

Threshold Switches

TCA 105
TCA 105 W
TCA 105 B
TCA 105 BW

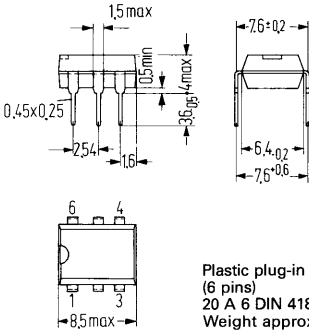
TCA 105, TCA 105 B, TCA 105 BW and TCA 105 W comprise an oscillator stage, a threshold switch and two anti-valent output stages. In addition, these circuits contain a voltage stabilization and are especially well suited for an application in proximity switches, light beam- and other contactless switching applications.

- Wide range of battery voltage 4.5 to 30 V
- High output current 50 mA
- TTL compatible
- Triggerable with dc-signals

Type	Ordering codes
TCA 105	Q67000-A527
TCA 105 W	Q67000-A600
TCA 105 B	Q67000-A587
TCA 105 BW	Q67000-A601

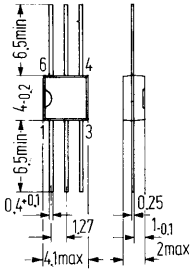
Package outlines

TCA 105, TCA 105 B



Plastic plug-in package
 (6 pins)
 20 A 6 DIN 41866
 Weight approx. .7 g

TCA 105 W, TCA 105 W



Plastic miniature package
 Weight approx. .1 g

Dimensions in mm

Colour code

TCA 105 W orange/white
 TCA 105 BW orange/red

Maximum ratings

Supply voltage
 Output voltage (pin 4.5)
 Output current
 Switching frequency
 Junction temperature
 Storage temperature
 Thermal resistance:
 System-ambient air
 TCA 105, TCA 105 B
 TCA 105 W, TCA 105 BW

	TCA 105 TCA 105 W	TCA 105 B TCA 105 BW	
V_{CC}	30	20	V
V_q	30	20	V
I_q	50	50	mA
f	40	40	kHz
T_j	150	150	°C
T_s	-55 to +125	-55 to +125	°C
R_{thSamb}	140	140	K/W
R_{thSamb}	200	200	K/W

Range of operation

Supply voltage
 Oscillating frequency range
 Ambient temperature in operation

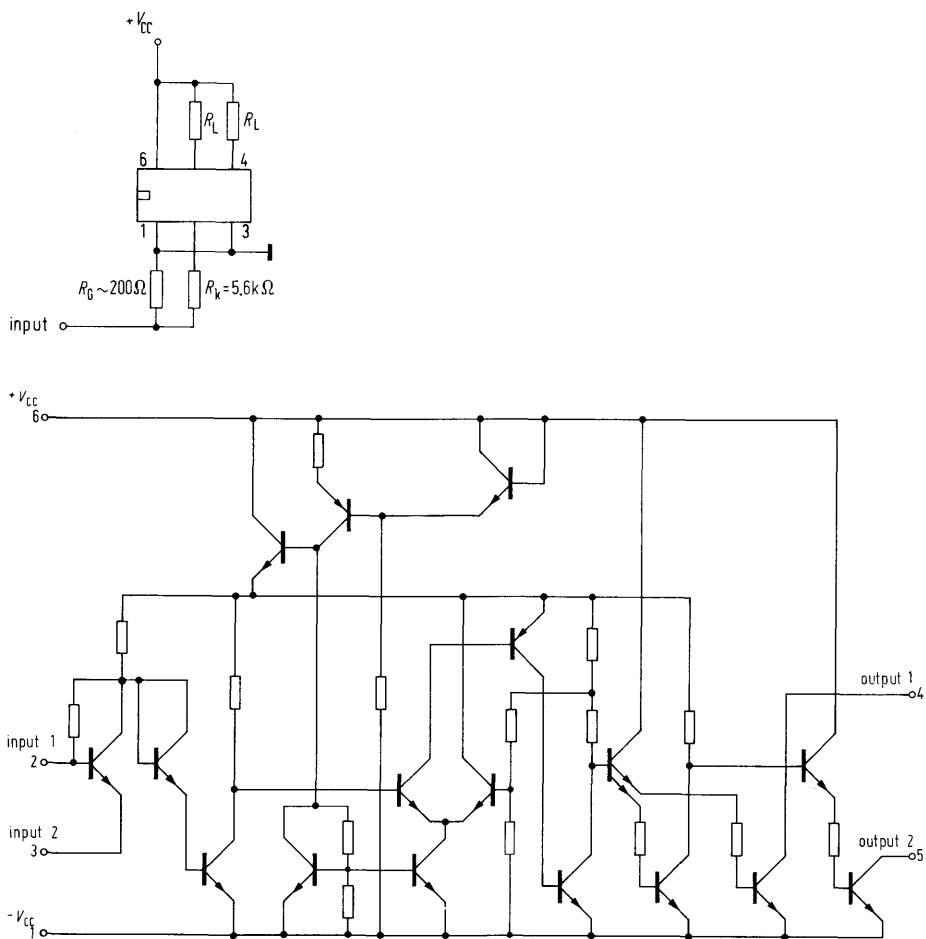
V_{CC}	4.5 to 30	4.5 to 20	V
I_{osc}	1 to 4.5	1 to 4.5	MHz
T_{amb}	-25 to +85	-25 to +85	°C

