



SFE 10,7...

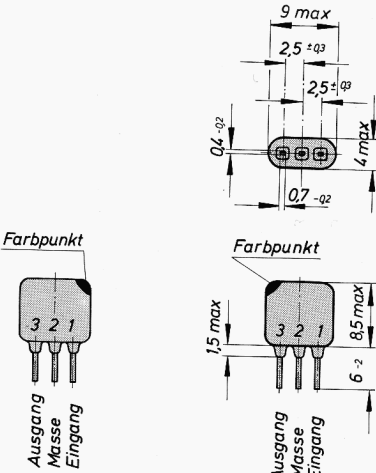


Fig. 1

Fig. 2

SFJ 10,7...

4001

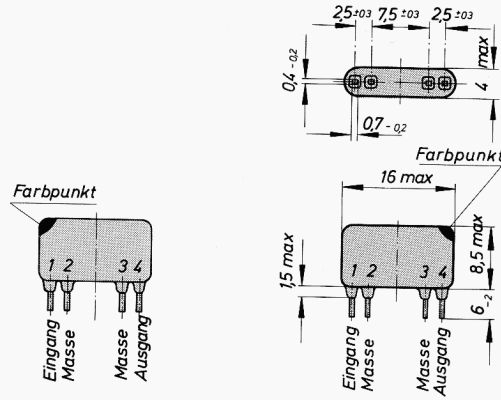


Fig. 3

Fig. 4

Entertainment Keramik-ZF-Filter

Entertainment ceramic I.F. filters

FM-Empfänger-ZF-Filter 10,7 MHz

FM Radio I.F. filters 10,7 MHz

Mittenfrequenz

Center frequency

Gruppe:

Kennfarbe:

- A: 10.700 MHz ± 30 kHz
- B: 10.670
- C: 10.730
- D: 10.640
- E: 10.760

- rot
- blau
- orange
- schwarz
- weiß

Group:

Colour code:

- A: 10.700 MHz ± 30 kHz
- B: 10.670
- C: 10.730
- D: 10.640
- E: 10.760

- red
- blue
- orange
- black
- white

Typ	3 dB Bandbreite	20 dB Bandbreite	50 dB Bandbreite	Einfüg. dämpf.	Nebenwellendämpfung	Ein/Ausgangswiderst.	Gr.-Laufzeitdiff.	TK d. f <sub>0</sub>	Abmess.
Type	Bandwidth	Bandwidth	Bandwidth	Insertion loss	spurious response	In/Output imped.	Group delay time diff.	TC of f <sub>0</sub>	Dimens.
	(kHz)	(kHz) max.	(kHz)	(dB)	8...12 MHz (dB) min.	(Ω)	(μs)	(ppm/°C)	(in mm)
SFE 10,7 MA15S-Z Art.-Nr. 405100019	280 ± 50	650	—	6 max.	30	330	—	± 50	Fig. 2
SFE 10,7 MS2S-Z Art.-Nr. 405100081	230 ± 40	600	—	6 max.	40	330	—	± 50	Fig. 2
SFE 10,7 MS3S-Z Art.-Nr. 405100018	180 ± 30	520	—	6 max.	40	330	—	± 50	Fig. 1
SFE 10,7 MJ-Z Art.-Nr. 405100017	150 ± 40	500	—	10 max.	30	330	—	± 70	Fig. 2
SFE 10,7 ML-Z Art.-Nr. 405100009	280 ± 50	700	—	9 max.	25	330	0,25 max.	± 50	Fig. 2
SFE 10,7 MM-Z Art.-Nr. 405100005	230 ± 50	600	—	11 max.	30	330	0,25 max.	± 50	Fig. 2
SFE 10,7 MX-Z Art.-Nr. 405100026	250 ± 40	670	—	12 max.	25	330	0,2 max.	± 50	Fig. 2
SFE 10,7 MZ1-Z Art.-Nr. 405100027	180 ± 40	530	—	14 max.	33	330	0,15 max.	± 50	Fig. 2
SFJ 10,7 MA2S-Z Art.-Nr. 405200099	230 ± 50	—	700 max.	10 max.	60	330	2 max.	± 50	Fig. 4
SFJ 10,7 MA2K-Z Art.-Nr. 405200095	230 ± 50	—	700 max.	10 max.	60	330	0,5 max.	± 50	Fig. 4
SFJ 10,7 MA9S-Z Art.-Nr. 405200011	210 ± 40	—	600 typ.	8,5 typ.	60	330	—	± 50	Fig. 3
SFJ 10,7 MA9K-Z Art.-Nr. 405200012	210 ± 40	—	600 typ.	8,5 typ.	60	330	0,5 max.	± 50	Fig. 3
SFJ 10,7 MB-Z Art.-Nr. 405200013	180 ± 40	—	550 typ.	8,5 typ.	60	330	—	± 75	Fig. 4
SFJ 10,7 MB1 Art.-Nr. 405200026	180 ± 40	—	550 typ.	9,5 typ.	60	330	1,0 max.	± 75	Fig. 4



