

MMT

A decorative graphic consisting of several overlapping, wavy, translucent blue lines that flow across the top half of the page, creating a sense of motion and energy.

DC/DC CONVERTER

A decorative graphic in the bottom left corner featuring a cluster of vibrant green leaves with water droplets, and several flowing, ribbon-like green shapes that sweep across the bottom of the page, symbolizing environmental friendliness and energy efficiency.

40 Watt

2019

<http://www.mmtmachrone.com>

FEATURES :

- 2"X2" DIL Package
- 2:1 Wide Input Range
- 100% Burned In
- High Efficiency Up To 91%
- Customized Solutions Available
- Shielded Metal Case with insulated baseplate
- Remote Control ON/OFF
- UL94V-0 Package Material



Specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage	Input Current		Output Voltage	Output Current	Capacitor Load	Efficiency
	Vdc	No-Load (mA TYP)	Full Load (mA TYP)	Vdc	Full Load (mA)	uF	%TYP
99D-12S03R2NL	9-18	120	3125	3.3	10000	16000	88
99D-12S05R2NL	9-18	130	3703	5	8000	10000	90
99D-12S12R2NL	9-18	50	3750	12	3300	2000	88
99D-12S15R2NL	9-18	50	3721	15	2650	1200	89
99D-12D12R2NL	9-18	60	3752	±12	±1670	±1000	89
99D-12D15R2NL	9-18	60	3764	±15	±1340	±680	89
99D-24S03R2NL	18-36	70	1544	3.3	10000	16000	89
99D-24S05R2NL	18-36	80	1831	5	8000	10000	91
99D-24S12R2NL	18-36	30	1833	12	3300	2000	90
99D-24S15R2NL	18-36	30	1840	15	2650	1200	90
99D-24D12R2NL	18-36	30	1855	±12	±1670	±1000	90
99D-24D15R2NL	18-36	30	1861	±15	±1340	±680	90
99D-48S03R2NL	36-75	40	763	3.3	10000	16000	90
99D-48S05R2NL	36-75	50	915	5	8000	10000	91
99D-48S12R2NL	36-75	30	916	12	3300	2000	90
99D-48S15R2NL	36-75	30	920	15	2650	1200	90
99D-48D12R2NL	36-75	30	927	±12	±1670	±1000	90
99D-48D15R2NL	36-75	30	930	±15	±1340	±680	90

Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Types				2:1	
Filter	Pi Network				
Protection	Fuse Recommended				

DC-DC Converter

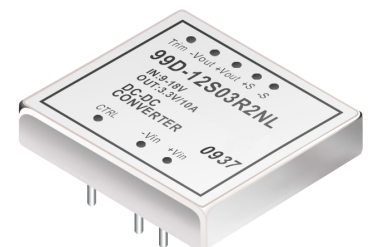
99D-R2 SERIES

40Watt 1.5KV Isolated

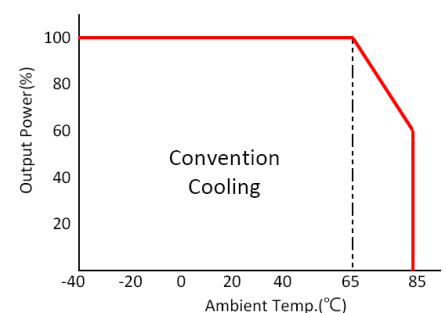
2 : 1 Input Voltage Range

Single & Dual Output

2" x 2"



Temperature Derating Graph



Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	Full load@Vin(nom.)			±2	%
Short Circuit Protection	Hiccup, automatic recovery				
Line Regulation				±0.5	%
Load Regulation	Single			±0.5	%
	Dual(Balance Load)			±1	%
Cross Regulation	Dual (25% to 100% load)			±5.	%
Ripple & Noise	Output:3-15V TYPES BW=DC To 20MHz			100	mVp-p
Ripple & Noise	Output > 15V TYPES BW=DC To 20MHz			1% of Vout	mVp-p
Transient response setting time	25% load step change		300		us
External Trim Adj. Range				±10	%

