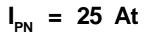


# **Current Transducer LTS 25-NP**

For the electronic measurement of currents: DC, AC, pulsed, mixed, with a galvanic isolation between the primary circuit (high power) and the secondary circuit (electronic circuit).











Ele	ctric	al da	ata
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I <sub>PN</sub>	Primary nominal current rms		25	At
I <sub>PM</sub>	Primary current, measuring range		0 ± 80	At
<b>V</b> <sub>OUT</sub>	Output voltage (Analog) @ I <sub>P</sub>		$2.5 \pm (0.625)$	5-I <sub>P</sub> /I <sub>PN</sub> ) V
	$I_{\rm p} = 0$		2.5 1)	V
G	Sensitivity		25	mV/A
$N_s$	Number of secondary turns (± 0.1 %)		2000	
R <sub>.</sub>	Load resistance		≥ 2	$k\Omega$
$\mathbf{R}_{IM}^{T}$	Internal measuring resistance (± 0.5 %)		50	Ω
TCR	Temperature coefficient of R <sub>™</sub>		< 50	ppm/K
<b>V</b> <sub>C</sub>	Supply voltage (± 5 %)		5	V
<b>I</b> c	Current consumption @ $V_c = 5 \text{ V}$	Тур	$28 + I_S^{2} + (V_{OU}^{2})$	$_{\rm IT}/\mathbf{R}_{\rm L})$ m A

# Accuracy - Dynamic performance data

X	Accuracy @ $\mathbf{I}_{PN}$ , $\mathbf{T}_{\Delta} = 25^{\circ}\text{C}$			± 0.:	2	%
	Accuracy with $\mathbf{R}_{\text{IM}} @ \mathbf{I}_{\text{PN}}$ , $\mathbf{T}_{\text{A}} = 25^{\circ}\text{C}$			± 0.	7	%
$\mathbf{E}_{\scriptscriptstyle L}$	Linearity error			< 0.	1	%
				Тур	Maxi	
TCV	Temperature coefficient of $\mathbf{V}_{\text{OLIT}} @ \mathbf{I}_{\text{P}} = 0$	- 10°C	C+85°C	50	100	ppm/K
001	357	- 40°C	C 10°C		150	ppm/K
TCG	Temperature coefficient of <b>G</b>	- 40°C	C+85°C		50 <sup>3)</sup>	ppm/K
$V_{\text{OM}}$	Magnetic offset voltage @ $I_p = 0$ ,					
	after an overlo	oad of	3 x I <sub>PN</sub>		± 0.5	mV
			5 x I <sub>PN</sub>		± 2.0	mV
			10 x <b>I</b> <sub>PN</sub>		± 2.0	mV
t <sub>ra</sub>	Reaction time @ 10 % of I <sub>PN</sub>			< 10	00	ns
t,	Response time to 90 % of I <sub>PN</sub> step			< 40	00	ns
di/dt	di/dt accurately followed			> 60	)	A/µs
BW	Frequency bandwidth (0 0.5 dB)			DC	100	kHz
	(- 0.5 1 dB)			DC	200	kHz

## General data

T <sub>A</sub>	Ambient operating temperature	- 40 + 85	°C
T <sub>s</sub>	Ambient storage temperature	- 40 + 100	°C
Ü	Insulating material group	III a	
m	Mass	10	g
	Standards 4)	EN 50178: 19	97
		IEC 60950-1: 2	2001

Notes: 1) Absolute value @  $T_A = 25$ °C, 2.475 <  $V_{OUT}$  < 2.525

- <sup>2)</sup>  $I_S = I_P / N_S$
- 3) Only due to TCR IM
- <sup>4)</sup> Specification according to IEC 61000-4-3 are not guaranteed between 180 and 220 MHz.

#### **Features**

- Closed loop (compensated) multirange current transducer using the Hall effect
- Unipolar voltage supply
- Isolated plastic case recognized according to UL 94-V0
- Compact design for PCB mounting
- Incorporated measuring resistance
- Extended measuring range.

## **Advantages**

- Excellent accuracy
- Very good linearity
- Very low temperature drift
- Optimized response time
- Wide frequency bandwidth
- No insertion losses
- High immunity to external interference
- Current overload capability.

