

This circuit is well suited for applications in proximity switches. Outputs 1 and 2 switch, when the oscillation is damped (i.e. by approaching of a metal piece).

The switching-point is adjustable by resistor.

TCA 205 A and TCA 205 WI can be used for applications in proximity and slit switches. TCA 205 WI is particularly suitable for proximity switches.

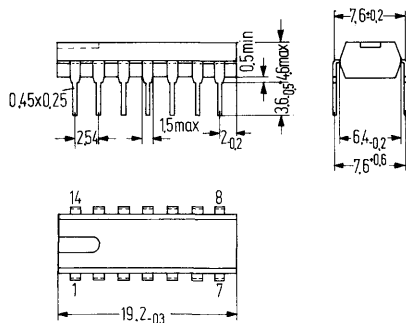
Particular characteristics:

- Large supply voltage range by internal voltage stabilisation
- High output current
- Antivalent outputs
- Adjustable distance
- Adjustable hysteresis
- Turn-on delay

Type	Ordering codes
TCA 205 A	Q67000-A1034
TCA 205 WI	Q67000-A1034-W1
TCA 205 WII	Q67000-A1034-W2

Package outlines

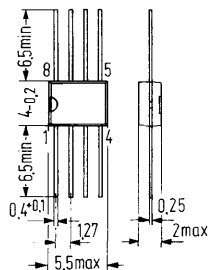
TCA 205 A



Plastic plug-in package 20 A DIN 41866
(TO-116)
(14 pins, DIL) weight approx. 1.1 g

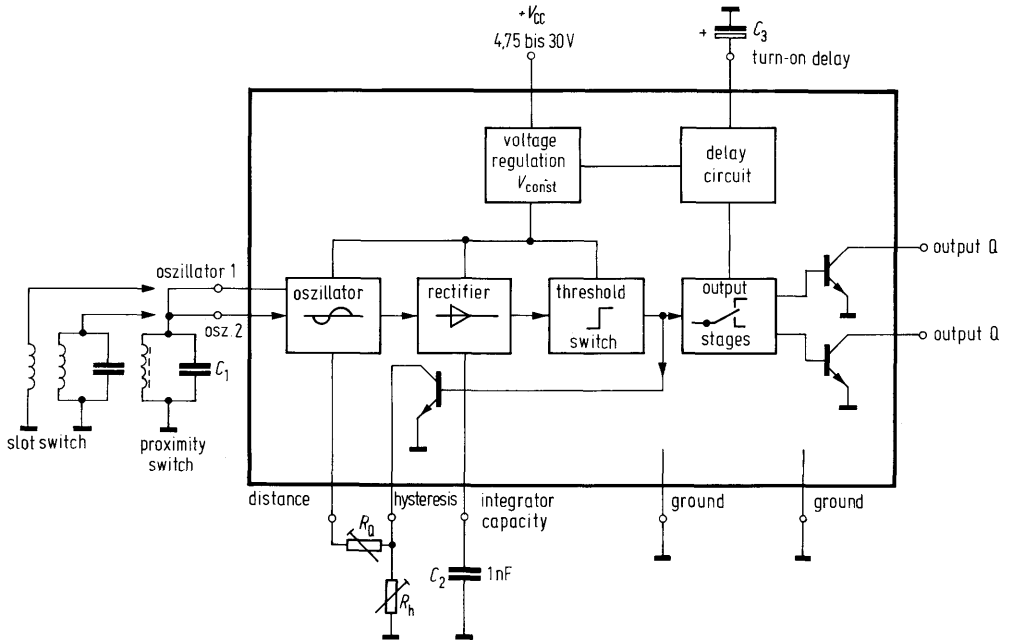
Dimensions in mm

TCA 205 WI, TCA 205 WII



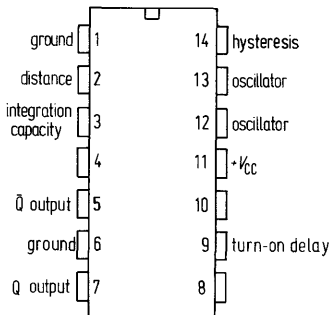
Miniature plastic package, 8 pins
Weight approx. .15 g

