

# LTA1V

## 10BASE-T/100BASE-TX Automotive LAN transformer

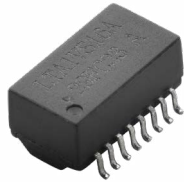


Photo is representative

### Product features

- IEEE 802.3u compliant
- AEC-Q200
- 1500 Vac isolation between primary and secondary
- Single port
- Weight 0.74 g typical
- Moisture sensitivity level (MSL): 1

### Applications

- T-Box
- 10BASE-T/100BASE-TX Interface
- Infotainment
- ADAS
- Battery management systems

### Environmental compliance and general specifications

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



Product specifications (+25 °C)

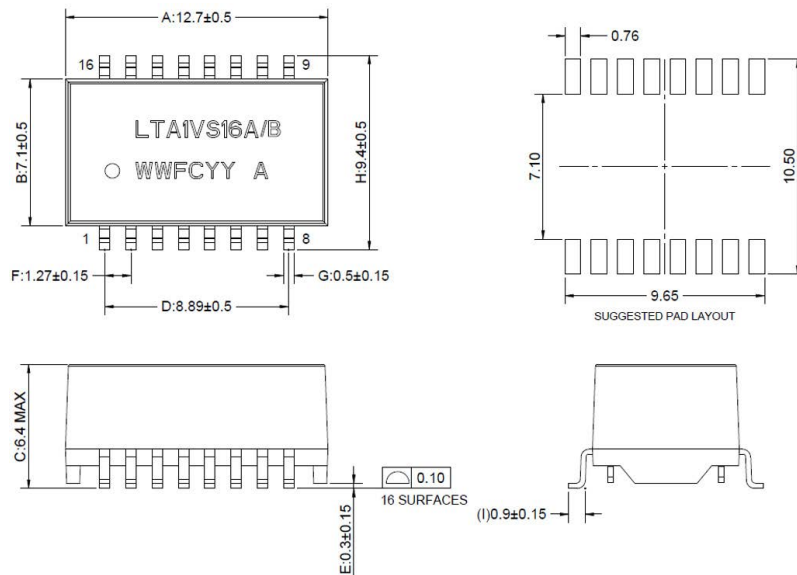
Part number <sup>5</sup>	Port	Pins	Inductance <sup>1,6</sup> ( $\mu$ H)	Leakage inductance <sup>2,6</sup> ( $\mu$ H)	DCR <sup>4,6</sup> ( $\Omega$ )	CWW <sup>2,6</sup> (pF)	Turns ratio <sup>3</sup>	Insertion loss <sup>3,6</sup> (dB)	Return loss <sup>3,6</sup> (dB)	Cross talk <sup>6</sup> (dB) (between each channel)	CMRR <sup>3,6</sup> (dB)
LTA1VS16A-351-R	Single	16	350	0.5	1.2	35	1CT:1CT, $\pm 2\%$	-1.1@ 1-100 MHz  -3.0@ 125 MHz	-18 @ 5 MHz  -16+26log(f/30)@ 30-80 MHz	-62 @ 1 MHz  -45+21*log(f/30) @ 5-100 MHz	-50+17log(f/5) @ 5-200MHz
LTA1VS16B-351-R	Single	16	350	0.5	1.2	35	1CT:1CT, $\pm 2\%$	-1.1@ 1-100 MHz	-18@0.5-30 MHz  -18+20log(f/30)@ 30.1-60 MHz  -12@ 60.1-80 MHz	-35 @ 0.5-40 MHz  -30 @ 40.1-100 MHz	-30 @ 0.5-100MHz
LTA1VS16C-351-R	Single	16	350	0.5	1.2	35	1CT:1CT, $\pm 2\%$	-1.1@ 0.5-100 MHz	-18@0.5-30 MHz  -18+20log(f/30)@ 30.1-60 MHz  -12@ 60.1-80MHz	-35 @ 0.5-40 MHz  -30 @ 40.1-100 MHz	-30@0.5-100MHz