#### **Applications**

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications.

## **Application domain**

• Industrial.

Copyright protected.



#### **Current Transducer LTS 25-NP**

Isolation characteristics					
$\mathbf{\hat{V}}_{\mathbf{w}}^{d}$	Rms voltage for AC isolation test, 50 Hz, 1 min Impulse withstand voltage 1.2/50 µs	3 > 8	kV kV		
V <sub>e</sub>	Rms voltage for partial discharge extinction @ 10pC	Mini > 1.5	kV		
dCp	Creepage distance 5)	Mini 15.5	m m		
dCI CTI	Clearance distance 6) Comparative Tracking Index (Group III a)	6.35 175	m m		

# **Application examples**

According to EN 50178 and IEC 61010-1 standards and following conditions:

- Over voltage category OV 3
- Pollution degree PD2
- Non-uniform field

	EN 50178	IEC 61010-1	
dCp, dCl, $\hat{\mathbf{V}}_{\mathbf{w}}$	Rated isolation voltage	Nominal voltage	
Single isolation	600 V	600 V	
Reinforced isolation	300 V	300 V	

Notes: 5) On housing

<sup>6)</sup> On PCB with soldering pattern UTEC93-703.

## Safety



This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.



Caution, risk of electrical shock

When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply).

Ignoring this warning can lead to injury and/or cause serious damage.

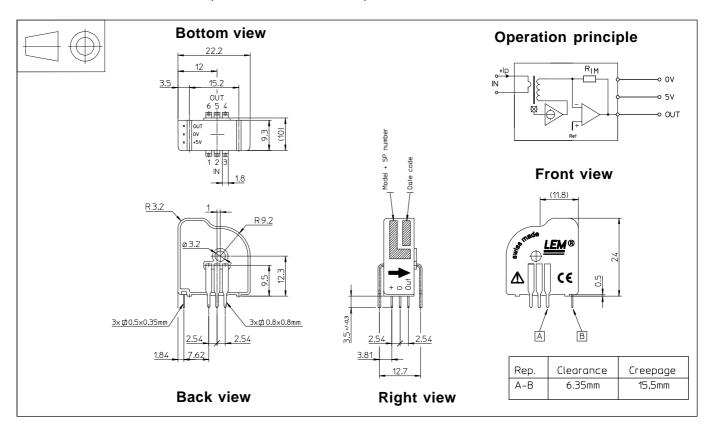
This transducer is a built-in device, whose conducting parts must be inaccessible after installation.

A protective housing or additional shield could be used.

Main supply must be able to be disconnected.



# **Dimensions** LTS 25-NP (in mm. 1 mm = 0.0394 inch)



Number of primary turns	Primary nominal current rms I <sub>PN</sub> [ A ]	Nominal output voltage $\mathbf{V}_{\text{OUT}}$ [V]	Primary resistance <b>R</b> <sub>P</sub> [ mΩ ]	Primary insertion inductance L <sub>P</sub> [ µH ]	Recommended connections
1	± 25	2.5 ± 0.625	0.18	0.013	6 5 4 OUT O O O O
2	± 12	2.5 ± 0.600	0.81	0.05	6 5 4 OUT O 0 1 1 2 3
3	± 8	2.5 ± 0.600	1.62	0.12	6 5 4 OUT 0 0 0 IN 1 2 3

## **Mechanical characteristics**

• General tolerance ± 0.2 mm

Fastening & connection of primary
 Recommended PCB hole
 6 pins 0.8 x 0.8 mm
 1.3 mm

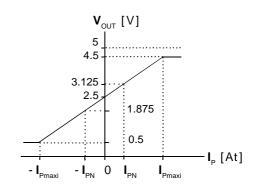
• Fastening & connection of secondary 3 pins 0.5 x 0.35 mm Recommended PCB hole 0.8 mm

• Additional primary through-hole Ø 3.2 mm

# Remarks

- $\mathbf{V}_{\text{OUT}}$  is positive when  $\mathbf{I}_{\text{P}}$  flows from terminals 1, 2, 3 to terminals 6, 5, 4.
- Temperature of the primary jumper should not exceed 100°C.

# **Output Voltage - Primary Current**



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