

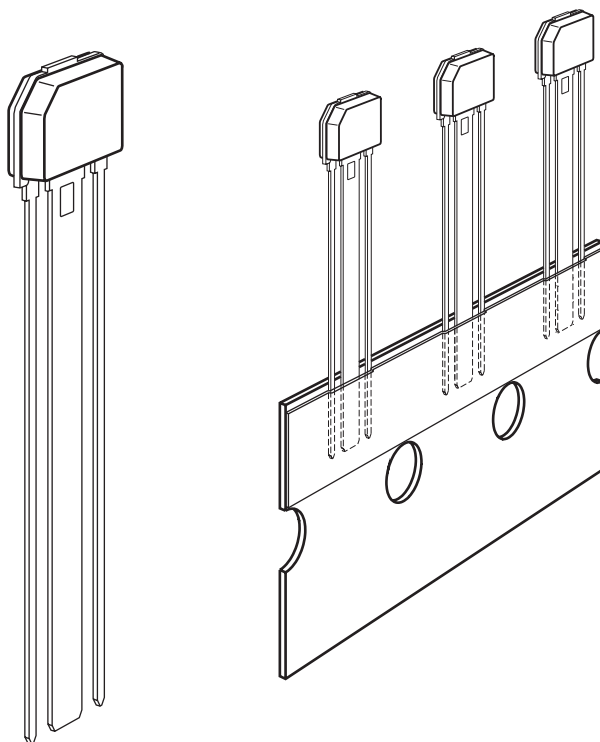


# **Data Sheet Supplement** **Version 1.0**

## **Dynamic Differential Hall Effect Sensor**

**TLE4928**

For all parameters not specified in this document the TLE4926C-HT E6947 data sheet is valid.



PG-SSO-3-6

Type	Marking	Ordering Code	Package
TLE4928	28	SP000700818	PG-SSO-3-6

PG-SSO-3-6

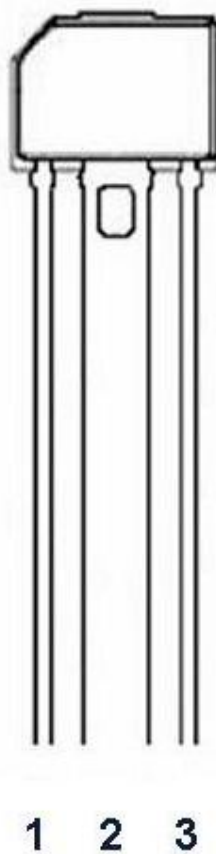


Figure 1: Pin configuration in PG-SSO-3-6

#### Pin definition and Function

Pin No.	Symbol	Function
1	$V_S$	Supply Voltage
2	GND	Ground
3	Q	Open Drain Output

## 1.1 Absolute Maximum Ratings

No.	Parameter	Symbol	min.	typ.	max.	Unit	Conditions
1.1.1	Junction temperature	$T_j$	-40		155 165 175 195	°C °C °C °C	- 2000 h (not additive) 1000 h (not additive) 168 h (not additive) 3x1 h (additive to the other life times).
1.1.2	Thermal resistance junction-air for PG-SSO-3-6	$R_{th JA}$			190	K/W	Lower values are possible with overmoulded devices.

## 1.2 ESD Protection

No.	Parameter	Symbol		max	Unit	Remarks
1.2.1	ESD – protection PG-SSO-3-6	$V_{ESD}$		$\pm 6$	kV	According to standard EIA/JESD22-A114-B Human Body Model (HBM 1500 Ohm/100pF)

## 1.3 Operating Range

No.	Parameter	Symbol	min.	typ.	max.	Unit	Conditions
1.3.1	Operating junction temperature	$T_j$	-40			°C	-
					155	°C	2000 h (not additive)
					165	°C	1000 h (not additive)
					175	°C	168 h (not additive) reduced signal quality permissible (e.g. jitter).
1.3.2	Power on time	$t_{on}$			1	ms	Time to achieve specified accuracy After power on the output of the IC is always in high-state. After internal resets output is locked <sup>1</sup> .