Akustisches Oberflächenwellenfilter

FM-Empfänger-ZF-Filter 10,7 MHz

Typ	3 dB Bandbreite	20 dB Bandbreite	50 dB Bandbreite	Einfüg.dämpf.	Nebenwellendämpfung	Ein/Ausgangswiderst.	Gr.-Laufzeitdiff.	TK d. f <sub>0</sub>	Abmess.
Type	Bandwidth	Bandwidth	Bandwidth	Insertion loss	spurious response	In/Output imped.	Group delay time diff.	(max.) TC of f <sub>0</sub>	Dimens.
	(kHz)	(kHz) max.	(kHz)	(dB)	8...12 MHz (dB) min.	(Ω)	(μs)	(ppm/°C)	(in mm)
SAF 10,7 MC-Z	190 ± 30	500	—	22	33	330	0,2	-40 ± 30	33x9x5
SAF 10,7 ME-Z	270 ± 50	700	—	22	33	330	0,2	-40 ± 30	33x9x5
SAF 10,7 MC1-Z	170 ± 30	420	—	22	24	330	0,2	-40 ± 30	33x9x5

SAF 10,7 ...

**4002**

Acoustic surface wave filters

FM radio I.F. filters 10,7 MHz

27 MHz-Bandpass (Fig. 2)

Typ	Nennfrequenz	Einfüg.-dämpfung	Welligkeit	3 dB Bandbreite	20 dB Bandbreite	Nebenwellenabstand	Temperaturkoeffizient	Ein/Ausgangswiderstand
Type	Nominal frequency	Insertion loss	Ripple	Bandwidth	Bandwidth	Spurious response	TC	In/Output impedance
	(MHz)	(dB) max.	(dB) max.	(kHz) min.	(MHz) max.	(dB) min.	(ppm/°C)	(Ω)
SFE 27 MA Art.-Nr.401100001	27,185	8	2,5	500	2 (24...30MHz)	25 (-30...50°C)	100 max.	270

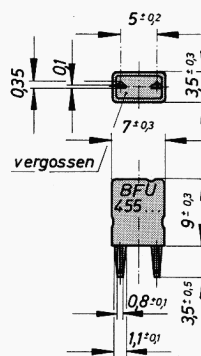
SFE 27 MA

**4003**

27 MHz-Bandpass (Fig. 2)

BFU 455 K

**4004**



AM-Empfänger-ZF-Bypass 455 kHz

Typ	Mittelfrequenz	3 dB Bandbreite	Widerstand bei f <sub>0</sub>	Kapazität	Temperaturcharakteristik	Langzeitfrequenzstabilität	Zulässige Gleichspannung
Type	Center frequency	Bandwidth	Resistance	Capacitance	Temp. charact.	Long term frequency stability	Max. operating DC voltage
	(kHz)	(kHz)	(Ω) max.	(pF)	(%) max.	(%)	(V)
BFU455K Art.-Nr. 401000011	455 ± 2	8 ± 2	30	550 ± 20%	± 0,4 (-10...+80°C)	≅ ± 0,5 (10 Jahre /years)	50

