

DC - DC CONVERTER
23 ~ 25W SINGLE & DUAL OUTPUT



FEATURES

- EFFICIENCY UP TO 86%
- 2:1 & 3:1 WIDE INPUT RANGE
- I/O ISOLATION
- INPUT Pi FILTER
- SHORT CIRCUIT PROTECTION
- HIGH PERFORMANCE
- 3 YEARS WARRANTY

MODEL LIST

MODEL NO.	INPUT VOLTAGE	INPUT CURRENT (typ.)	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)	CAPACITOR LOAD (max.)
Single Output Models								
TDD25 - 03S2	18~60 VDC	1.17 A	23 WATTS	+3.3 VDC	7000 mA	78%	80%	3500 μ F
TDD25 - 05S2	18~60 VDC	1.20 A	25 WATTS	+ 5 VDC	5000 mA	84%	86%	3500 μ F
TDD25 - 12S2	18~60 VDC	1.13 A	24 WATTS	+ 12 VDC	2000 mA	84%	86%	470 μ F
TDD25 - 15S2	18~60 VDC	1.18 A	25 WATTS	+ 15 VDC	1700 mA	84%	86%	300 μ F
TDD25 - 03S3	35~75 VDC	0.58 A	23 WATTS	+3.3 VDC	7000 mA	78%	80%	3500 μ F
TDD25 - 05S3	35~75 VDC	0.60 A	25 WATTS	+ 5 VDC	5000 mA	84%	86%	3500 μ F
TDD25 - 12S3	35~75 VDC	0.56 A	24 WATTS	+ 12 VDC	2000 mA	84%	86%	470 μ F
TDD25 - 15S3	35~75 VDC	0.59 A	25 WATTS	+ 15 VDC	1700 mA	84%	86%	300 μ F
Dual Output Models								
TDD25 - 12D2	18~60 VDC	1.11 A	25 WATTS	$\pm$ 12 VDC	$\pm$ 1000 mA	84%	86%	$\pm$ 220 μ F
TDD25 - 15D2	18~60 VDC	1.21 A	25 WATTS	$\pm$ 15 VDC	$\pm$ 850 mA	84%	86%	$\pm$ 100 μ F
TDD25 - 12D3	35~75 VDC	0.59 A	25 WATTS	$\pm$ 12 VDC	$\pm$ 1000 mA	84%	86%	$\pm$ 220 μ F
TDD25 - 15D3	35~75 VDC	0.61 A	25 WATTS	$\pm$ 15 VDC	$\pm$ 850 mA	84%	86%	$\pm$ 100 μ F

SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

GENERAL					
Characteristics	Conditions		min.	typ.	max. unit
Switching frequency	Vi nom, Io nom			300	KHz
Isolation voltage	Input - Output		1,500		VDC
Isolation resistance	Input - Output, @ 500VDC		100		MΩ
Isolation capacitance	100KHz / 1V				1,000 PF
Ambient temperature	Vi nom,	3.3V & 5V output models	-25		+ 61 °C
	Io nom	12V, 15V & dual output models	-25		+ 71 °C
Case temperature	Operating at Vi nom, Io nom				+ 100 °C
Derating	Vi nom		See derating curve		
Storage temperature	Non operational		-40		+ 100 °C
Relative humidity	Vi nom, Io nom		20		95 % RH
Temperature coefficient	Vi nom, Io min				± 0.02 % / °C
Dimension			L76.2 x W50.8 x H12		
MTBF	Bellcore issue 6@40°C, GB			701,800	Hours
Cooling	Free air convection				

INPUT SPECIFICATIONS					
Characteristics	Conditions		min.	typ.	max. unit
Input voltage range	Ta min ... Ta max, Io nom		18	24	60 VDC
			35	48	75 VDC
No load input current	Vi nom, Io = 0	24V			20 mA
		48V			15 mA
Input voltage w/o damage	Io nom	24V			65 VDC
		48V			80 VDC
Startup voltage	Io nom	24V		16	VDC
		48V		30	VDC
Input filter	Pi type				

