LAN5VSOP

10G BASE-T LAN transformer, PoE

Photo is representative

Product features

- IEEE 802.3an, 802.3bt compliant
- 1500 Vac isolation between primary and secondary
- Single port, PoE
- Toroid core winding, open header, surface mount
- Weight 1.74 g typical
- Moisture sensitivity level (MSL): 1

Applications

- SELV/ELV equipment
- IP telephones
- Wireless LAN access point
- IoT, Remote monitoring
- Smart TV
- Network camera
- Data centers

Environmental compliance and general specifications

- Operating ambient temperature range: -40 °C to +125 °C
- Storage temperature range (component): -40 °C to +125 °C

Powering Business Worldwide

Product specifications (+25 °C)

Meets IEEE 802.3bt Standards 1650 mA current capability Per PoE Port / Four-pair.

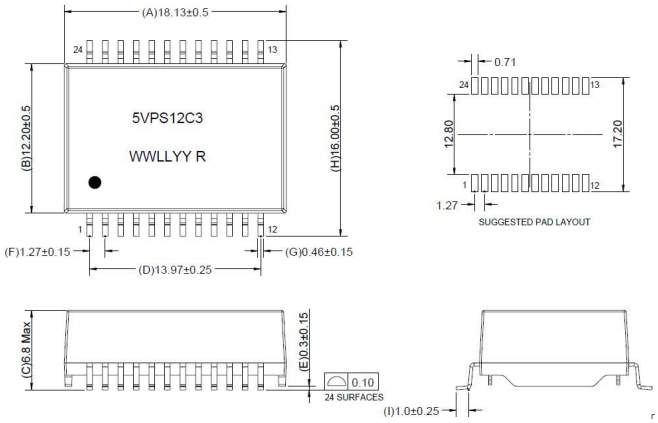
Part number[4]	Port	Pins	Inductance[1,5] (µH)	Leakage inductance[1,5] (µH)	DCR[2,5] (Ω)	CWW[1,5] (pF)	Turns ratio[3]	Insertion loss[3,5] (dB)	Return loss[3,5] (dB)	Cross talk[5] (dB)(between each channel)	CDMR[3,5] (dB)
LAN5VSOPS24121C3*	Single	24	120 @ 13 mA DC Bias	0.5	1.4	35	1CT:1CT, ±2%	-3 @ 100 kHz -2 @ 1-500MHz	-18 @ 1-40 MHz -17+10*log(f/40) @ 40-500 MHz	-40 @ 1-100 MHz -30 @ 100-500 MHz	-30 @ 1- 250 MHz -22 @ 250-500 MHz

1.Inductance (Transformer side), Leakage Inductance (Transformer side, short CMC side), CWW (Interwinding capacitance, Pri to Sec): Test parameters: 100 kHz, 0.2 V
2.DCR: CMC side
3.Turns ratio, Insertion loss, return loss and CDMR (Common to differential mode rejection): Primary to secondary: Polarity pin 1 side in phase

*Operating temperature: -40 °C to +125 °C (Temperature rise included), LAN5VSOPS24121C3: Temperature rise ≤25 °C, inductance will be 110 µH min @ 13 mA DC Bias @ +125 °C includes temperature rise; Hipot: 1500 Vac, primary to secondary

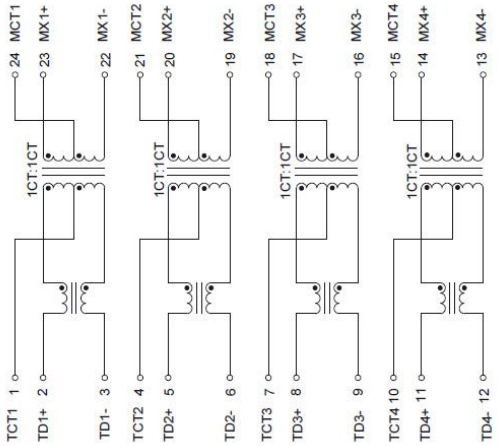
4.Part Number Definition: LAN5VSOPxxx121xx
LAN5VSOP= Product code
xxx: S24 = Dual port, 24 pin
xx: C3 = -40 to +125 °C
5. DCR, CWW, Leakage inductance and Insertion loss values are maximum; Inductance, Return loss, CDMR and Cross talk values are minimum