General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Switching Frequency			300		KHz
Operating Temperature	Refer to temperature derating graph (with derating)	-40		85	°C
Humidity	Non Condensing	5		95	%
Cooling	Free air Convection				
Case material	Nickel Coated with Non-Conductive Base				
Weight			70		g
Dimensions			51.0X51.0X10.3		mm
Potting Material			Epoxy (UL94V-0 rated)		
Remote ON/OFF	ON		Open		
	OFF		Short to -Vin		
Isolation Voltage				1500	VDC
MTBF	MIL-HDBK-217F @25°C , Ground Benign	151100			Hours
Storage Temperature		-55		+125	°C
Case Temperature				+105	°C
Isolation Capacitance				2500	pF

PIN Assignment

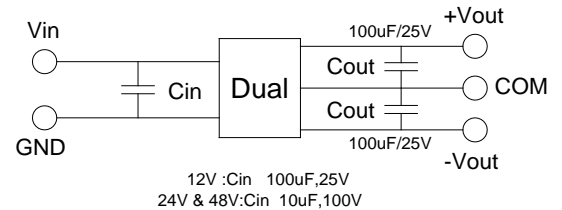
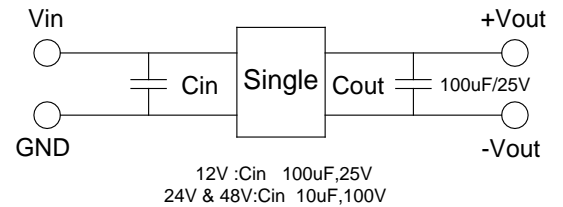
Pin	1	2	3	4	5	6	7	8
Single	+Vin	-Vin	Remote On/Off	-Sense	+Sense	+Vout	-Vout	Trim
Dual	+Vin	-Vin	Remote On/Off	+Vout	Com	Com	-Vout	Trim

Part Number

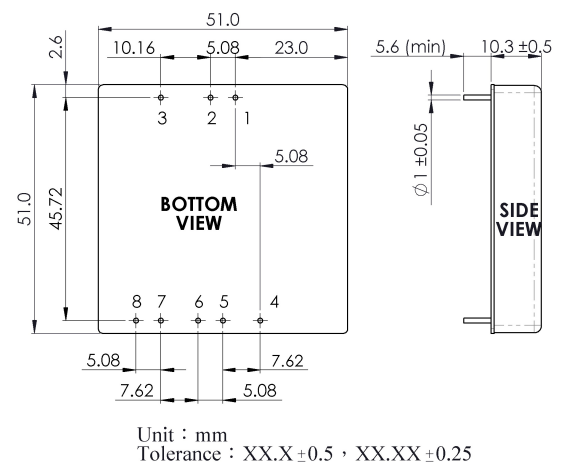
99D - 24 S 05 R 2 NL
A B C D E F G

- A: Series
- B: Input Voltage
- C: Single Output(S),Dual(D)
- D: Output Voltage
- E: Regulated(R)
- F: Package
- G: RoHS Version

Recommended Test Circuit



Markings and dimensions



FEATURES :

- 2"X1" DIL Package
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- 100% Burned In
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- Customized Solutions Available
- Shielded Metal Case with insulated baseplate
- Remote Control ON/OFF
- UL94V-0 Package Material



Specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage	Input Current		Output Voltage	Output Current	Capacitor Load	Efficiency
	Vdc	No-Load (mA TYP)	Full Load (mA TYP)	Vdc	Full Load (mA)	uF	%TYP
99D-12S03R3NL	9-18	160	2471	3.3	8000	16000	89
99D-12S05R3NL	9-18	160	3745	5	8000	10000	89
99D-12S12R3NL	9-18	60	3752	12	3340	1800	89
99D-12S15R3NL	9-18	60	3708	15	2670	1200	90
99D-12D12R3NL	9-18	60	3795	±12	±1670	±1000	88
99D-12D15R3NL	9-18	60	3806	±15	±1340	±680	88
99D-24S03R3NL	18-36	90	1235	3.3	8000	16000	89
99D-24S05R3NL	18-36	90	1851	5	8000	10000	90
99D-24S12R3NL	18-36	50	1855	12	3340	1800	90
99D-24S15R3NL	18-36	50	1833	15	2670	1200	91
99D-24D12R3NL	18-36	50	1876	±12	±1670	±1000	89
99D-24D15R3NL	18-36	50	1882	±15	±1340	±680	89
99D-48S03R3NL	36-75	70	611	3.3	8000	16000	90
99D-48S05R3NL	36-75	70	925	5	8000	10000	90
99D-48S12R3NL	36-75	40	917	12	3340	1800	91
99D-48S15R3NL	36-75	40	916	15	2670	1200	91
99D-48D12R3NL	36-75	40	938	±12	±1670	±1000	89
99D-48D15R3NL	36-75	40	941	±15	±1340	±680	89

