VACUUMSCHMELZE	Specification	Item no.: T60404-N4646-X911

K-No.: 26620	**300mA Differential Current Sensor for 5V Supply Voltage** For the electronic measurement of current: DC, AC, pulsed ..., with galvanic isolation between the primary and the secondary circuit		Date: 02.02.2022
Customer: Standard type	Customers Part no:		Page 1 of 3

Description

- Closed loop (compensation) Current Sensor with magnetic probe
- Printed circuit board mounting
- Casing and materials UL-listed

Characteristics

- excellent accuracy
- very low offset current
- very low temperature dependency and offset current drift
- very low hysteresis of offset current
- short response time
- wide frequency bandwidth
- compact design
- reduced offset ripple

Applications

Mainly used for stationary operation in industrial applications:

- Solarinverter

Electrical data - Ratings

I_{PN}	Primary nominal RMS current	85	A
$I_{\Delta N}$	Differential rated RMS current	0.3	A
V_{OUT}	Output voltage @ $I_{\Delta P}$	V_{REF} ± (0.74 * $I_{\Delta P}$ / $I_{\Delta N}$)	V
$V_{OUT}(0)$[1]	Output voltage @ I_P=0A, ϑ_A = 25°C	V_{REF} ± 0.025	V
V_{OUT}(Error)	in case of error (current sensor) V_{OUT} < 0.5V is set	< 0.5	V
V_{REF}	internal reference voltage	2.5 ± 0.005	V
	external reference voltage range	1.4 … 3.5	V
V_{REF}(test current)[2]	Reference voltage (external)	0 … 0.1	V
V_{OUT}(test current)[2]	Output voltage @ V_{REF} = 0 … 0.1V	$V_{OUT}(0)$ + 0.25 ± 0.06	V
K_N	Transformation ratio	(1) : 20 : 1000	

[1] with switching on and after "test current" the sensor is degaussed by an internal AC-current for about 110ms. In this time the output is set to V_{OUT} < 0.5V.

[2] If V_{REF} is set external to 0…0.1V an internal test current is generated.

Accuracy – Dynamic performance data		min.	typ.	max.	Unit
$I_{\Delta P,max}$	Max. measuring range (differential current)	±0.85			A
X	Accuracy @ $I_{\Delta N}$, ϑ_A = 25°C			±1.5	%
ε_L	Linearity			±1	%
V_O (V_{OUT}-V_{REF})	Offset voltage @ I_P = 0A, ϑ_A = 25°C			±25	mV
$\Delta V_O/\Delta T$	Temperature drift of V_{OUT} @ I_P=0A, ϑ_A		0.1		mV/°C
t_r	Response time @ 90% of $I_{\Delta N}$		35		µs
f_{BW}	Frequency bandwidth	DC…8			kHz

General data

ϑ_A	Ambient operation temperature	-40		85	°C
ϑ_S	Ambient storage temperature (acc. to M3101)	-40		85	°C
m	Mass		43		g
V_C	Supply voltage	4.75	5	5.25	V
I_C	Supply current at I_P = 0A and RT		15		mA

Constructed and manufactured and tested in accordance with IEC 61800-5-1:2007
Insulation material group I
The current sensor has no isolation between the hole and the secondary pins. The customer has to use insulated wire.