Mechanical parameters (mm)
LAN5VSOPS24121C3



Part marking: 5VPS12C3, WWLLYY R = Lot code, Dot indicates pin 1
Pin length does not include include solder point
Silkscreen thickness: 0.1 mm to 0.15 mm
Traces or vias underneath the transformer is not recommended

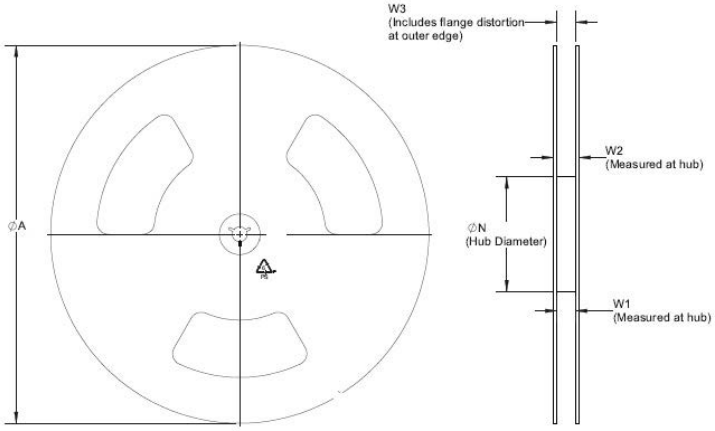
Schematic

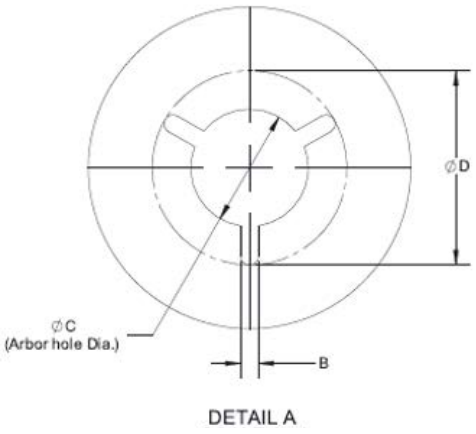


Packaging information (mm)

Drawing not to scale

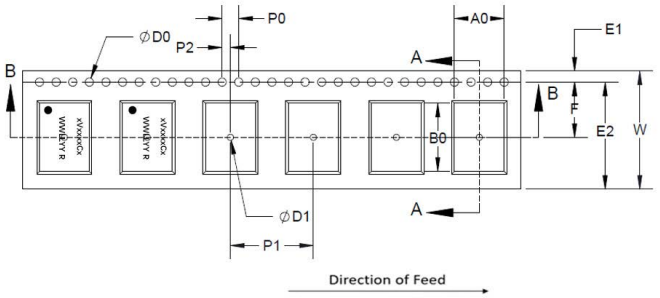
Supplied in tape and reel packaging on a 13" diameter reel, EIA-481 compliant

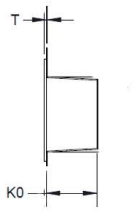




Reel dimension (mm)

Part number	ØA	B	ØC	ØD	ØN	W1	W2	W3
LAN5VSOPS24121C3	330 ± 2	1.5 min	13 + 0.5 / -0.2	20.2 min	100	32.4 + 2 / -0	38.4 max	N/A





Tape dimension (mm)

Part number	Ao	Bo	Ko	T	W	F	E	E2	P0	P1	P2	ØD0	ØD1
LAN5VSOPS24121C3	17 ± 0.15	18.4 ± 0.15	7.2 ± 0.15	0.5 ± 0.05	32 ± 0.3	14.2 ± 0.1	1.75 ± 0.1	29.85 min	4 ± 0.1	20 ± 0.1	2 ± 0.15	1.5 + 0.1 / -0	2.0 min