DC-DC Converter

99D-R3 SERIES

40Watt 1.5KV Isolated

2 : 1 Input Voltage Range

Single & Dual Output

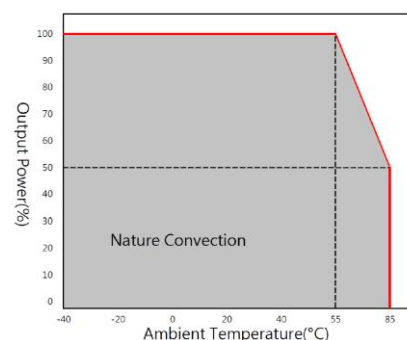
2" x 1"



Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Types				2:1	
Filter	Pi Network				
Protection	Fuse Recommended				

Temperature Derating Graph



Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	Full load@ Vin(nom.)			±2	%
Short Circuit Protection	Hiccup, automatic recovery				
Line Regulation				±0.5	%
Load Regulation	Single Dual(Balance Load)			±0.5 ±2	%
Cross Regulation	Dual (25% to 100% load)			±5	%
Ripple & Noise	Output:3-15V TYPES BW=DC To 20MHz			100	mVp-p
Ripple & Noise	Output > 15V TYPES BW=DC To 20MHz			1% of Vout	mVp-p
Transient response setting time	25% load step change		300		us
External Trim Adj. Range				±10	%

General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Switching Frequency			350		KHz
Operating Temperature	Refer to temperature derating graph (with derating)	-40		85	°C
Humidity	Non Condensing	5		95	%
Cooling	Free air Convection				
Case material	Nickel Coated with Non-Conductive Base				
Weight			30		g
Dimensions			50.8X25.4X11.6		mm
Potting Material			Epoxy (UL94V-0 rated)		
Remote ON/OFF	ON OFF		Open Short to -Vin		
Isolation Voltage				1500	VDC
MTBF	MIL-HDBK-217F @25°C , Ground Benign	328000			Hours
Storage Temperature		-55		+125	°C
Case Temperature				+105	°C
Isolation Capacitance				1500	pF

PIN Assignment

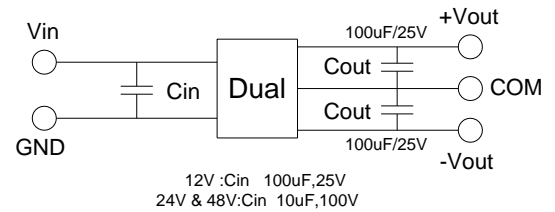
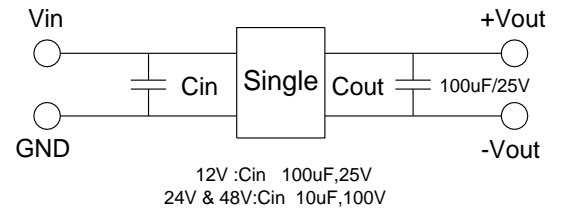
Pin	1	2	3	4	5	6
Single	+Vin	-Vin	Remote On/Off	+Vout	-Vout	Trim
Dual	+Vin	-Vin	Remote On/Off	+Vout	Com	-Vout

