3600VAC isolation test voltage, EFD15, flyback transformer

RoHS

FEATURES

- 85 - 305VAC wide input voltage range
- EFD15 Bobbin
- Design to meet UL/EN 62368 standards

TTLS10-13B05R3T transformer feature with 3600VAC primary to secondary isolation, an operating ambient temperature range of -40℃ to +85℃. It can be used with the IC of PSR to achieve flyback power supply design with wide input volatge range and various protection functions and superior EMI performance.

Selection Guide

Part No.	Input Voltage (VAC)	Output Voltage (VDC)	Output Current (mA)	Auxiliary Voltage (VDC)	Auxiliary Current (mA)	Typical Power (W)	Typical Operating Frequency (kHz)
TTLS10-13B05R3T	85 - 305	5	2000	19	20	10	65

Note: Refer to Schematic for pins and phase points of the transformers.

Electrical Specifications

Part No.	Inductance①(uH)		DCR(mΩ) Typ.			K (Flux Density Factor) (Gauss/A)
	Input Inductance	Leakage Inductance Max.	N1	N2	N3	
TTLS10-13B05R3T	660.19±8%	50	--	--	34	--

Notes: ①The test signal of the inductance are 10kHz and 100mV, test the leakage inductance of N1 based on N2 and N3 are shorted;
②To ensure the transformer will not saturate in all of the applications and conditions, the peak flux density(Bm) should remain below 3000Gauss. 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	N1, N3 to N2	Electric Strength Test for1 min., leakage current <5mA	3600	--	--	VAC
	N1 to N3	Electric Strength Test for1 min., leakage current <1mA	1000	--	--	VDC
Operating Temperature①			-40	--	+85	℃
Storage Temperature②			-40	--	+105	
Storage Humidity		Non-condensing	--	--	95	%RH
Reflow Soldering Temperature③			Peak temp.≤245℃, maximum duration time ≤60s over 217℃.			
Creepage Distance			5	--	--	mm
Clearance			6	--	--	

Notes: ①The operating temperature of the transformer is the ambient temperature.
②We suggest that times of reflow soldering should not exceed twice.
③The isolation design of the external circuit must meet the electrical clearance and creepage distance.

Mechanical Specifications

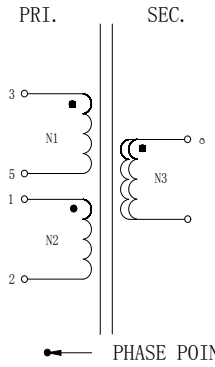
Weight	7.00g (Typ.)

Material Certification

Material	UL No.
Bobbin	E41429
Tape	E17385

Wire 1	E234867
Wire 2	E323485
Varnish	E317427
Glue	E250719

Schematic

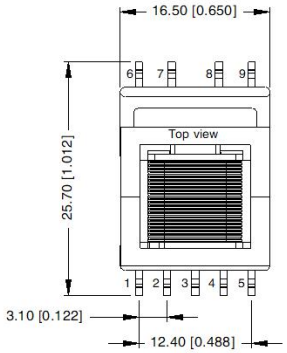


Turns Ratio	TTLS10-13B05R3T
N1：N2：N3	3.68：1：0.28

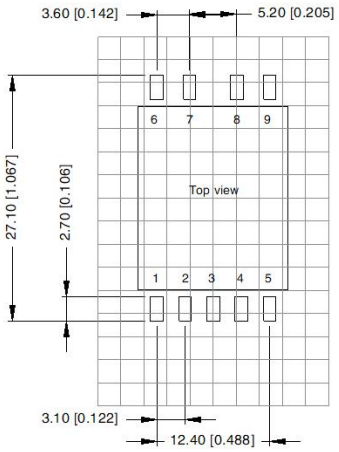
Note: Input: N1, output: N2, auxiliary: N3.