Operating characteristics

Static measurement, pins 3 and 1 connected
($V_{CC} = 12\text{ V}$, $T_{amb} = 25\text{ }^{\circ}\text{C}$)

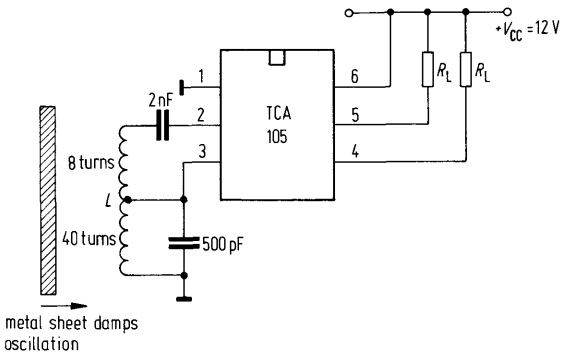
	min	typ	max	
Supply current I_{CC}		3.4	5	mA
Input threshold voltage with compensation resistor R_C V_i	300	400	480	mV
Input threshold current I_i		-60		μA
Hysteresis ΔK_i	25	35	50	mV
Saturation voltage $V_{q\text{sat}}$ ($I_q = 16\text{ mA}$)		.25	.35	V
Saturation voltage $V_{q\text{sat}}$ ($I_q = 50\text{ mA}$)		.7	1.15	V
Output voltage V_q	dependant on V_{CC}			
Leakage current I_{qlik}			60	μA
Switching time in TTL-operation t ($I_q = 16\text{ mA}$)		3		μS

Test circuit



Applications

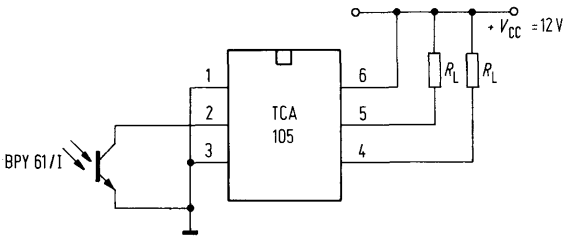
Inductive slot switch



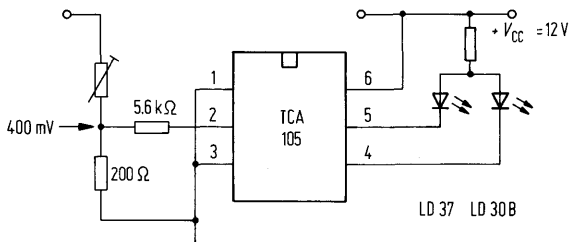
SIFERRIT pot core 9 mm $\varnothing$
B65935-A0000-X025

Number of turns: $n = 25$
(litz wire $12 \times .04$ mm)
Distance between pot core halves:
2.5 to 3.5 mm