Part Number

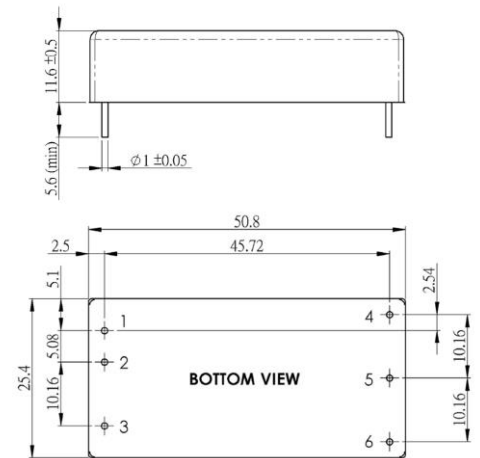
99D - 24 S 05 R 3 NL
A B C D E F G

- A: Series
- B: Input Voltage
- C: Single Output(S),Dual(D)
- D: Output Voltage
- E: Regulated(R)
- F: Package
- G: RoHs Version

Recommended Test Circuit



Markings and dimensions



Unit : mm
Tolerance : XX.X ±0.5 , XX.XX ±0.25

FEATURES :

- 2"X2" DIL Package
- 4:1 Wide Input Range
- 100% Burned In
- High Efficiency Up To 90%
- Customized Solutions Available
- Shielded Metal Case with insulated baseplate
- Remote Control ON/OFF
- UL94V-0 Package Material



Specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage		Input Current		Output Voltage		Output Current		Capacitor Load	Efficiency
	Vdc	No-Load (mA TYP)	Full Load (mA TYP)	Vdc	Full Load (mA)	uF Max	%TYP			
99DW-24S03R2NL	9-36	100	1544	3.3	10000	16000	89			
99DW-24S05R2NL	9-36	110	1851	5	8000	10000	90			
99DW-24S12R2NL	9-36	40	1875	12	3300	2000	88			
99DW-24S15R2NL	9-36	40	1882	15	2650	1000	88			
99DW-24D12R2NL	9-36	40	1897	±12	±1670	±1000	88			
99DW-24D15R2NL	9-36	40	1903	±15	±1340	±680	88			
99DW-48S03R2NL	18-75	70	763	3.3	10000	16000	89			
99DW-48S05R2NL	18-75	80	925	5	8000	10000	90			
99DW-48S12R2NL	18-75	30	937	12	3300	2000	88			
99DW-48S15R2NL	18-75	30	941	15	2650	1000	88			
99DW-48D12R2NL	18-75	30	948	±12	±1670	±1000	88			
99DW-48D15R2NL	18-75	30	951	±15	±1340	±680	88			

Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Types				4:1	
Filter	Pi Network				
Protection	Fuse Recommended				

DC-DC Converter

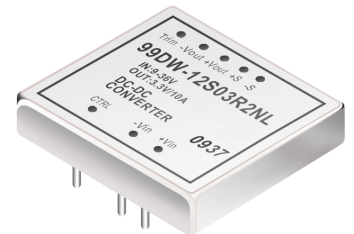
99DW-R2 SERIES

40Watt 1.5KV Isolated

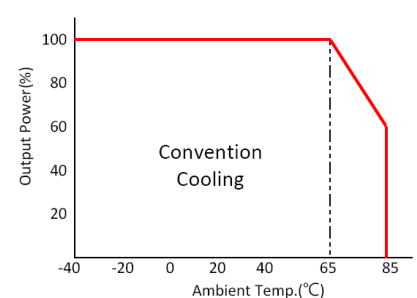
4 : 1 Input Voltage Range

Single & Dual Output

2" x 2"



Temperature Derating Graph



Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	Full load@Vin(nom.)			±2	%
Short Circuit Protection	Hiccup, automatic recovery				
Line Regulation				±0.5	%
Load Regulation	Single Dual(Balance Load)			±0.5 ±1	%
Cross Regulation	Dual (25% to 100% load)			±5	%
Ripple & Noise	Output:3-15V TYPES BW=DC To 20MHz			100	mVp-p
Ripple & Noise	Output > 15V TYPES BW=DC To 20MHz			1% of Vout	mVp-p
Transient response setting time	25% load step change		350		us
External Trim Adj. Range				±10	%

