DC/DC Transformer

TTURB-15T Series

MORNSUN®

15W flyback transformer in SMD package

4:1 input voltage range and 1650VDC isolation test voltage



RoHS

3 years Warranty

FEATURES

- Power up to 15W
- High saturated flux density
- Low DCR loss
- Class F insulation
- SMD package
- ER14.5 Bobbin, Dimensions: 14.70 x 16.00 x 6.80mm
- Meets EN62368 standards

TTURB-15T transformer series feature with 1650VDC primary to secondary isolation, an operating ambient temperature range of -40℃ ~ +125℃. It can be used with our control IC SCM1101AMA to achieve flyback power supply design with an 4:1 wide input volatge range and various protection functions and superior EMI performance.

Selection Guide

Certification	Part No.	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Auxiliary Voltage (VDC)	Auxiliary Current (mA)	Power (W)	Pri-Sec Isolated Voltage (VDC)
--	TTURB2424-15T	9-36	24	625	13.09	50	15	1650

Note: Pins and phase points of the transformers refer to Phase Diagram.

Electrical Specifications

Part No.	Inductance(uH)		DCR(mΩ) Typ.					K (Flux Density Factor) (Gauss/A)
	Input Inductance	Leakage Inductance① Max.	N1	N2	N3	N4	N5	
TTURB2424-15T	6.86±12%	0.4	37	41	181	73	273	572

Note: ①Approximate leakage inductance: test the inductance of N1 and N2 in parallel based on N3, N4, N5 are shorted;
②To ensure the transformer will not saturate in all of the applications and conditions, the peak flux density(Bm) should remain below 3000 Gauss. Use the following formula to calculate the peak flux density: Bm=K*Ipk,Ipk stands for the peak current of input, which unit is A;
③Approximate transformer core loss(Pcv) can be calculated as following formula: $Pcv=3.9E-14*f^{1.82}*\triangle B^{2.59}$,the unit of Pcv is W, f stands for operating frequency, which unit is kHz, △B is the operating flux density, which unit is Gauss. △B can be calculated as: △B=K*△I.

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation	Pri-Sec Electric Strength Test for 1 minute with a leakage current of 1mA max.	1650	--	--	VDC
Surface operating Temperature①		-40	--	+125	℃
Storage Humidity	Non-condensing	5	--	95	%RH
Storage Temperature②		-55	--	+125	℃
Reflow Soldering Temperature③		Peak temp.≤245℃, maximum duration time≤60s over 217℃.			

Note: ①The temperature of the transformer(ambient plus temperature rise) should be within the surface operating temperature range;
②The storage temperature of the transformer only;
③Please refer to IPC/JEDEC J-STD-020D.1. And we suggest that times of reflow soldering should not exceed twice.

Mechanical Specifications

Dimensions	14.70 x 16.00 x 6.80mm
Weight	3.00g (Typ.)

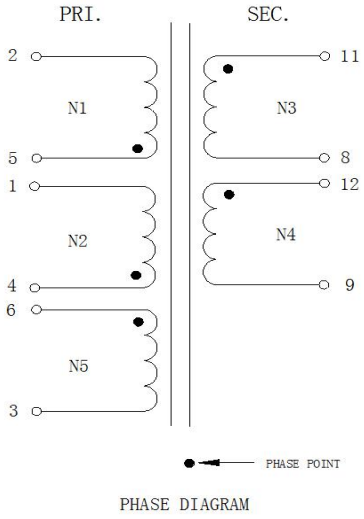
Material certification

Material	UL No.
Bobbin	E41429
Tape	E17385
Wire 1	E253843

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Wire 2	E234867
Varnish	E317427