Block diagram

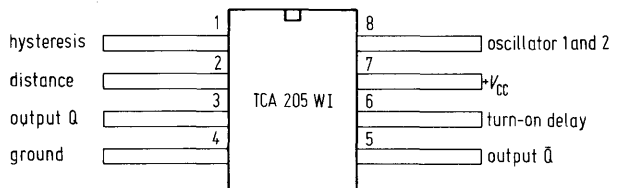


Pin configuration

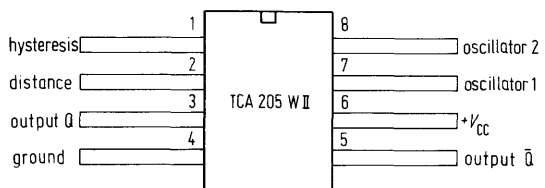
TCA 205 A



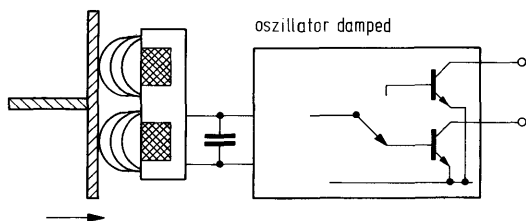
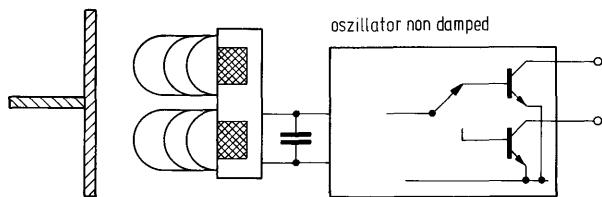
TCA 205 WI



TCA 205 WII



Application principle



Maximum ratings

Supply voltage	V_{CC}	30	V
Output voltage	V_q	V_{CC}	
Output current	I_q	50	mA
Junction temperature	T_j	150	°C
Storage temperature	T_s	-40 to +125	°C
Thermal resistance: system-ambient air	R_{thSU}	120	K/W

Range of operation

Supply voltage	V_{CC}	4.75 to 30	V
Ambient temperature in operation	T_{amb}	-25 to +85	°C

Operating characteristics

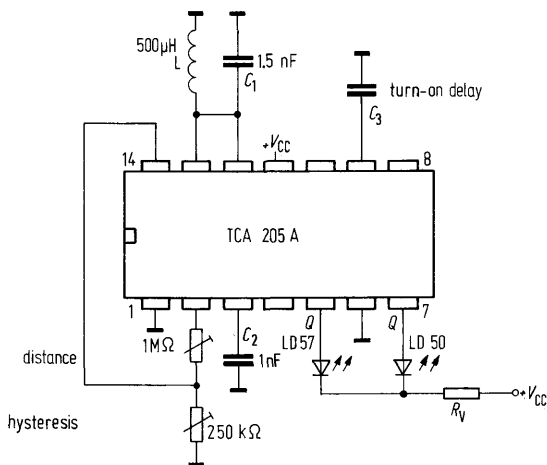
($V_{CC} = 12\text{ V}$; $T_{amb} = 25^\circ\text{C}$)

	min	typ	max	
Supply current TCA 205 WI, TCA 205 WII		1	2	mA
TCA 205 A		3	5	mA
Output saturation voltage: $I_q = I_q = 5\text{ mA}$		.8	1.0	V
$I_q = I_q = 50\text{ mA}$		1.25	1.5	V
Output leakage current ($V_{CC} = 30\text{ V}$)			100	μA
Range of adjustable distance	R_d	3		k Ω
Range of adjustable hysteresis	R_h	0		k Ω
Oscillation frequency	f_{osc}	.015	1.5	MHz
Switching frequency without external capacity	f		5	kHz
Turn-on delay (not for TCA 205 WII)	t	200		ms/ μF
Integration capacity (at pin 3, only TCA 205 A)	C_2	0		pF

Max. switching distance without coil screening .6 $\times$ diameter of the pot core

Min. hysteresis 3% of switching distance

Application circuit



Coil: $L = 500 \mu\text{H}$
 SIFERRIT pot core $\varnothing 25 \text{ mm}$, B65939-A0000-X022
 Number of turns: $n = 70$; litz wire $20 \times .05 \text{ mm}$

$$R_V = \frac{V_{CC} - V_{LED}}{I_{\max}} = \frac{V_{CC} - 1.5 \text{ V}}{50 \text{ mA}}$$

Nom. distance: 13 mm

Temperature coefficient by nom. distance: $< .1\%/K$