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ITU03 series

XP Power

3W

DC-DC converters

The ITU03 with a 4:1 input range is particularly suited to portable & battery-operated equipment where it can provide a constant load voltage at different states of battery charge/discharge. Applications are not confined to portable equipment, the ITU03 can be used to provide a regulated point of load source from a DC bus, wherever a small amount of power is required.

The ITU03 is a DIP8 packaged version of the SIP6 ITP03, both devices have remote control on the single output versions, but in addition the ITU03 has this feature on the dual output versions.



Features

- Regulated single & dual outputs from 3.3 to 30VDC
- Wide 4:1 input range
- Input ranges 4.5 to 18, 9 to 36, 18 to 75VDC
- DIP8 package
- 1.6kVDC isolation
- Efficiency to 84%
- Complies with EN55032 class A
- Short-circuit protection
- Remote On/Off
- -40°C to +80°C operating temperature
- Full power to +70°C
- 3 year warranty

Applications

Autonomous equipment

Industrial

Technology

Dimensions

14.0 x 14.0 x 8.1mm (0.55” x 0.55” x 0.32”)

Documentation

For further information click the link or scan the code

→ xppower.com

Models & ratings

Model number	Input voltage	Output voltage	Output current (full load)	Efficiency	Input current[1]		Maximum capacitive load[2]
					No load	Full load	
ITU0312S3V3	4.5-18VDC	3.3VDC	700mA	82%	30mA	257mA	3300µF
ITU0312S05		5.0VDC	600mA	85%	45mA	309mA	1680µF
ITU0312S12		12.0VDC	250mA	86%	55mA	301mA	470µF
ITU0312S15		15.0VDC	200mA	88%	60mA	301mA	330µF
ITU0312D05		±5.0VDC	±300mA	89%	30mA	313mA	±1000µF
ITU0312D12		±12.0VDC	±125mA	89%	55mA	305mA	±220µF
ITU0312D15		±15.0VDC	±100mA	85%	60mA	301mA	±220µF

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Notes:

1. Measurements taken at full load, minimal input voltage
2. Maximum capacitive load is per output
3. Standard tube quantity 30 pcs

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Models & ratings

Model number	Input voltage	Output voltage	Output current (full load)	Efficiency	Input current[1]		Maximum capacitive load[2]
					No load	Full load	
ITU0324S3V3	9-36VDC	3.3VDC	700mA	76%	25mA	127mA	3300µF
ITU0324S05		5.0VDC	600mA	82%	20mA	152mA	1680µF
ITU0324S12		12.0VDC	250mA	84%	30mA	149mA	470µF
ITU0324S15		15.0VDC	200mA	84%	35mA	149mA	330µF
ITU0324D05		±5.0VDC	±300mA	81%	25mA	154mA	±1000µF
ITU0324D12		±12.0VDC	±125mA	83%	30mA	151mA	±220µF
ITU0324D15		±15.0VDC	±100mA	84%	35mA	149mA	±220µF
ITU0348S3V3	18-75VDC	3.3VDC	700mA	74%	10mA	65mA	3300µF
ITU0348S05		5.0VDC	600mA	81%	10mA	77mA	1680µF
ITU0348S12		12.0VDC	250mA	81%	15mA	77mA	470µF
ITU0348S15		15.0VDC	200mA	82%	15mA	76mA	330µF
ITU0348D05		±5.0VDC	±300mA	79%	20mA	79mA	±1000µF
ITU0348D12		±12.0VDC	±125mA	80%	20mA	78mA	±220µF
ITU0348D15		±15.0VDC	±100mA	80%	25mA	78mA	±220µF

Notes:

1. Measurements taken at full load, minimal input voltage
2. Maximum capacitive load is per output
3. Standard tube quantity 30 pcs

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	4.5	12	18	VDC	ITU0312 series
	9	24	36		ITU0324 series
	18	48	75		ITU0348 series
Input filter	Integral capacitor				
Input reflected ripple			20	mA pk-pk	Through 27µH inductor and 47µF capacitor
Input surge			25	VDC for 100ms	12V models, ITU0312 series
			50		24V models, ITU0324 series
			100		48V models, ITU0348 series
Inhibit mode Input Current		2.5		mA	Vin nominal

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	3.3		30	VDC	See models and ratings table
Initial set accuracy			±1	%	
Minimum load	No minimum load required				
Line regulation			±0.2	%	
Load regulation			±1	%	From 0 to 100% load
Cross regulation			±5	%	On dual output models when one load is varied between 25% and 100% and other is fixed at 100%
Transient response deviation			±5	% deviation	Recovery time 500µs, 25% load step change
Ripple & noise			150	mV pk-pk	Single Output. 20MHz bandwidth. Measured using 0.1µF ceramic capacitor and 10µF electrolytic capacitor
			100		Dual Output. 20MHz bandwidth. Measured using 0.1µF ceramic capacitor and 10µF electrolytic capacitor
Short circuit protection	Continuous, with auto recovery				
Maximum capacitive load	See models and ratings table				
Temperature coefficient			0.02	%/˚C	
Remote on/off	Output is on if Remote On/Off (pin 2) is open. Output turns off if 2-4mA is applied to Remote On/Off (pin 2).				