OUTPUT SPECIFICATIONS					
Characteristics	Conditions		min.	typ.	max. unit
Output voltage accuracy	Vi nom, Io nom				± 2 %
Minimum load	Vi nom	single output models	0		%
		dual output models (each output)	20		%
Line regulation	Io nom, Vi min ... Vi max				± 1 %
Load regulation	Vi nom, Io 0 ... Io nom, single output models				± 2 %
	Vi nom, Io min ... Io nom, dual output models				± 5 %
Cross regulation (Dual model)	Aymmetrical load 20% - 100% FL				± 5 %
Startup time	Vi nom, Io nom				30 ms
Transient recovery time	Vi nom, I ~ 0.5 Io nom				500 μs
Ripple & noise	Vi nom, Io nom, BW = 20MHz	3.3V & 5V			150 mV
		12V, 15V & dual			Vout x ± 1%
Voltage trim range *	Vi nom	3.3V		± 5	%
		5V, 12V, 15V & dual		± 10	%
Efficiency	Vi nom, Io nom, Po / Pi		Up to 86%, See model list and efficiency curve		

* NOTE : Pls refer to Fig 1 & Table 1 for connection resistance recommended.

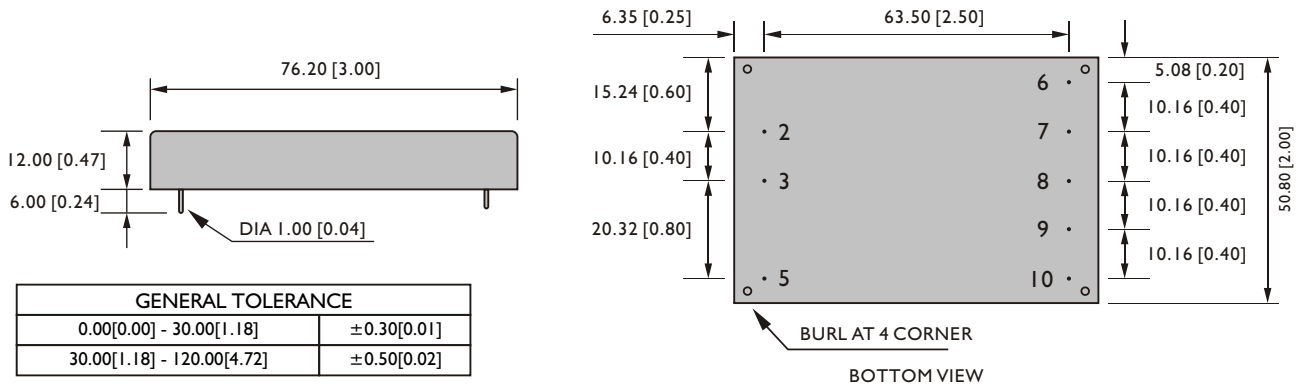
CONTROL AND PROTECTION	
Remote ON / OFF	ON: opened or 8 ~ 10VDC applied, reference to input GND OFF: -0.3 ~ 2VDC applied, reference to input GND
Input reversed	Shunt diode built in, external fuse recommended (24Vin : 2A, 48Vin : 1.5A)
Output short circuit	Current limited (Auto-recovery)
Rated over load protection	110%min....140%max

PHYSICAL CHARACTERISTICS

Case size	76.2 x 50.8 x 12 mm (3 x 2 x 0.47 inches)
Case material	Plastic base / Metal case
Weight	105 g
Potting material	Epoxy

MECHANISM & PIN CONFIGURATION

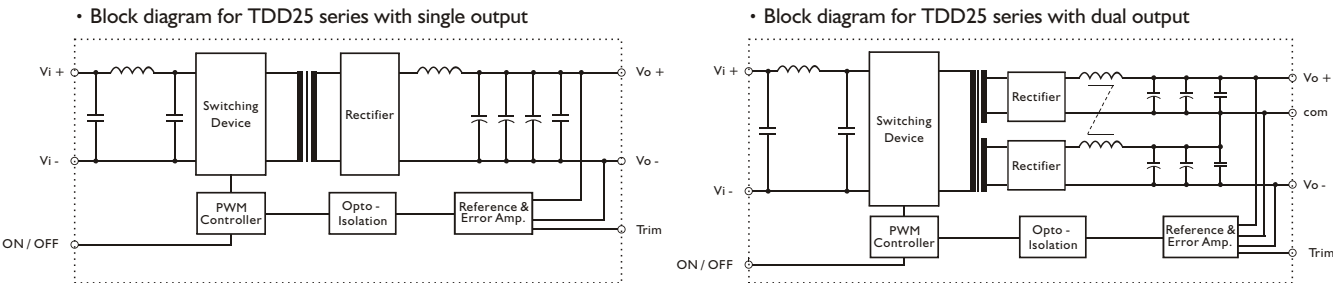
mm [inch]



