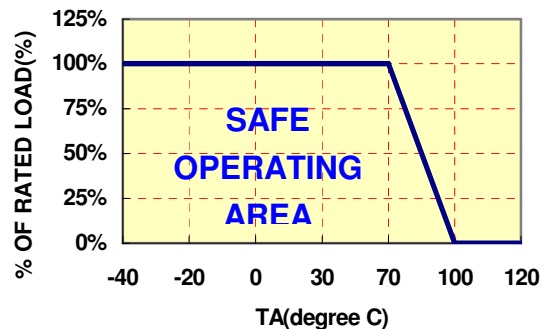
## ● TYPICAL PERFORMANCE CURVES

Specifications typical at  $t_a=25^\circ\text{C}$ , nominal input voltage, rated output current unless otherwise specified.

**OUTPUT LOAD VS EFFICIENCY**



**TEMPERATURE DERATING**



## ● INPUT FUSE SELECTION GUIDE

4.5-6.0V or 4.5-9V INPUT VOLTAGE(VDC)	9-18V or 9-36V INPUT VOLTAGE(VDC)	18-36V or 18-72V INPUT VOLTAGE(VDC)	36-72V INPUT VOLTAGE(VDC)
3000mA Slow-Blow Type	1500mA Slow-Blow Type	800mA Slow-Blow Type	400mA Slow-Blow Type

**Note:** Certain applications may require the installation of external fuse in front of the input.

### CW SERIES APPLICATION NOTES:

#### EXTERNAL CAPACITANCE REQUIREMENTS:

No external capacitance is required for operation of the CW series.

To meet the reflected ripple requirements of the converter, an input impedance of less than 0.5 ohm from DC to 100KHz is required.

External output capacitance is not required for operation, however it is recommended that 10uF tantalum and 0.1uF ceramic capacitance be selected for reduced system noise.

Additional output capacitance may be added for increased filtering, but should not exceed 1000uF.

We Can Offer EMC-Filter According To EN55011/22 Class B.

#### Negative Outputs:

A negative output voltage may be obtained by connecting the +OUT to circuit ground and connecting -OUT as the negative output.

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### FOR MORE INFORMATION CALL:

**Danube Enterprise Co., Ltd.**

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Fax: 886-7-3755330

E-mail: danube@ms10.hinet.net

Home Page

<http://www.danube.com.tw>

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