Dimensions and Recommended Layout

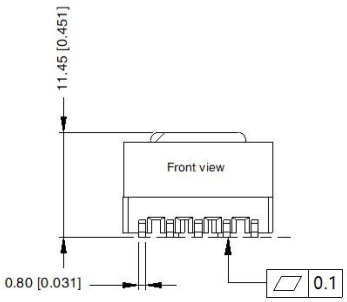
THIRD ANGLE PROJECTION

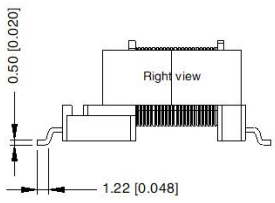


Note:
Unit: mm[inch]
General tolerances: ±0.5[±0.020]
Pin section tolerance: ±0.1[±0.004]

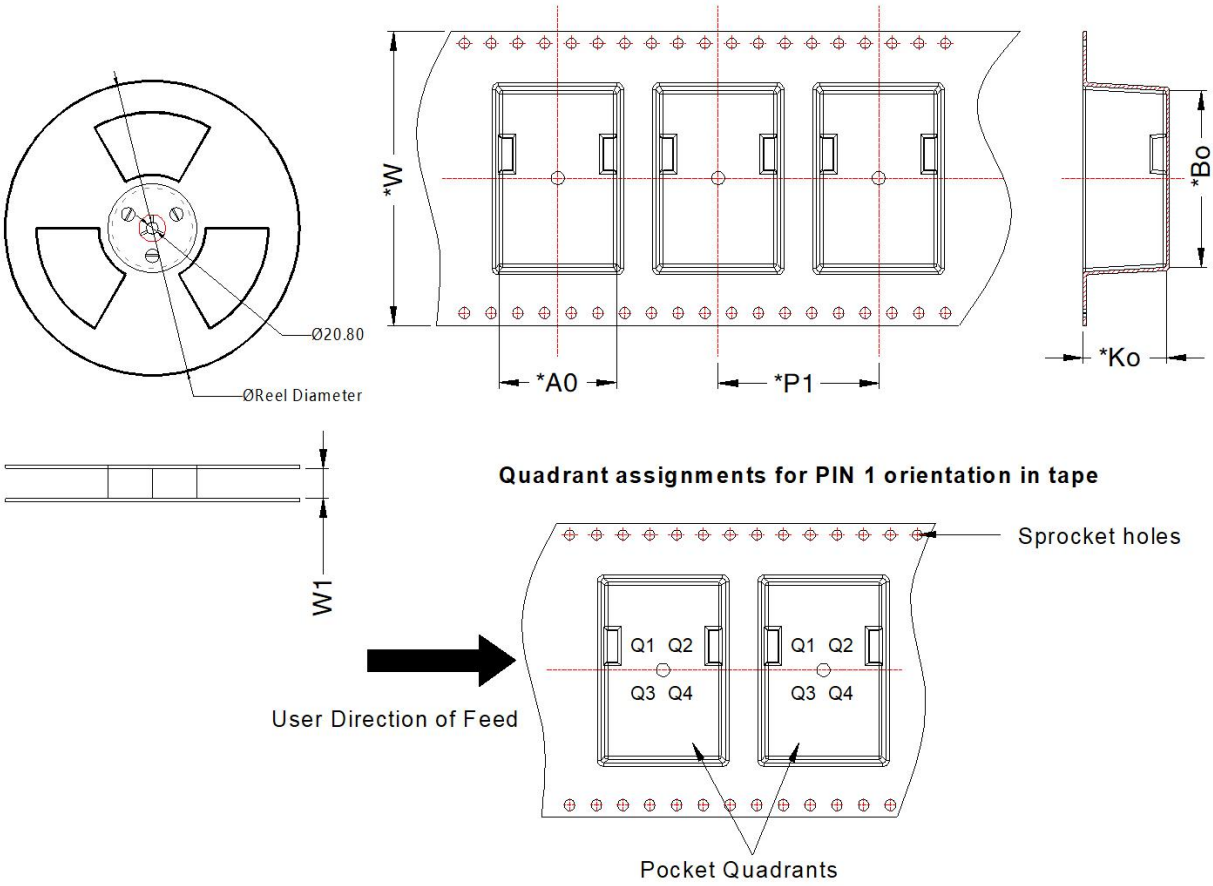


Note: Grid 2.54*2.54mm





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
TTLS10-13BXXR3T	SMD	9	190	330.0	44.4	17.45	26.5	42.5	24	44	Q2

Notes:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58210378;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%, 10kHz and 100mV;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

Mornsun Guangzhou Science & Technology Co., Ltd.

Address: No. 5, Kehui St. 1, Kehui Development Center, Science Ave., Guangzhou Science City, Huangpu District, Guangzhou, P. R. China

Tel: 86-20-38601850 Fax: 86-20-38601272 E-mail: info@mornsun.cn www.mornsun-power.com