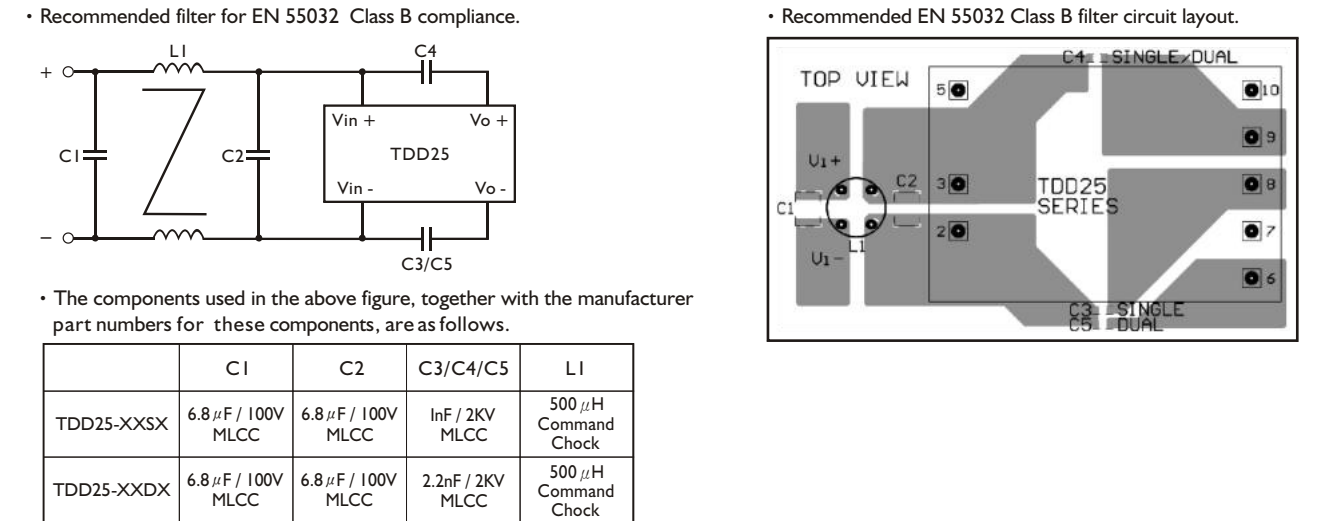
PIN ASSIGNMENT

GENERAL								
PIN NO.	2	3	5	6	7	8	9	10
SINGLE	Vi -	Vi +	ON / OFF	N. C.	N. C.	Vo -	Vo +	Trim
DUAL	Vi -	Vi +	ON / OFF	Vo -	N. C.	com	Vo +	Trim