<sup>1</sup> Output of the IC is locked in present state (high-state or low-state) after an internal reset is launched. This reset happens typically every 195ms when there is no output switching in either case. See also 1.4.4. A voltage reset causes a release of the output and output is in high state after power on again.

## 1.4 AC/DC Characteristics

No.	Parameter	Symbol	min	typ	max	Unit	Remarks
1.4.1	Output rise time	$t_r^2$	4	12	20	$\mu\text{s}$	$V_{\text{Load}} = 4.5 \text{ to } 24\text{V}$ $R_{\text{Load}} = 1.2\text{k}\Omega$ ; $C_{\text{Load}} = 4.7\text{nF}$ external capacitor
1.4.2	Output fall time	$t_f^3$	0.5 0.65	0.9 1.15	1.3 1.65	$\mu\text{s}$ $\mu\text{s}$	$V_{\text{Load}} = 5\text{V}$ $V_{\text{Load}} = 12\text{V}$ $R_{\text{Load}} = 1.2\text{k}\Omega$ ; $C_{\text{Load}} = 4.7\text{nF}$ external capacitor
1.4.3	Frequency range <sup>4</sup>	f	0.006		8	kHz	Operation below 6Hz <sup>5</sup>
1.4.4	Offset recalibration time after last output change <sup>4</sup>	$t_{\text{reset}}$	165	195	225	ms	Valid for calibrated mode Output locked to state before recalibration

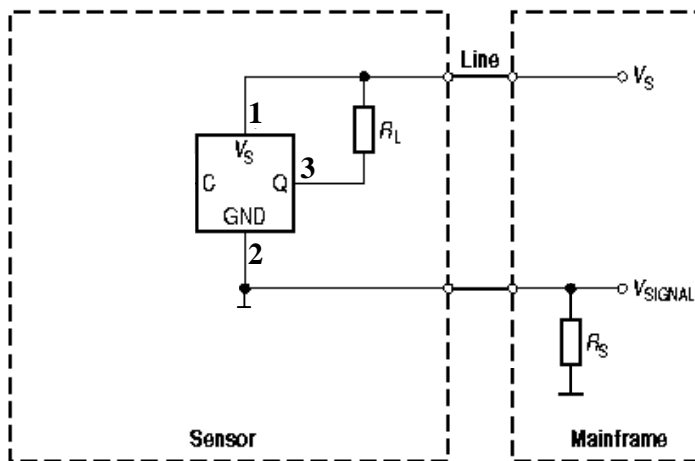
<sup>2</sup> The rise time is defined as the time between the 10 and 90% value.

<sup>3</sup> The fall time is defined as the time between the 10 and 90% value.

<sup>4</sup> Not part of production testing, verified by design and characterisation

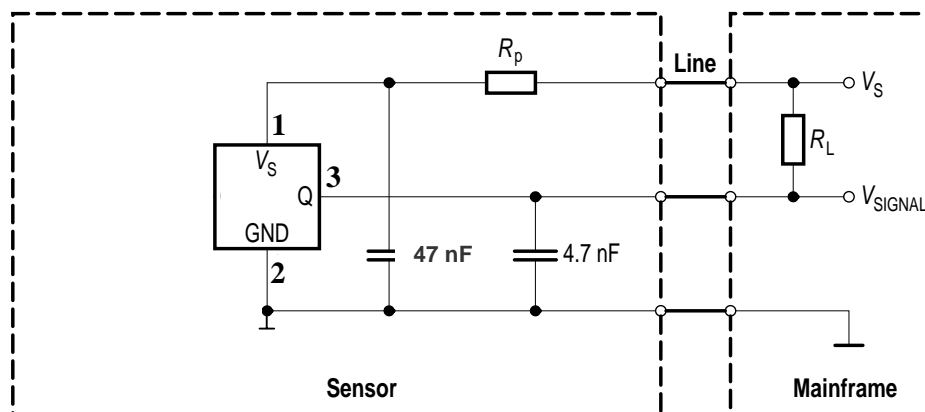
<sup>5</sup> Output will switch if magnetic signal is changing more than  $2 \times |\Delta B_{\text{min}}|$  within offset recalibration time even below 6Hz once per magnetic edge, increased phase error is possible.