- Inductance (Transformer side): Test parameters: 100 kHz, 0.2 V, 8 mA DC Bias for LTA1VS16A-351-R and LTA1VS16C-351-R), 0.1 V for LTA1VS16B-351-R)
- Leakage Inductance (Transformer side, short CMC side), Test parameters: 100 kHz, 0.2 V for LTA1VS16A-351-R and LTA1VS16C-351-R), 0.1 V for LTA1VS16B-351-R, CWW (Interwinding capacitance), Pri to Sec: Test parameters: 100 kHz, 0.2 V, for LTA1VS16A-351-R and LTA1VS16C-351-R), 0.1 V for LTA1VS16B-351-R
- Turns ratio, Insertion loss and CMRR (Common mode rejection ratio): Primary to secondary: Polarity pin 1 side in phase
- DCR: CMC side,

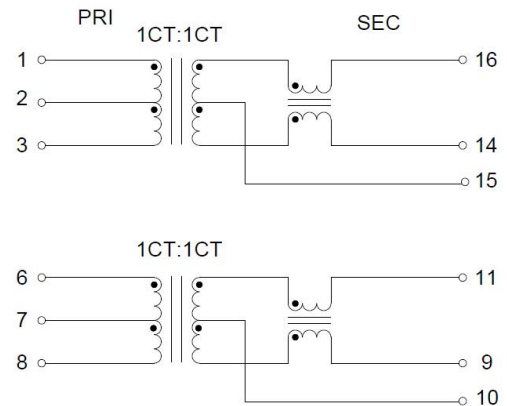
- Part number definition: LTA1VS16x-351-R  
LTA1V=Product code  
S16 =Single port  
x: Internal code  
-351: inductance value in  $\mu$ H, third character = # of zeros--351= 350  $\mu$ H  
-R: Rohs compliant
- DCR, CWW, Leakage inductance and Insertion loss values are maximum; Inductance, Return loss, CMRR and Cross talk values are minimum

Mechanical parameters (mm)

LTA1VS16A-351-R/LTA1VS16B-351-R



Schematic



Part marking: LTA1VS16A (LTA1VS16A-351-R), LTA1VS16B (LTA1VS16B-351-R), WWFCYY A = Lot code, Dot indicates pin 1

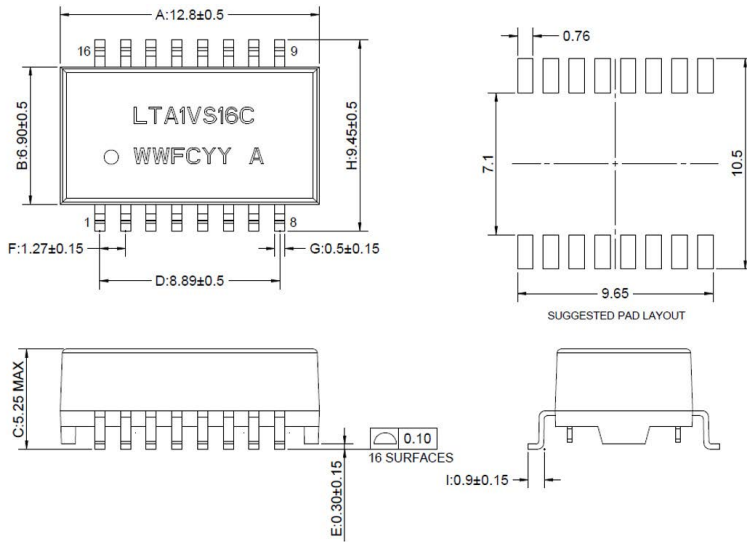
Pin length does not include include solder point