CIRCUIT SCHEMATIC



RECOMMENDED CIRCUIT



DERATING AND EFFICIENCY CURVE

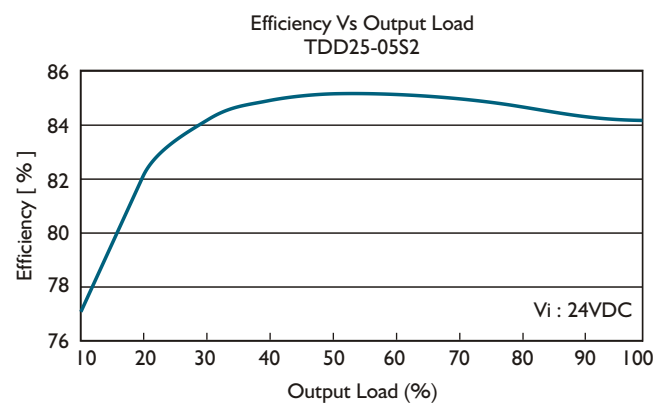
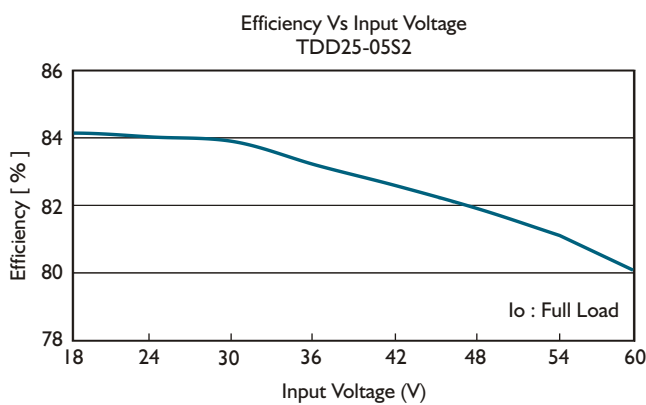
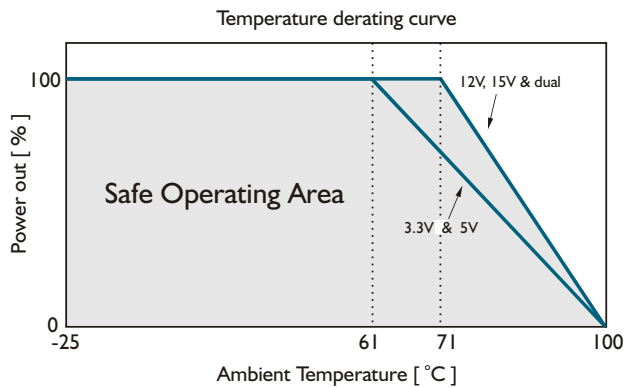
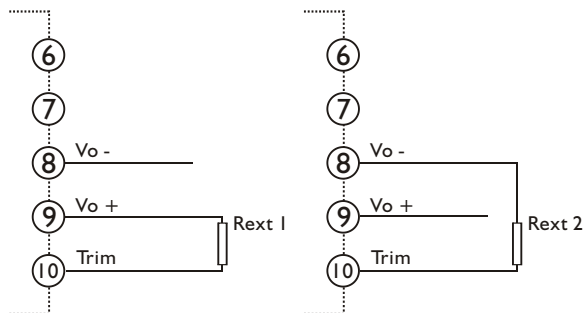


Fig. 1 Trim connection

(For Single output)



(For Dual output)

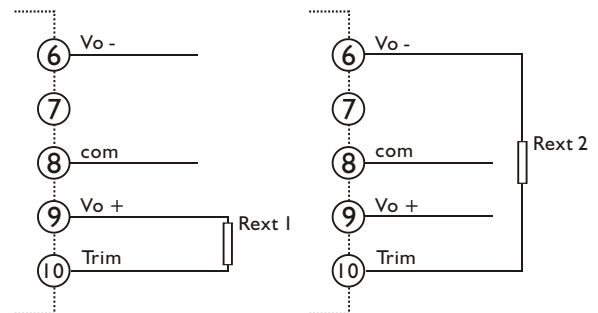


Table I Typical resistor values for various output voltage adjustment settings

Type	Rext 1		Rext 2	
	V_o nom -2.5%	V_o nom -5%	V_o nom +2.5%	V_o nom +5%
TDD25-03SX	1K Ω	0 Ω	6.8K Ω	3.9K Ω
Type	V_o nom -5%	V_o nom -10%	V_o nom +5%	V_o nom +10%
TDD25-05SX	1K Ω	0 Ω	1K Ω	0 Ω
TDD25-12SX	62K Ω	20K Ω	8.2K Ω	1K Ω
TDD25-15SX	180K Ω	62K Ω	20K Ω	0 Ω
TDD25-12DX	100K Ω	51K Ω	10K Ω	1K Ω
TDD25-15DX	180K Ω	68K Ω	10K Ω	0 Ω