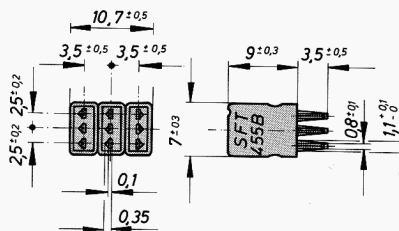
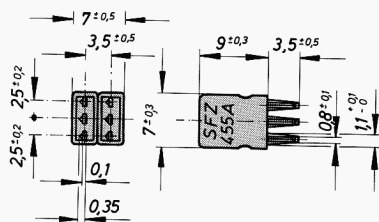
AM radio & transceiver I.F. filters 455 kHz



SFZ...

SFT...

4004



AM-Empfänger-ZF-Filter 455 kHz

AM radio I.F. filters 455 kHz

Auch für  $f_0$  452, 460, 465, 470, 482 kHz lieferbar!

Also available with  $f_0$  452, 460, 465, 470, 482 kHz!

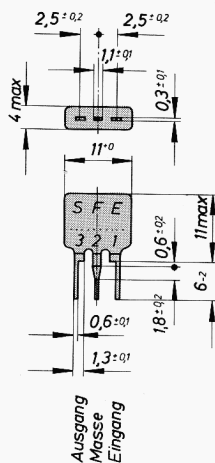
\* Als Sonderausführung mit  $\pm 1$  kHz lieferbar!

\* Special type available with  $\pm 1$  kHz!

Typ Type	Mitten- frequenz Center frequency	Welligkeit Ripple	3 dB Bandbreite Band- width	Selektion $\pm 10$ kHz Selectivity $\pm 10$ kHz	Ein /Ausgangs- widerstand In /Output imped.	Einfügungs- dämpfung Insertion loss	Temperatur- charakteristik Temp. characteristic	Langzeitfrequenz- stabilität Long term frequency stability	Zulässige Gleichspannung Max. operating DC voltage
SFZ455A Art.-Nr. 401200009	455 kHz $\pm 2$ kHz*	1,5 dB max.	4,5 kHz $\pm 1$ kHz	25 /30 dB typ.	3 k $\Omega$	8 dB 4 dB typ. (-20 ... +80°C)	$\leq 50$ ppm/°C (10 Jahre /years)	$\leq \pm 0,5$ %	50 V
SFZ455F Art.-Nr. 401200032	455 kHz $\pm 2$ kHz*	1,5 dB max.	4,5 kHz $\pm 1$ kHz	30 /30 dB typ.	3 k $\Omega$	8 dB 4 dB typ.	$\leq 50$ ppm/°C	$\leq \pm 0,5$ %	50 V
SFT455B Art.-Nr. 401200012	455 kHz $\pm 2$ kHz*	2,0 dB max.	4,5 kHz $\pm 1$ kHz	35 /45 dB	3 k $\Omega$	10 dB max.	$\leq 50$ ppm/°C (-20 ... +80°C)	$\leq \pm 0,5$ % (10 Jahre /years)	50 V

SFE...

4005



FS-Ton-ZF-Filter

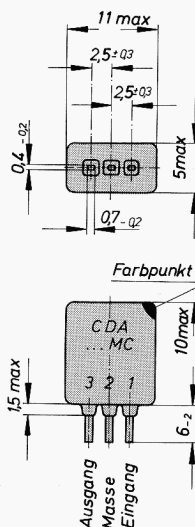
TV sound I.F. filters

Typ Type	Nenn- frequenz Nominal frequency (MHz)	3 dB Bandbreite Bandwidth (kHz) min.	20 dB Bandbreite Bandwidth (kHz) max.	Einfügungs- dämpfung Insertion loss (dB) max.	Nebenwell- dämpfung Mode suppression (dB) min.	Ein /Ausgangs- widerstand In /Output impedance ( $\Omega$ )	Temperatur- bereich Temperat. range (°C)	Zulässige Gleichspannung Max. operating DC voltage (V)
SFE4,5MBB Nr. 403200085	4,5	$\pm 60$	530	8,0	20	1000	-20 ... +80	50
SFE5,5MBB Nr. 403300001	5,5	$\pm 75$	550	8,0	25 /30	600	-20 ... +80	50
SFE6,0MBB Nr. 403500083	6,0	$\pm 80$	600	8,0	25 /30	470	-20 ... +80	50
SFE6,5MBB Nr. 403600084	6,5	$\pm 80$	630	8,0	25 /30	470	-20 ... +80	50



CDA...

