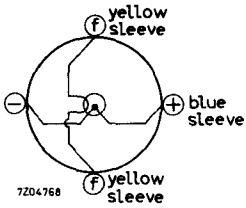
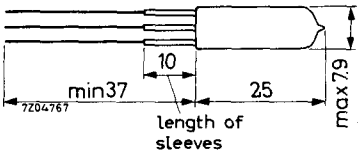
THERMOCOUPLES

Indirectly heated thermocouples in subminiature construction.

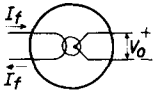
DIMENSIONS AND CONNECTIONS

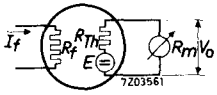




CHARACTERISTICS AND LIMITING VALUES (Absolute max. rating system)

			TH71	TH73	TH75	
Heater current	I_f		0 to 15	0 to 75	0 to 300	mA
Heater current [1])	I_f		0 to 5	0 to 20	0 to 100	mA
Heater current at E = 12 mV	I_f		10	40	200	mA
Heater current (T = max. 1 m)	I_f	max.	20	100	350	mA
Heater resistance	R_f		68	7.0	1.2	Ω
Resistance of thermocouple	R_{TH}		6.0	3.5	3.5	Ω
Response time [2])	T		10	10	10	s
at heater current I_f =			10	40	200	mA
Heater to thermocouple voltage	$V_{f/TH}$	max.	100	100	100	V





[1]) In approximately this range V_o is proportional to the square of I_f

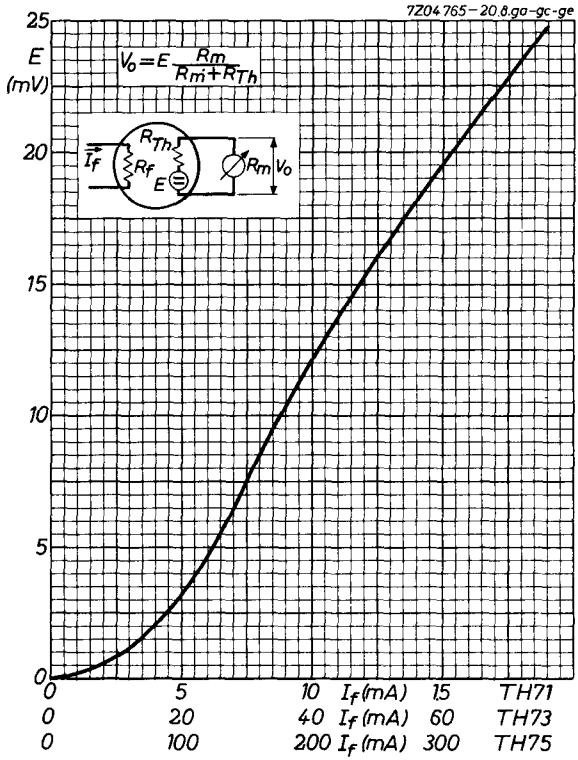
[2]) Time between the moment of switching on of I_f and the moment of reaching max. voltage (See page 4).

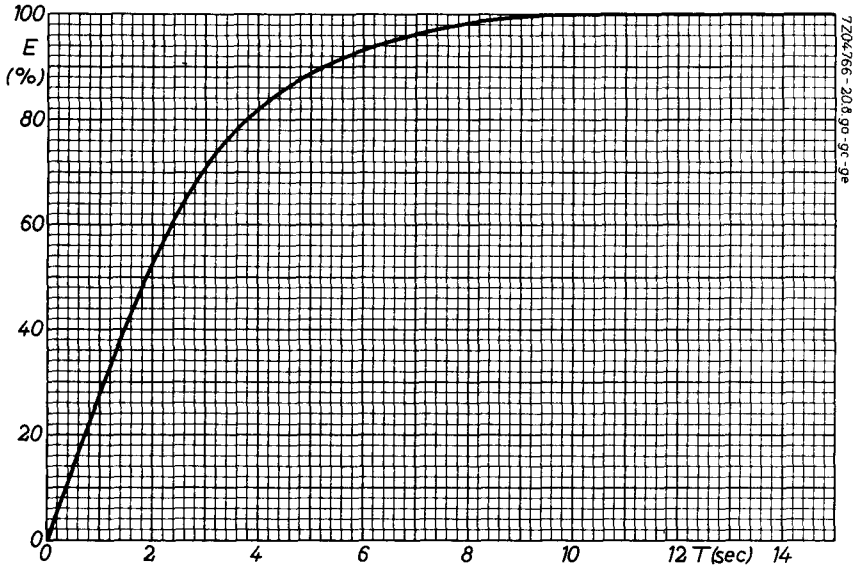
REMARK

The electrical characteristics of the types TH71, TH73 and TH75 are identical to those of the types TH1, TH3, TH5 and TH91, TH93 and TH95 respectively and therefore can be used as replacement for these types.

GENERAL INFORMATION

The "hot" weld of the thermocouple consists of an iron constantan junction.
The "cold" welds are iron to copper and constantan to copper junctions inside the vacuum envelope.
The tube has copper leads.
The measuring results are practically independent of the ambient temperature of the tube so that no corrections need to be made for the temperature of the "cold" weld.


7Z04765-20.8.ga-gc-ge
25
E
(mV)
20
15
10
5
0
$V_o = E \frac{R_m}{R_m + R_{Th}}$
R_{Th}
I_f
R_f
E
R_m
V_o
0 5 10 I_f (mA) 15 TH71
0 20 40 I_f (mA) 60 TH73
0 100 200 I_f (mA) 300 TH75


100
E
(%)
80
60
40
20
0
0
2
4
6
8
10
12 T (sec)
14
7Z04766-20.8.go-gr-ge

PHILIPS

Data handbook

Electronic components and materials

TH71 TH73 TH75

page	sheet	date
1	1	1968.12
2	2	1968.12
3	3	1968.12
4	4	1968.12
5	FP	2001.05.18