



STEVAL-IFS004V1

Metal body proximity detector based on the TDE0160

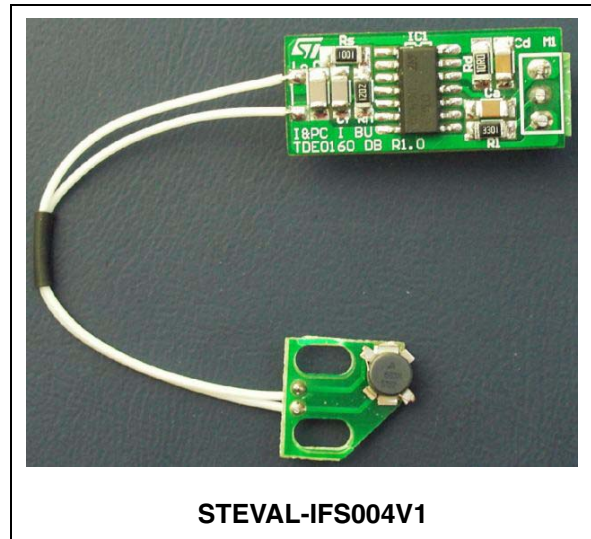
Data Brief

Features

- Supply voltage: +4 V to +36 V
- Supply current: <1.2 mA
- Loss resistance: 5 k Ω to 50 k Ω
- Oscillator frequency: <1 MHz
- Output transistor: $I_C = 20$ mA, $V_{CE(sat)} < 1.1$ V

Description

This demonstration board is based on the TDE0160, a device designed to detect metal bodies using the effect of eddy currents on the HF losses of a coil. It has two complementary open collector outputs with peak limiting. Hysteresis is adjustable, and an electronic switching circuit is incorporated for disabling both outputs. An internal Zener diode maintains “dipole” operation of the supply voltage to the circuit.



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1 Bill of material and electrical schematic

1.1 Bill of material

Table 1. BOM list

Component	Value	Description
Ca	10 nF, 50 V	SMD capacitor 1206 size
Cd	10 nF, 50 V	SMD capacitor 1206 size
Cf	1 nF, 50 V	SMD capacitor 1206 size
Co	390 pF, 50 V	SMD capacitor 1206 size
IC1	TDE0160FP	ST IC SO14 package
Lo	68 μ H	B82462-4683K ⁽¹⁾
M1	Screw plug 3 position	Sub miniaturization plug
Rd	10 Ω	SMD resistor 1206 size
Rh	8.2 k Ω	SMD resistor 1206 size
Rl	3.3 k Ω	SMD resistor 1206 size
Rs	1 k Ω	SMD resistor 1206 size

1. This component must be assembled on an external support

1.2 Electrical schematic

Figure 1. Schematic

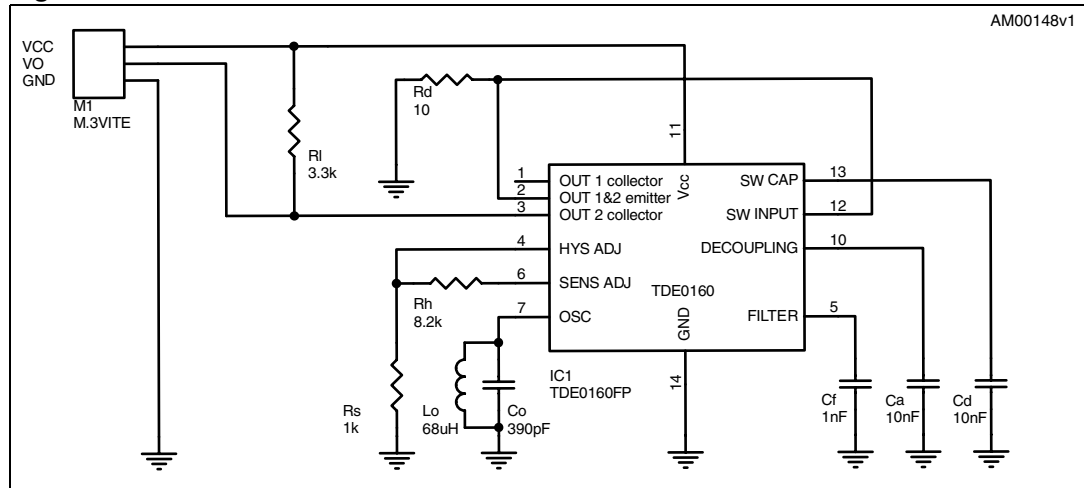


Figure 2. Top overlay (1)