**4005**



**FS-Ton-ZF-Diskriminator**

\*  $f_{mod} 1 \text{ kHz } f_{dev} \pm 30 \text{ kHz}$

\*\* Spezifikation abhängig vom verwendeten IC.

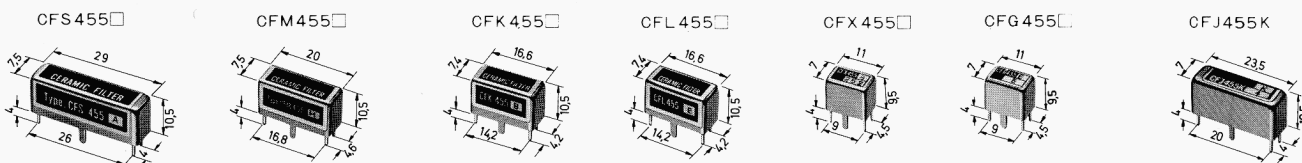
**TV sound I.F. discriminator**

\*  $f_{mod} 1 \text{ kHz } f_{dev} \pm 30 \text{ kHz}$

\*\* Specification dependant on applied integrated circuit.

Typ Type	Nennfrequenz Nominal frequency (MHz)	NF-Spannung Recovered audio voltage (mV) min.	3 dB NF-Bandbreite 3 dB AF- bandwidth (kHz) min.	Klirrfaktor* Distortion factor* (%)	Temperaturkoeffizient TC (ppm/°C)	Anwendung IC** Applied I.C.**	Zul. Gleichspannung Max. operating DC voltage (V)
CDA4,5MC10 Art.-Nr. 405400002	4,5	800	± 50	≦ 3	± 75	TBA 120 T TDA 4281 T	50
CDA5,5MC10 Art.-Nr. 405400001	5,5	800	± 60	≦ 2	± 75	TBA 120 T TDA 4281 T	50
CDA6,0MC10 Art.-Nr. 405400003	6,0	800	± 60	≦ 2	± 75	TBA 120 T TDA 4281 T	50
CDA6,5MC10 Art.-Nr. 405400004	6,5	800	± 60	≦ 2	± 75	TBA 120 T TDA 4281 T	50

**4006**



**Professionelle Keramik-ZF-Filter 455 kHz**

**Professional ceramic I.F. filters 455 kHz**

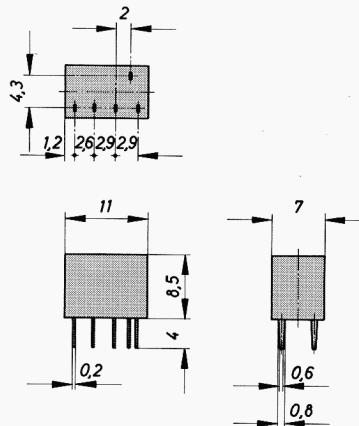
Bandbreiten- gruppe Bandwidth group	Bandbreite Bandwidth (kHz)			Einfügungsdämpfung Insertion loss (dB) max.							Ein-/Ausgangswiderstand (kΩ) In / Output impedance (kΩ)						
	3 dB Bandbreite (kHz) min.	6 dB Bandbreite (kHz) max.	40 dB Bandbreite (kHz) max.	CFS	CFJ	CFM	CFK	CFL	CFX	CFG	CFS	CFJ	CFM	CFK	CFL	CFX	CFG
A	± 13	± 17,5	± 30	4	—	3	—	—	—	—	1,5	—	1	—	—	—	—
B	± 10	± 15	± 25	4	—	3	4	4	4	4	1,5	—	1	1	1	1	1
C	± 9	± 13	± 23	4	—	3	4	4	4	4	1,5	—	1	1	1	1	1
D	± 7	± 10	± 20	4	—	3	4	4	4	4	1,5	—	1,5	1,5	1,5	1,5	1,5
E	± 5,5	± 8	± 16	6	—	5	6	6	6	6	1,5	—	1,5	1,5	1,5	1,5	1,5
E10	± 5,0	± 7,5	± 12,5	—	—	—	6	6	6	6	—	—	—	1,5	1,5	1,5	1,5
F	± 4,2	± 6	± 12	6	—	6	6	6	6	6	2	—	2	2	1,5	1,5	1,5
G	—	± 4	± 10	6	—	6	6	6	6	6	2	—	2	2	1,5	1,5	1,5
H	—	± 3	± 7,5	7	—	6	7	7	7	6	2	—	2	2	1,5	1,5	1,5
I	—	± 2	± 5	8	—	7	8	8	8	8	2	—	2	2	2	2	2
J	—	± 1,5	± 4,5	8	—	—	8	8	8	8	2	—	—	2	2	2	2
K	—	2,4*	4,5*	—	6	—	—	—	—	—	—	2	—	—	—	—	—