General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Switching Frequency			300		KHz
Operating Temperature	Refer to temperature derating graph (with derating)	-40		85	°C
Humidity	Non Condensing	5		95	%
Cooling	Free air Convection				
Case material	Nickel Coated with Non-Conductive Base				
Weight			70		g
Dimensions			51.0X51.0X10.3		mm
Potting Material			Epoxy (UL94V-0 rated)		
Remote ON/OFF	ON OFF		Open Short to -Vin		
Isolation Voltage				1500	VDC
MTBF	MIL-HDBK-217F @25°C , Ground Benign	151100			Hours
Storage Temperature		-55		+125	°C
Case Temperature				+105	°C
Isolation Capacitance				2500	pF

PIN Assignment

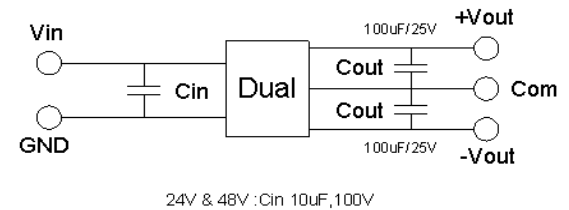
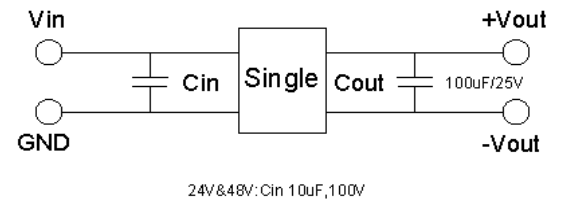
Pin	1	2	3	4	5	6	7	8
Single	+Vin	-Vin	Remote On/Off	-Sense	+Sense	+Vout	-Vout	Trim
Dual	+Vin	-Vin	Remote On/Off	+Vout	Com	Com	-Vout	Trim

Part Number

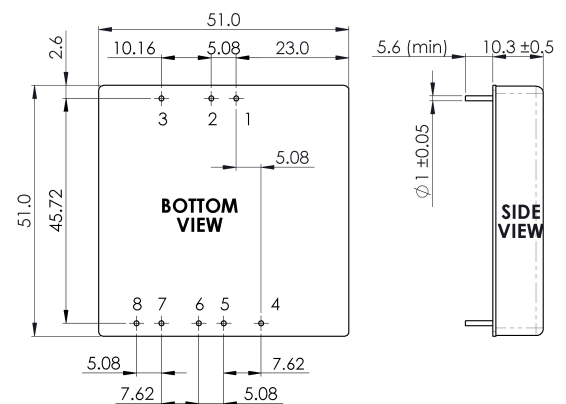
99DW - 24 S 05 R 2 NL
A B C D E F G

- A: Series
- B: Input Voltage
- C: Single Output(S),Dual(D)
- D: Output Voltage
- E: Regulated(R)
- F: Package
- G: RoHs Version

Recommended Test Circuit



Markings and dimensions



Unit : mm
Tolerance : XX.X ± 0.5 , XX.XX ± 0.25

FEATURES :

- 2"X1" DIL Package
- 4:1 Wide Input Range
- 100% Burned In
- High Efficiency Up To 90%
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- Shielded Metal Case with insulated baseplate
- Remote Control ON/OFF
- UL94V-0 Package Material



Specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage		Input Current		Output Voltage		Output Current		Capacitor Load	Efficiency
	Vdc	No-Load (mA TYP)	Full Load (mA TYP)	Vdc	Full Load (mA)	uF Max	%TYP			
99DW-24S03R3NL	9-36	90	1235	3.3	8000	16000	89			
99DW-24S05R3NL	9-36	90	1851	5	8000	10000	90			
99DW-24S12R3NL	9-36	50	1876	12	3340	1800	89			
99DW-24S15R3NL	9-36	50	1875	15	2670	1200	89			
99DW-24D12R3NL	9-36	50	1897	±12	±1670	±1000	88			
99DW-24D15R3NL	9-36	50	1903	±15	±1340	±680	88			
99DW-48S03R3NL	18-75	60	617	3.3	8000	16000	89			
99DW-48S05R3NL	18-75	60	925	5	8000	10000	90			
99DW-48S12R3NL	18-75	40	927	12	3340	1800	90			
99DW-48S15R3NL	18-75	40	927	15	2670	1200	90			
99DW-48D12R3NL	18-75	40	948	±12	±1670	±1000	88			
99DW-48D15R3NL	18-75	40	951	±15	±1340	±680	88			