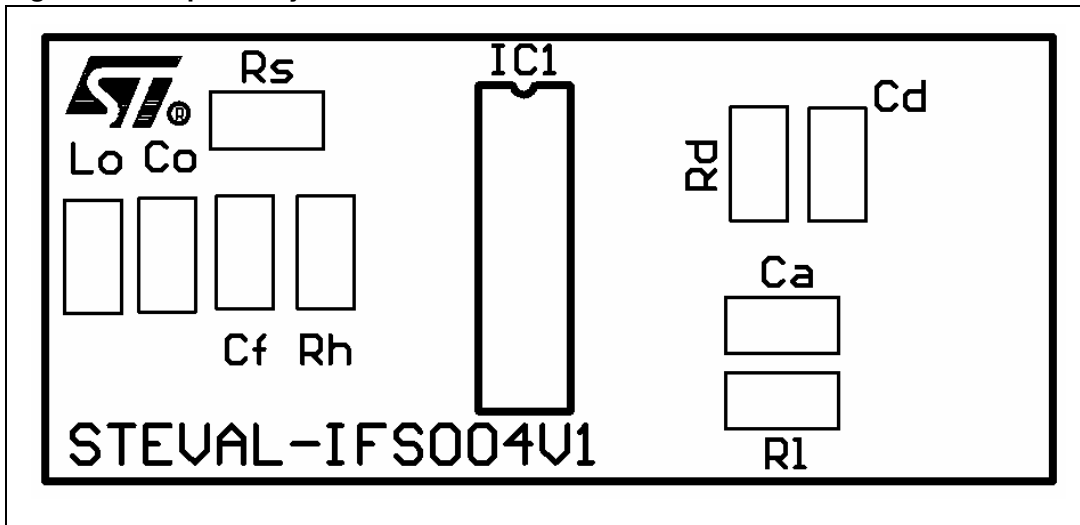
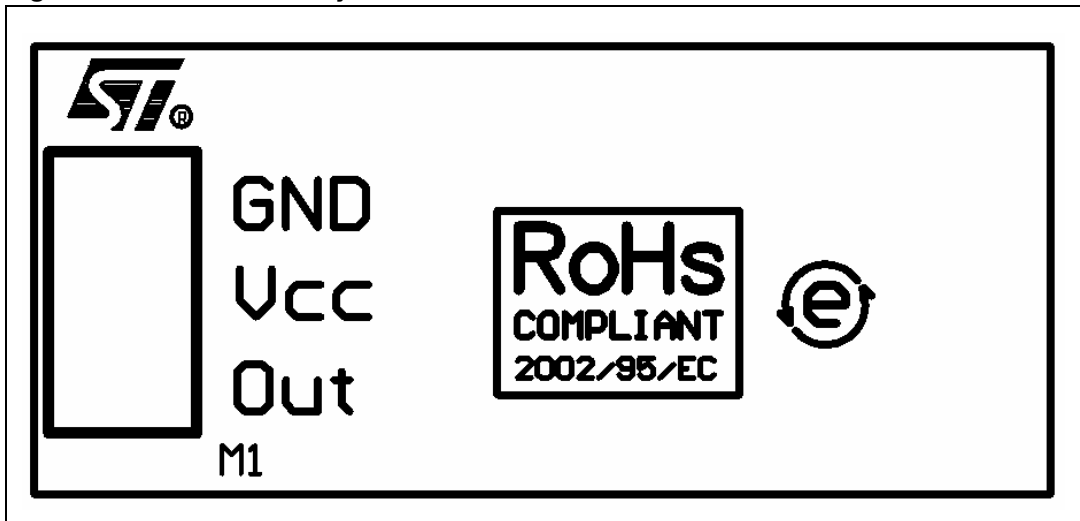


Figure 3. Bottom overlay (1)



1. Not to scale

2 Revision history

Table 2. Document revision history

Date	Revision	Changes
02-Apr-2008	1	Initial release
04-Aug-2008	2	Minor changes to the <i>Description</i> text. Modified the Co capacitor value in <i>Table 1: BOM list</i> and <i>Figure 1: Schematic</i> .

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