

3000VAC isolation test voltage, EPC13, flyback transformer



## FEATURES

- 85 - 305VAC wide input voltage range
- EPC13 Bobbin
- Design to meet UL/EN 62368 standards

TTLS05-13BxxR3T transformer series feature with 3000VAC primary to secondary isolation, an operating ambient temperature range of -40°C to +110°C. It can be used with the IC of PSR to achieve flyback power supply design with wide input voltage 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)
TTLS05-13B05R3T	85 - 305	5	1000	22.5	20	5	65
TTLS05-13B12R3T	85 - 305	12	420	17.74	20	5	65

Note: 1. Refer to Schematic for pins and phase points of the transformers.  
2. The product picture is for reference only. For details, please refer to the actual product.

## Electrical Specifications

Part No.	Inductance <sup>①</sup> (uH)		DCR(mΩ) Typ.			K (Flux Density Factor) (Gauss/A)
	Input Inductance	Leakage Inductance Max.	N1	N2	N3	
TTLS05-13BxxR3T	1.27±10%	80.00	--	--	--	5911

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:  $B_m = K \cdot I_{pk}$ ,  $I_{pk}$  stands for the peak current of input, which unit is A;  
③Approximate transformer core loss(Pcv) can be calculated as following formula:  $P_{cv} = 3.9E-14 \cdot f^{1.82} \cdot \Delta B^{2.59}$ , the unit of Pcv is W, f stands for operating frequency, which unit is kHz,  $\Delta B$  is the operating flux density, which unit is Gauss.  $\Delta B$  can be calculated as:  $\Delta B = K \cdot \Delta I$ .

## General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Isolation	N1, N3 to N2	Electric Strength Test for 1 min., leakage current <5mA	3000	--	--	VAC
	N1 to N3	Electric Strength Test for 1 min., leakage current <1mA	1000	--	--	VDC
Operating Temperature <sup>①</sup>			-40	--	+110	°C
Storage Temperature <sup>②</sup>			-40	--	+110	
Storage Humidity	Non-condensing		--	--	95	%RH
Reflow Soldering Temperature <sup>③</sup>			Peak temp. ≤ 245°C, maximum duration time ≤ 60s over 217°C.			
Creepage Distance			5.7	--	--	mm
Clearance			5.7	--	--	

Notes: ①The temperature of the transformer (ambient plus temperature rise) should be within the operating temperature range;  
②The storage temperature of the transformer only;  
③We suggest that times of reflow soldering should not exceed twice.  
④The isolation design of the external circuit must meet the electrical clearance and creepage distance.

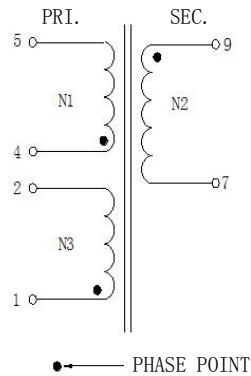
## Mechanical Specifications

Weight	3.60g (Typ.)
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## Material Certification

Material	UL No.
Bobbin	E54705
Tape	E17385
Wire 1	E253843
Wire 2	E206440
Varnish	E317417
Glue	E250719