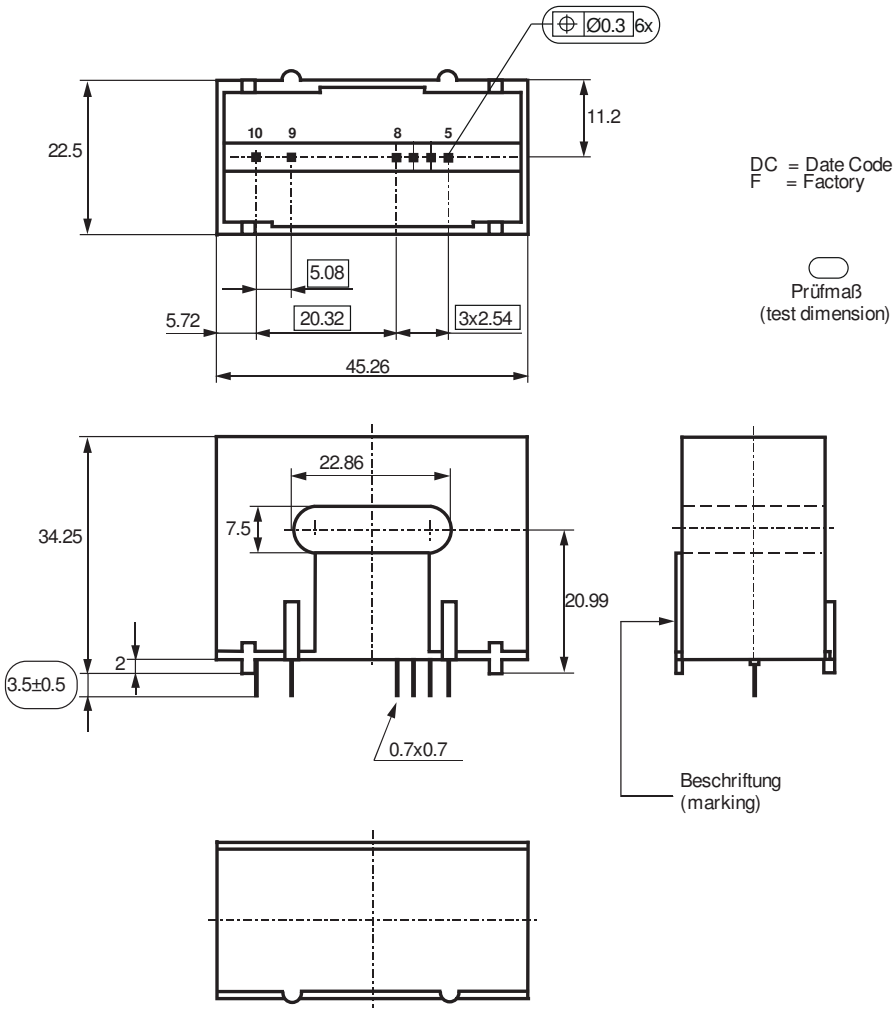
Date	Name	Issue	Amendment
02.02.2022	NSch.	81	Applicable documents changed on sheet 3. „The color of the plastic material… added. Minor change

Hrg.: KB-E editor	Bearb.: DJ designer		KB-PM: KRe. check			freig.: SB released

VACUUMSCHMELZE	Specification	Item no.: T60404-N4646-X911

K-No.: 26620	**300mA Differential Current Sensor for 5V Supply Voltage** For the electronic measurement of current: DC, AC, pulsed ..., with galvanic isolation between the primary and the secondary circuit		Date: 02.02.2022
Customer: Standard type	Customers Part no:		Page 2 of 3

Mechanical outline (mm): General tolerances DIN ISO 2768-c



DC = Date Code
F = Factory

Prüfmaß
(test dimension)

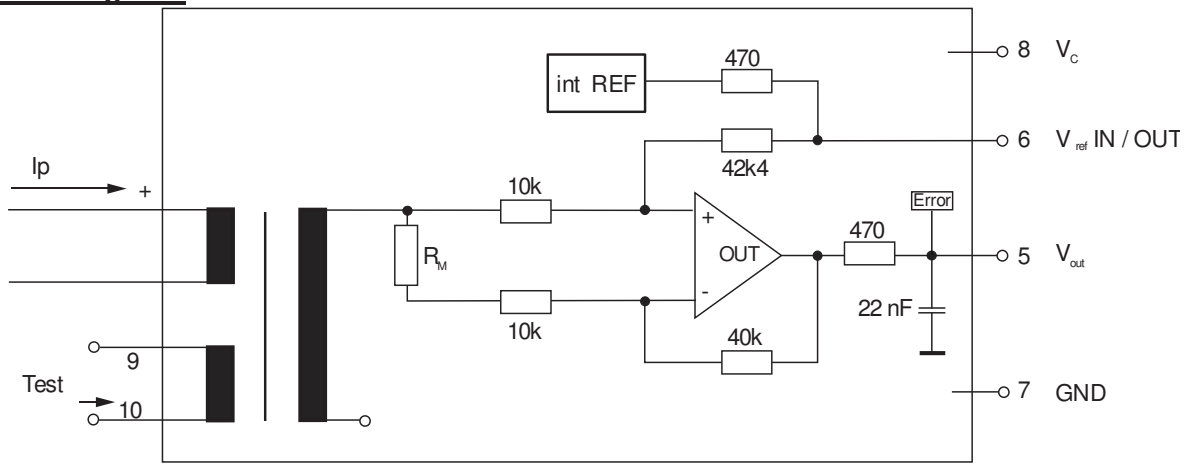
Connections:

Pin 5-10: 0.7mm x 0.7mm

Marking:

4646-X911
F DC

Schematic diagram:



Hrg.: KB-E editor	Bearb.: DJ designer		KB-PM: KRe. check			freig.: SB released

VACUUMSCHMELZE	Specification	Item no.: T60404-N4646-X911

K-No.: 26620	**300mA Differential Current Sensor for 5V Supply Voltage** For the electronic measurement of current: DC, AC, pulsed ..., with galvanic isolation between the primary and the secondary circuit		Date: 02.02.2022

Customer: Standard type	Customers Part no:	Page 3 of 3

Electrical data: (investigate by a type checking)

		min.	typ.	max.	Unit
$V_{C,max}$	maximum supply voltage (without function)			6	V
I_C	Supply current with primary current		$15mA+I_{\Delta P}*K_N+V_{OUT}/R_L$		mA
$I_{OUT,SC}$	Short circuit output current		±10		mA
R_S	Secondary coil resistance @ ϑ_A = 85°C			80	Ω
R_{Test}	Test winding resistance @ ϑ_A = 25°C		0.9		Ω
$R_{i,REF}$	Internal resistance of reference input		470		Ω
$R_{i,OUT}$	Output resistance of V_{OUT}		470		Ω
$\Delta X_{Ti}/\Delta T$	Temperature drift of X @ ϑ_A = -40°C ... 85°C			400	ppm/K
$\Delta V_{REF}/\Delta T$	Temperature drift of V_{REF} @ ϑ_A = -40°C ... 85°C		5	50	ppm/K
ΔV_O= $\Delta(V_{OUT}-V_{REF})$	Sum of any offset drift including:			32	mV
V_{Ot}	Long term drift of V_O		12		mV
V_{OT}	Temperature drift of V_O @ ϑ_A = -40°C … 85°C		10		mV/K
$\Delta V_O/\Delta V_C$	Supply voltage rejection ratio		10		mV/V
V_{OH} $V_{OH,\ Demag}$	Hysteresis of V_{OUT} @ I_P = 0 (after an overload of 1000x $I_{\Delta N}$) Hysteresis after Degaussing		75	125 25	mV
v_{OSS}	Offsetripple (without external filter)		70		mV_{PP}
v_{OSS}	Offsetripple (with 20 kHz-Filter, first order)		20		mV_{PP}
v_{OSS}	Offsetripple (with 1 kHz-Filter, first order)		6		mV_{PP}
	Mechanical stress according to M3209/3 Settings: 10-2000Hz, 1min/Octave, 2 hours		1.5		g

Routine Tests: (Measurement after temperature balance of the samples at room temperature, SC=significant characteristic)

V_{OUT} (SC)	(100%) M3011/6:	Output voltage vs. reference	729 … 751	mV
V_O	(100%) M3226:	Offset voltage (V_{OUT} vs. V_{REF})	±25	mV
V_{OUT}(test current)	(100%)	Output voltage @ V_{REF} = 0V	250 ± 60	mV

Other instructions

- Current direction: A positive output voltage appears at point V_{OUT}, if primary current flows in direction of the arrow.
- Temperature of the primary conductor must not exceed 105°C.
- Housing and bobbin material UL-listed: Flammability class 94V-0.
- The color of the plastic material is not specified and the current sensor can be supplied in different colors (e.g. brown, black, white, natural). This has no effect on the specifications or UL approval

Hrg.: KB-E editor	Bearb.: DJ designer		KB-PM: KRe. check			freig.: SB released