### Two-wire-application



for example:  $R_L = 1.2 \text{ k}\Omega$   
 $R_S = 120 \Omega$

### Three-wire-application



for example:  $R_P \geq 200 \Omega$   
 $R_L = 1.2 \text{ k}\Omega$

**Figure 2: Application Circuits (capacitors to be added externally)**

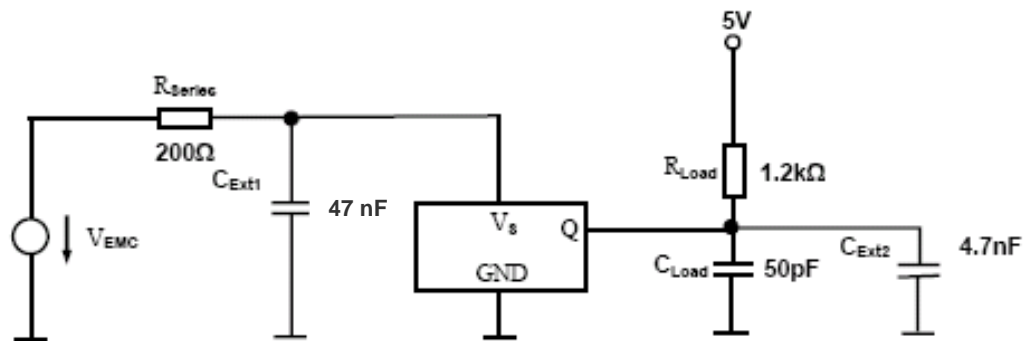
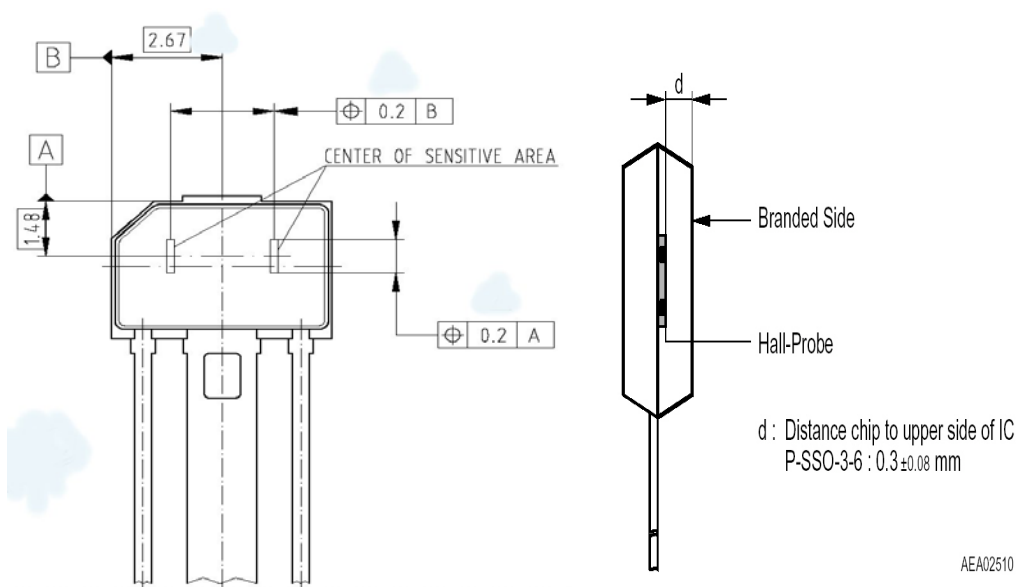


Figure 3: Test Circuit for EMC tests



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**Figure 5: Hall probe spacing in the PG-SSO-3-6 package**



**Revision History:****November 2009**

Version 1.0

Previous Version: 0.9	
Page	Subjects (major changes since last revision)
-	Change to Final Data Sheet

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