Packaging quantity

Part number	Reel	Bag	Box	Carton
LAN5VSOPS24121C3	400	400	400	1600

General specifications

Solderability	J-STD-002.	8 hours steam age test, Solder: +245 °C ± 5 °C (5 s)
Reflow	MIL-STD-202G Condition J	+260 °C ± 5 °C, 30 s ± 5 s, 1 times reflow
Resistance soldering heat	MIL-STD-202H, Method 210	+260 °C , 10 s
Operational life	MIL-STD-202, Method 108	1000 hours, +85 °C @ 1650 mA
Temperature cycling	MIL-STD-202G	High temperature= +125 °C, low temperature -40 °C, conversion time 15 minutes, 32 cycles
Biased humidity	MIL-STD-202G	+85 °C, 85% RH, Duration= 1000 hours
Vibration	MIL-STD-202	10 Hz to 80 Hz, Increased at +3 dB/octave, 80 Hz to 350 Hz, 0.053 g2/Hz, 350 Hz to 2000 Hz, Decrease at -3 dB/ octave, X, Y and Z vibrate for 15 minutes each.
Mechanical shock	MIL-STD-202, Method 213	Half-sine shock pulse, peak=50 g's, 11 ms, total 18 shocks
Terminal strength	CBA203A-001	Standard: 4.5 kg, Minimum: 60 s, no visable damage

Solder reflow profile

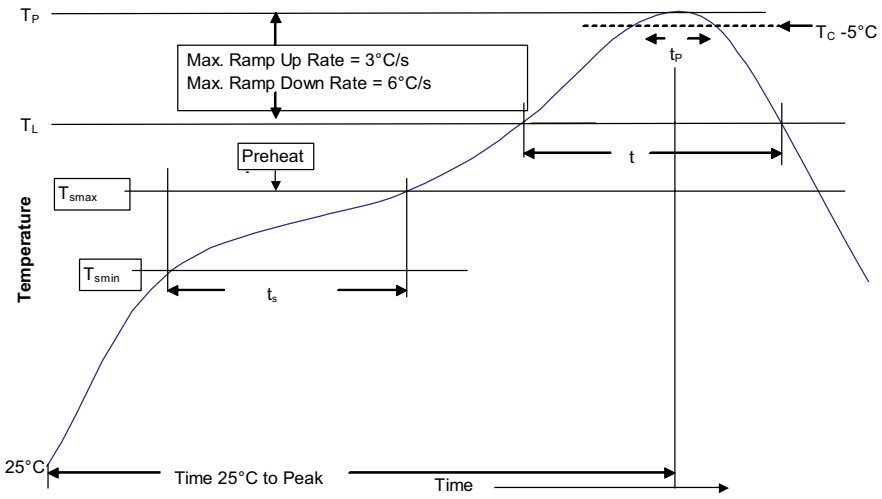


Table 1 - Standard SnPb solder (T_C)

Package thickness	Volume mm3 <350	Volume mm3 ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder (T_C)

Package thickness	Volume mm³ <350	Volume mm³ 350 - 2000	Volume mm³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Reference J-STD-020

Profile feature		Standard SnPb solder	Lead (Pb) free solder
Preheat and soak	• Temperature min. (T_{smin})	100 °C	150 °C
	• Temperature max. (T_{smax})	150 °C	200 °C
	• Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds	60-120 seconds
Ramp up rate T_L to T_p		3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T_L) Time (t_L) maintained above T_L		183 °C 60-150 seconds	217 °C 60-150 seconds
Peak package body temperature (T_P)*		Table 1	Table 2
Time (t_p)* within 5 °C of the specified classification temperature (T_C)		20 seconds*	30 seconds*
Ramp-down rate (T_p to T_L)		6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature		6 minutes max.	8 minutes max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

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