DC-DC Converter

99DW-R3 SERIES

40Watt 1.5KV Isolated

4 : 1 Input Voltage Range

Single & Dual Output

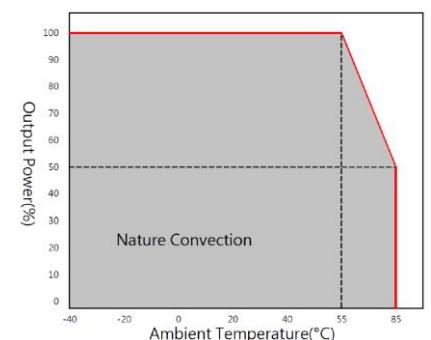
2" x 1"



Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Types				4:1	
Filter	Pi Network				
Protection	Fuse Recommended				

Temperature Derating Graph



Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	Full load@ Vin(nom.)			±2	%
Short Circuit Protection	Hiccup, automatic recovery				
Line Regulation				±0.5	%
Load Regulation	Single Dual(Balance Load)			±0.5 ±2	%
Cross Regulation	Dual (25% to 100% load)			±5	%
Ripple & Noise	Output:3-15V TYPES BW=DC To 20MHz			100	mVp-p
Ripple & Noise	Output > 15V TYPES BW=DC To 20MHz			1% of Vout	mVp-p
Transient response setting time	25% load step change		300		us
External Trim Adj. Range				±10	%

General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Switching Frequency			350		KHz
Operating Temperature	Refer to temperature derating graph (with derating)	-40		85	°C
Humidity	Non Condensing	5		95	%
Cooling	Free air Convection				
Case material	Nickel Coated with Non-Conductive Base				
Weight			30		g
Dimensions			50.8X25.4X11.6		mm
Potting Material			Epoxy (UL94V-0 rated)		
Remote ON/OFF	ON OFF		Open Short to -Vin		
Isolation Voltage				1500	VDC
MTBF	MIL-HDBK-217F @25°C , Ground Benign	328000			Hours
Storage Temperature		-55		+125	°C
Case Temperature				+105	°C
Isolation Capacitance				1500	pF

PIN Assignment

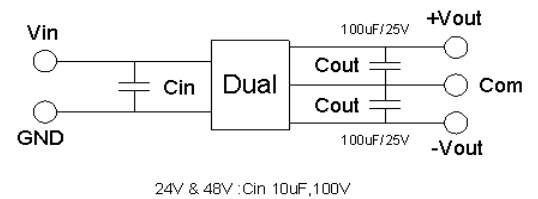
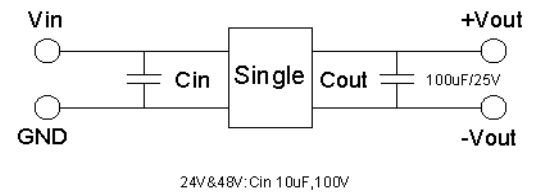
Pin	1	2	3	4	5	6
Single	+Vin	-Vin	Remote On/Off	+Vout	-Vout	Trim
Dual	+Vin	-Vin	Remote On/Off	+Vout	Com	-Vout

Part Number

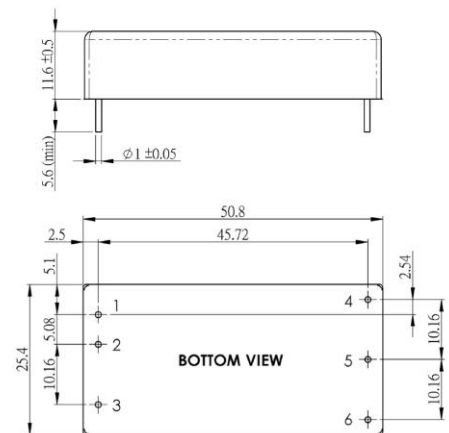
99DW - 24 S 05 R 3 NL
A B C D E F G

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Recommended Test Circuit



Markings and dimensions



Unit : mm
Tolerance : XX.X ±0.5 , XX.XX ±0.25