Silkscreen thickness: 0.1 mm to 0.15 mm

Traces or vias underneath the transformer is not recommended

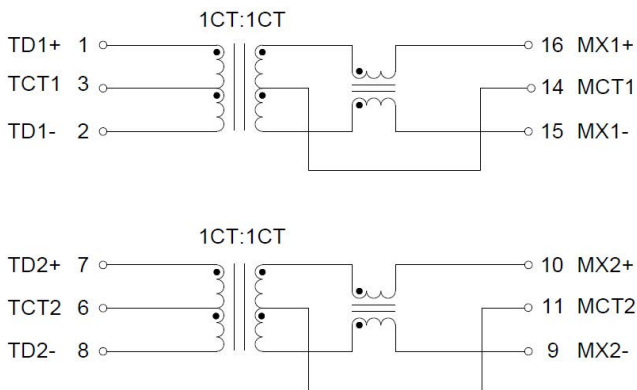
**Mechanical parameters (mm)**

**LTA1VS16C-351-R**



Part marking: LTA1VS16C, WWFCYY A = Lot code, Dot indicates pin 1  
 Pin length does not include solder point  
 Silkscreen thickness: 0.1 mm to 0.15 mm  
 Traces or vias underneath the transformer is not recommended

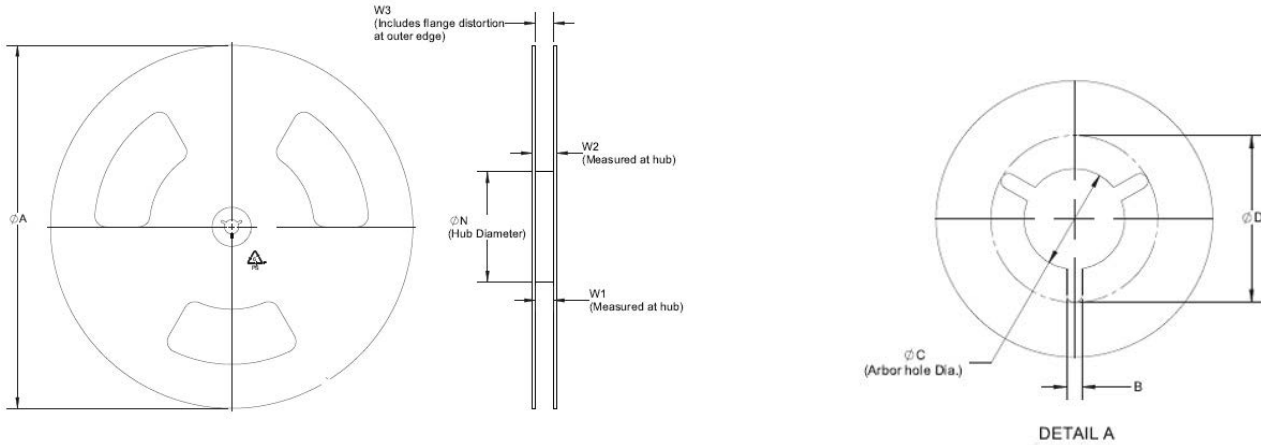
**Schematic**



### Packaging information (mm)

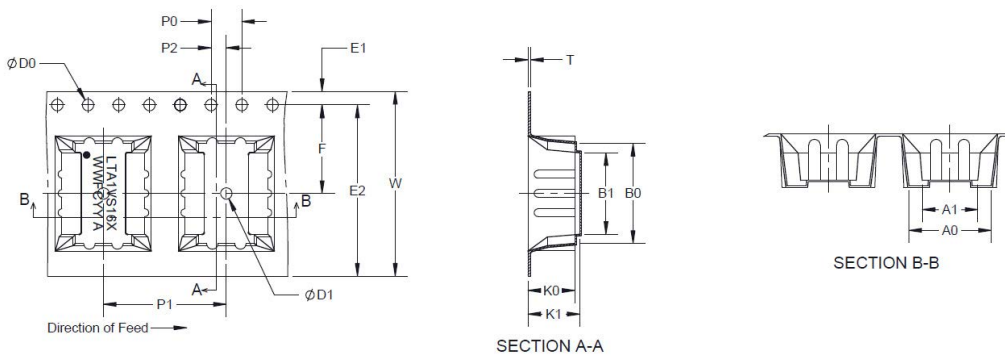
Drawing not to scale

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



### Reel dimension (mm)

ØA	B	ØC	ØD	ØN	W1	W2	W3
330±1	2.3±0.5	13.3	20±1	100	24.4+2/-0	31 maximum	N/A



### Tape dimension (mm)

Part number	Ao	A1	Bo	B1	Ko	K1	T	W	F	E1	E2	P0	P1	P2	ØD0	ØD1
LTA1VS16A/B-351-R	10.8 ±0.1	7.3 ref	13.1 ±0.1	11.66 ref	6.1 ±0.1	6.75 ±0.1	0.4 ±0.05	24 ±0.3	11.5 ±0.1	1.75 ±0.1	N/A	4.0 ±0.1	16 ±0.1	2.0 ±0.1	1.5 +0.1/-0	1.5 +0.1/-0
LTA1VS16C-351-R	10.45 ±0.1	7.2 ref	13.1 ±0.1	10.45 r ef	5.1 ±0.1	5.7 ±0.1	0.4 ±0.05	24 ±0.3	11.5 ±0.1	1.75 ±0.1	N/A	4.0 ±0.1	16 ±0.1	2.0 ±0.15	1.5 +0.1/-0	1.5 +0.1/-0

