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: 06.02.2017
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 @ $I_{\Delta P}$	$V_{REF} \pm (0.74 * I_{\Delta P} / I_{\Delta N})$	V
$V_{OUT}(0)$[1]	Output voltage @ I_P=0A, ϑ_A = 25°C	$V_{REF} \pm 0.025$	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
		81	

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

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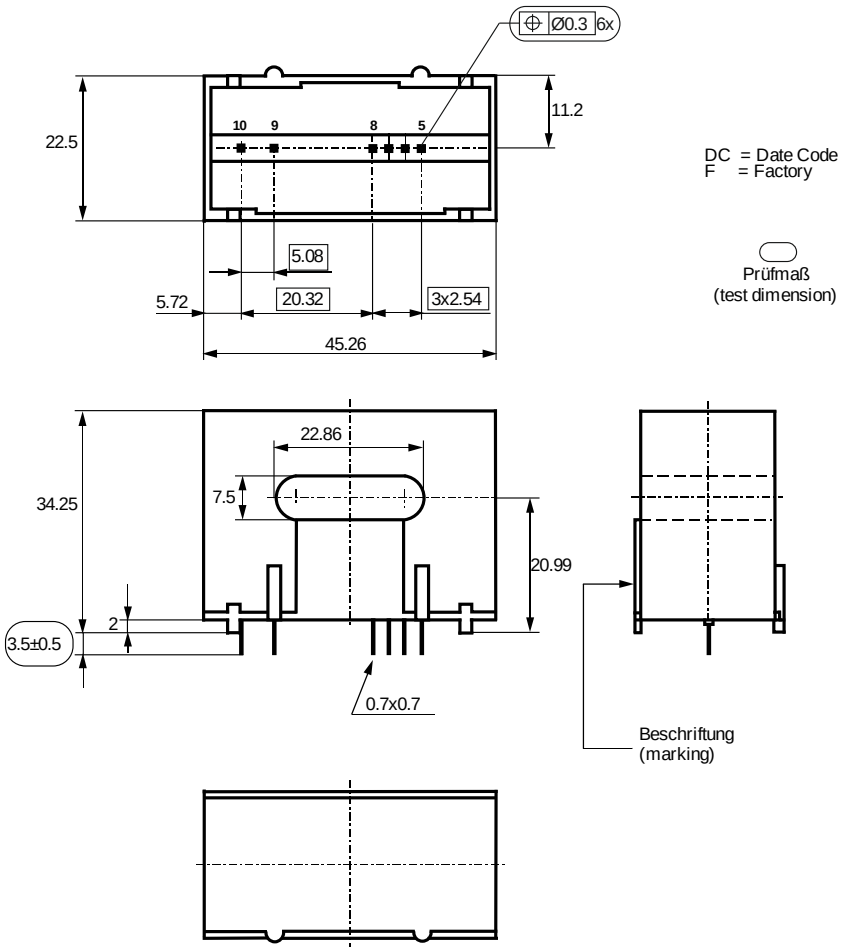
Mechanical outline (mm): General tolerances DIN ISO 2768-c



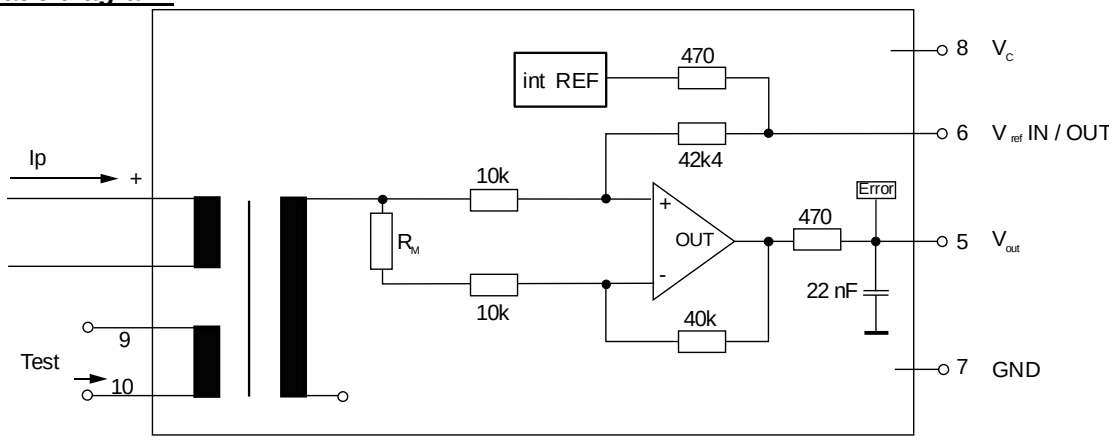
Connections:

Pin 5-10: 0.7mm x 0.7mm

Marking:

4646-X911
F DC

Schematic diagram:



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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.

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