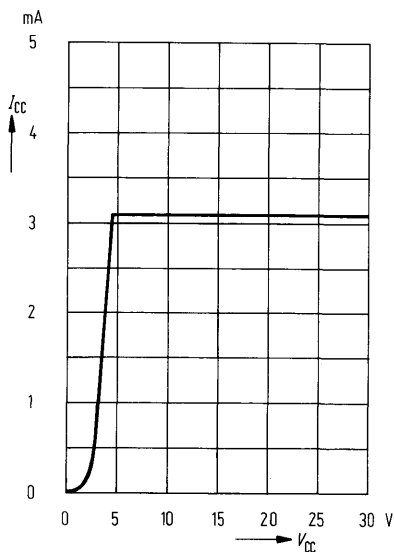
Light beam switch



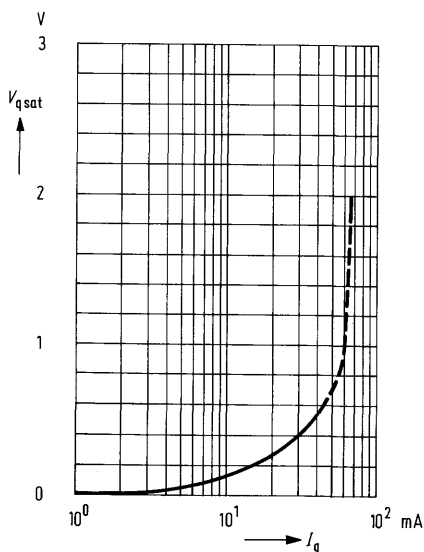
Battery voltage indicator



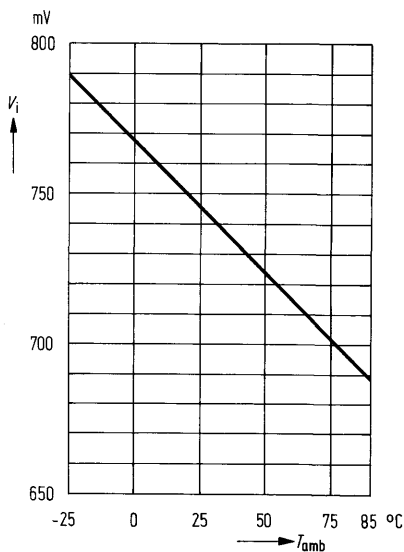
Supply current $I_{CC} = f(V_{CC})$
 $T_{amb} = 25\text{ }^{\circ}\text{C}; R_L = \infty$



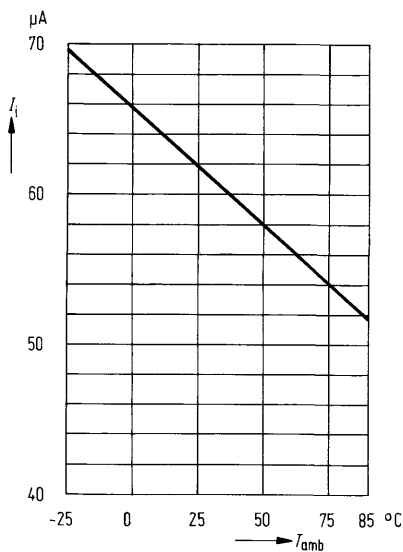
Saturation voltage $V_{q\text{sat}} = f(I_q)$
 $T_{amb} = 25\text{ }^{\circ}\text{C}; V_{CC} = 12\text{ V}$



Input threshold voltage $V_i = f(T_{amb})$
 $V_{CC} = 12\text{ V}; R_K = 0$

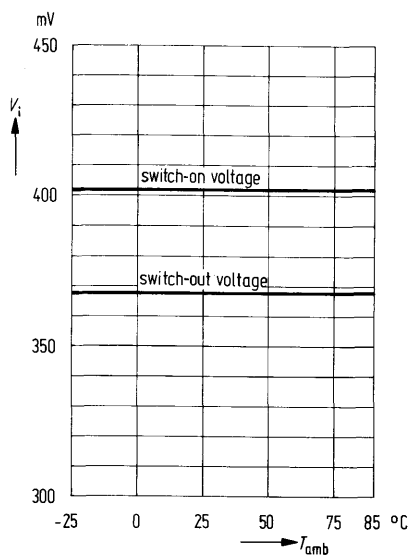


Input current $I_i = f(T_{amb})$
 $V_{CC} = 12\text{ V}; R_K = 5.6\text{ K}$



TCA 105
TCA 105 W
TCA 105 B
TCA 105 BW

Input threshold voltage $V_i = f(T_{amb})$
 $V_{CC} = 12\text{ V}; R_K = 5.6\text{ k}\Omega$



Input threshold voltage $V_i = f(V_{CC})$
 $T_{amb} = 25\text{ °C}; R_K = 5.6\text{ k}\Omega$