### Packaging quantity

Reel	Bag	Box	Carton
600	600	1200	4800

Solder reflow profile

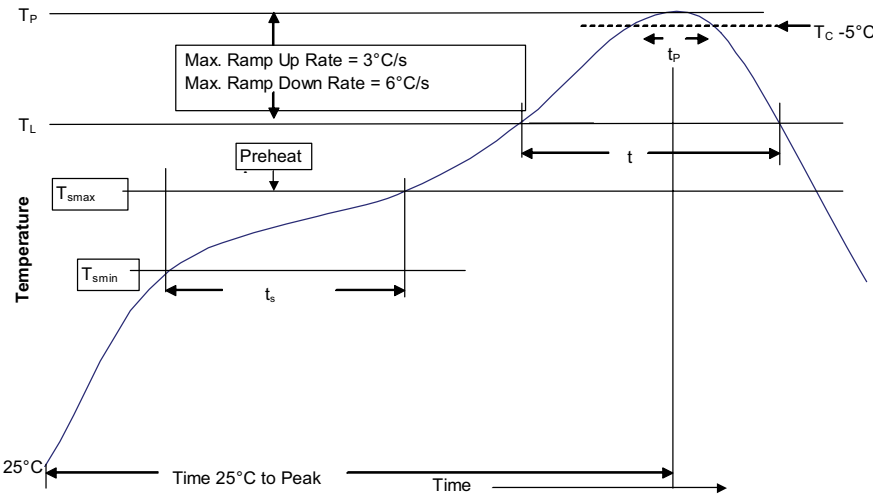


Table 1 - Standard SnPb solder (T<sub>c</sub>)

Package thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder (T<sub>c</sub>)

Package thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >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 <sub>smin</sub> )	100 °C	150 °C
• Temperature max. (T <sub>smax</sub> )	150 °C	200 °C
• Time (T <sub>smin</sub> to T <sub>smax</sub> ) (t <sub>s</sub> )	60-120 seconds	60-120 seconds
Ramp up rate T <sub>L</sub> to T <sub>P</sub>	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T <sub>L</sub> )	183 °C	217 °C
Time (t <sub>l</sub> ) maintained above T <sub>L</sub>	60-150 seconds	60-150 seconds
Peak package body temperature (T <sub>P</sub> )*	Table 1	Table 2
Time (t <sub>p</sub> )* within 5 °C of the specified classification temperature (T <sub>c</sub> )	20 seconds*	30 seconds*
Ramp-down rate (T <sub>P</sub> to T <sub>L</sub> )	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<sub>p</sub>) is defined as a supplier minimum and a user maximum.

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