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General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		81		%	See models and ratings table
Isolation: input to output	1600			VDC	Functional
Switching frequency		100		kHz	
Isolation resistance	10^9			Ω	
Isolation capacitance			2000	pF	
Power density			1.89 (31)	W/cm³ (W/in³)	
Mean time between failure	820			Khrs	MIL-HDBK-217F, +25°C GB
Case material	Non conductive black plastic				
Potting material	Silicon (UL94V-0 rated)				
Pin material	Brass solder-coated				
Solder process	JEDEC J-STD 020D.1. 260°C max. 1.5mm from case 10s max.				
Weight		3.6 (0.008)		g (lb)	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+80	°C	See derating curve
Storage temperature	-55		+125	°C	
Case temperature			+100	°C	
Cooling	Natural convection				
Operating humidity			95	%	RH, non condensing

Safety approvals

Certification	Standard	Notes & conditions
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class A	External components required. See application notes.
Radiated	EN55032	Class A	

Immunity - EMC

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD Immunity	EN61000-4-2	±8kV	A	Air discharge
Radiated Immunity	EN61000-4-3	10Vrms	A	
EFT/Burst	EN61000-4-4	±2kV	A	External input capacitor required 220µF/100V
Surges	EN61000-4-5	±2kV	A	External input capacitor required 220µF/100V
Conducted Immunity	EN61000-4-6	10Vrms	A	
Magnetic Fields	EN61000-4-8	100A/m	A	

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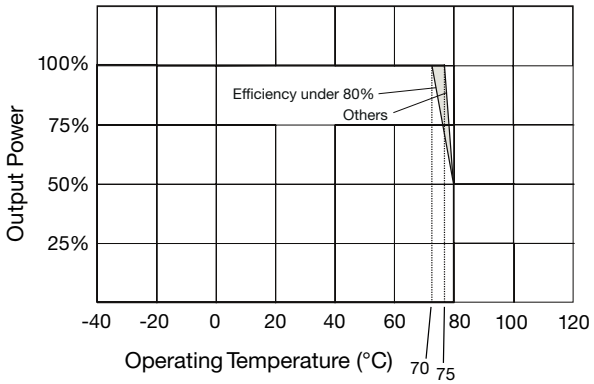
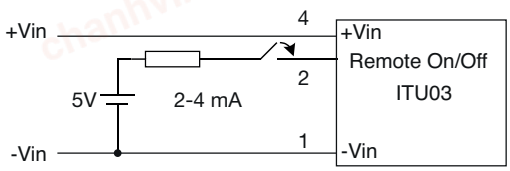
Application notes

Derating curve

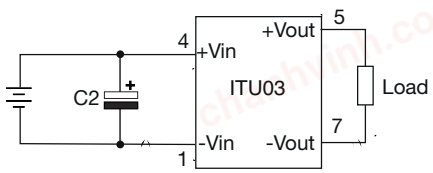


Model	C1	L
ITU0312	1210, 10µF, 35V	2.2µH
ITU0324	1210, 2.2µF, 100V	2.2µH
ITU0348	1210, 4.7µF, 100V	2.2µH

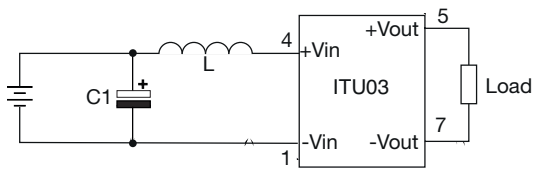
Remote on/off



EFT & surge

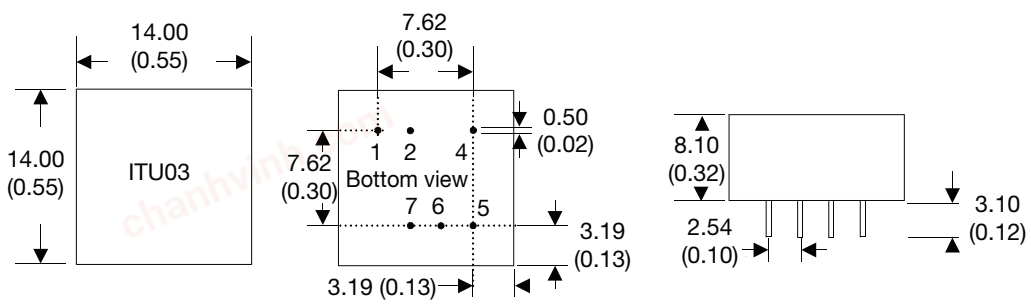


EMI Filter



C2
220µF, 100V
1210, 2.2µF, 100V
1210, 4.7µF, 100V

Mechanical details



Pin connections		
Pin	Single	Dual
1	-V Input	-V Input
2	Remote On/Off	Remote On/Off
3	Not fitted	Not fitted
4	+V Input	+V Input
5	+V Output	+V Output
6	Not fitted	Common
7	-V Output	-V Output
8	Not fitted	Not fitted

Notes:

1. All dimensions are in mm (inches)
2. Weight: 3.6 (0.008) g (lb) approx.
3. Pin pitch tolerance: ±0.35 (±0.014)
4. Pin diameter: 0.5 ±0.05 (0.02 ±0.002)
5. Case tolerance: ±0.5 (±0.02)