## Schematic

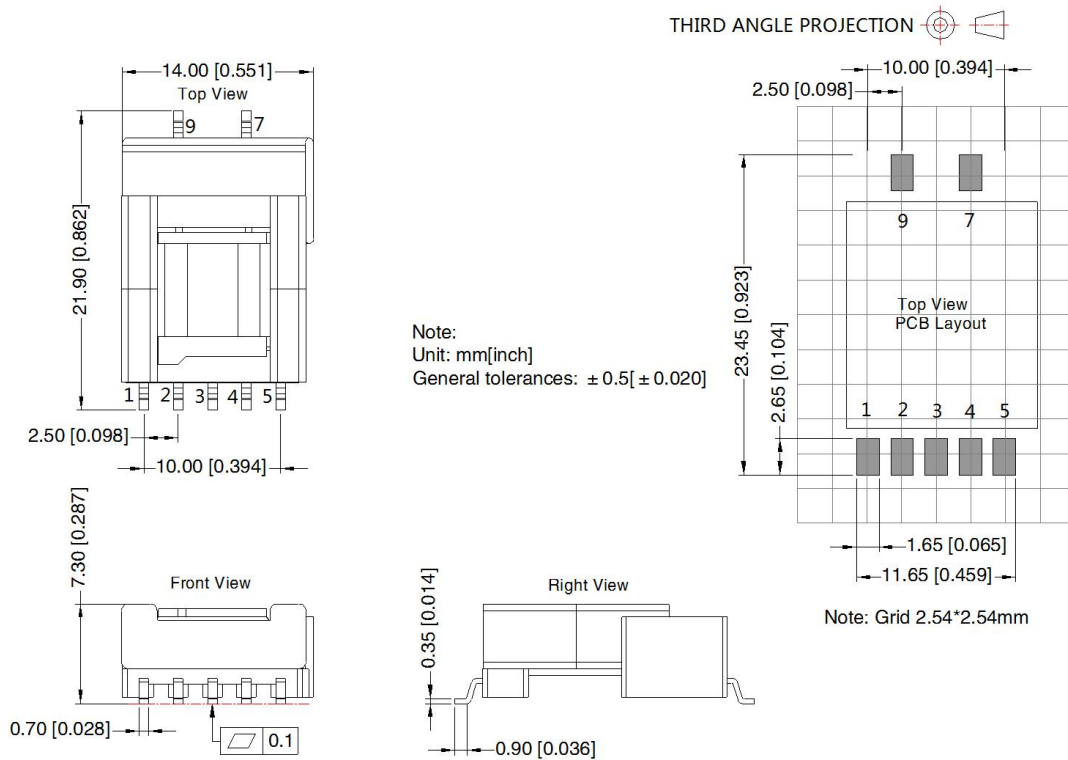


● — PHASE POINT

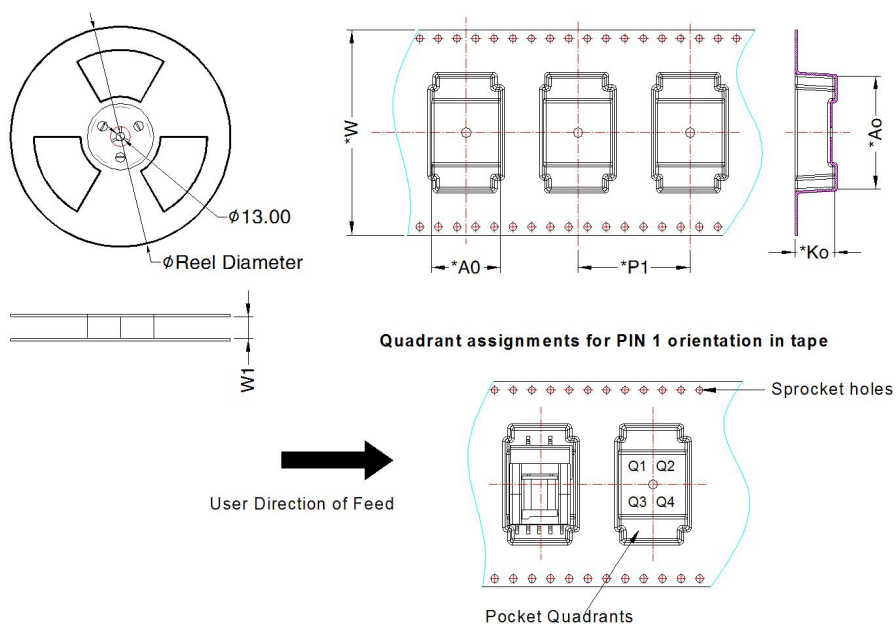
Turns Ratio	TTLS05-13B05R3T	TTLS05-13B12R3T
N1: N2: N3	15.75: 1: 4.5	5.48: 1: 1.48

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

## Dimensions and Recommended Layout



## 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
TTL505-13BxxR3T	SMD	7	300	330.0	44.4	24.21	14.81	8.50	24	44	Q3

### Notes:

- For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com). Packaging bag number: 58220092;
- Unless otherwise specified, parameters in this datasheet were measured under the conditions of  $T_a=25^{\circ}\text{C}$ , humidity<75%, 10kHz and 100mV;
- All index testing methods in this datasheet are based on our company corporate standards;
- We can provide product customization service, please contact our technicians directly for specific information;
- 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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