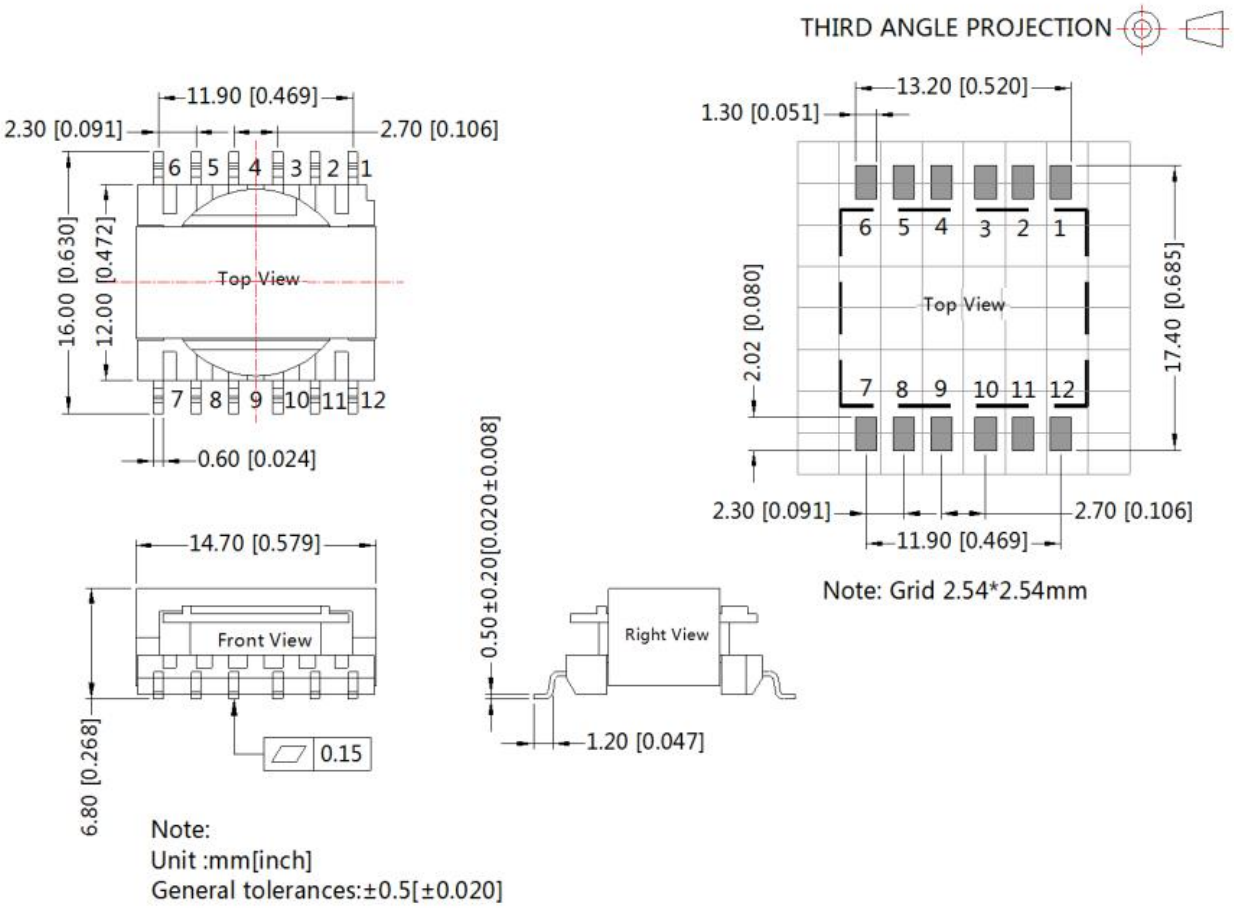
TTURB2424-15T Phase Diagram



PHASE DIAGRAM

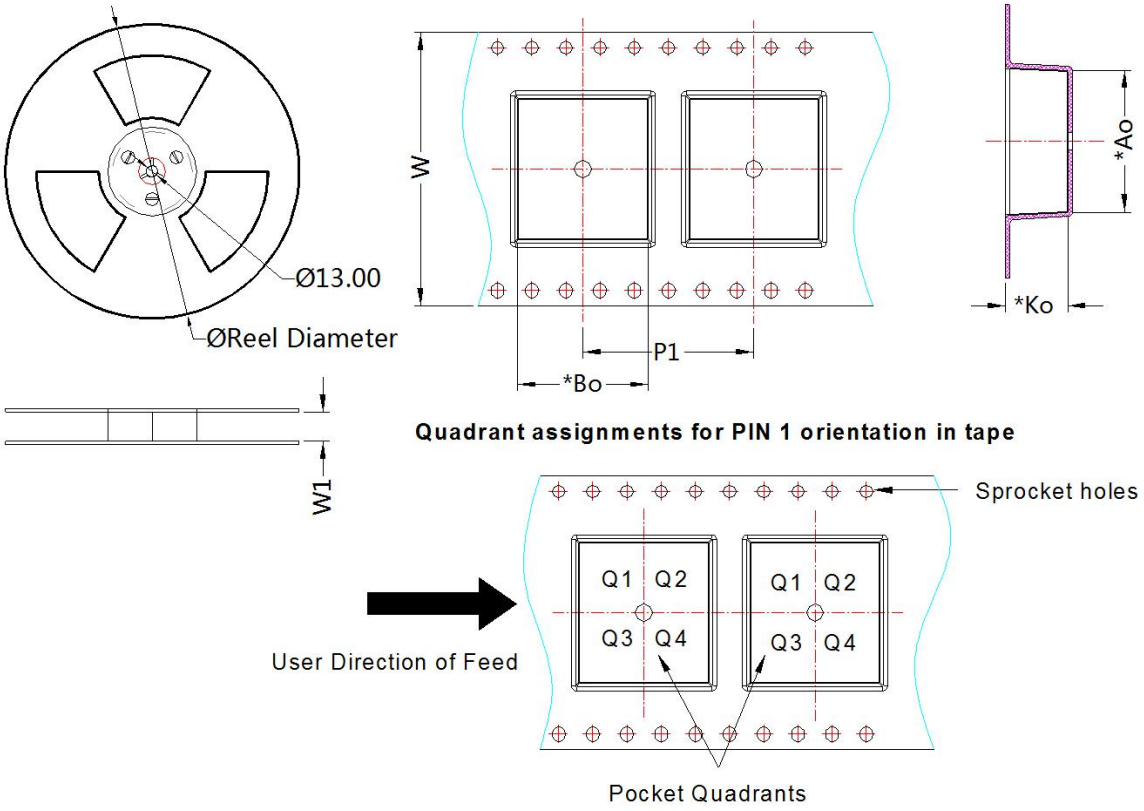
Turns Ratio	TTURB2424-15T
N1 : N2 : N5 : N3 : N4	0.64 : 0.64 : 0.55 : 1 : 1
Note: Input: N1/N2 in parallel. Output: N3/N4 in parallel. Auxiliary: N5.	

Dimensions and Recommended Layout



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Tape and Reel Info



Device	Package Type	Pin	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
ER14.5	SMD	12	400	330.0	32.4	16.56	15.26	7.30	20.00	32	Q2

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number : 58210086;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH, 100kHz and 100mV
3. All index testing methods in this datasheet are based on our company corporate standards;
4. We can provide other analog transformer customization service, please contact our technicians directly for specific information;
5. Products are related to laws and regulations: see "Features";
6. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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