\* Gesamtbandbreite / \* total bandwidth



CFW 455

**4006**



Mittenfrequenz 455 kHz

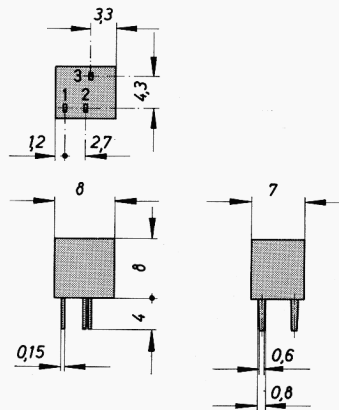
Center frequency 455 kHz

Art.-Nr. 4013000...

Part No. 4013000...

Typ Type	Art.-Nr. Part No.	6 dB Bandbreite 6 dB Bandwidth (kHz) min.	50 dB Bandbreite 50 dB Bandwidth (kHz) max.	Nebenwellendämpfung Mode suppression (dB) min.	Einfügungsdämpfung Insertion loss (dB) max.	Ein-/Ausgangswiderstand In / Output impedance (Ω)
CFW455B	53	± 15	± 30	35	4	1500
CFW455C	54	± 12,5	± 24	35	4	1500
CFW455D	55	± 10	± 20	35	4	1500
CFW455E	56	± 7,5	± 15	35	6	1500
CFW455F	57	± 6	± 12,5	35	6	2000
CFW455G	58	± 4,5	± 10	35	6	2000
CFW455H	48	± 3	± 9	35	6	2000
CFW455I	59	± 2	± 7,5	35	7	2000
CFW455HT	61	± 3	± 9	60	6	2000
CFW455IT	62	± 2	± 7,5	55	7	2000

CFU 455



Mittenfrequenz 455 kHz

Center frequency 455 kHz

Art.-Nr. 4013000...

Part No. 4013000...

Typ Type	Art.-Nr. Part No.	6 dB Bandbreite 6 dB Bandwidth (kHz) min.	40 dB Bandbreite 40 dB Bandwidth (kHz) max.	Nebenwellendämpfung Mode suppression (dB) min.	Einfügungsdämpfung Insertion loss (dB) max.	Ein-/Ausgangswiderstand In / Output impedance (Ω)
CFU455B	09	± 15	± 30	27	4	1500
CFU455C	10	± 12,5	± 24	27	4	1500
CFU455D	11	± 10	± 20	27	4	1500
CFU455E	12	± 7,5	± 15	27	6	1500
CFU455F	13	± 6	± 12,5	27	6	2000
CFU455G	14	± 4,5	± 10	25	6	2000
CFU455H	15	± 3	± 9	25	6	2000
CFU455I	16	± 2	± 7,5	25	6	2000
CFU455HT	63	± 3	± 9	35	6	2000
CFU455IT	64	± 2	± 7,5	35	6	2000

Temperaturbereich -20... +80°C

Welligkeit in 3 dB-Bandbreite ist 3 dB max.

Welligkeit in 6 dB-Bandbreite ist 6 dB max.

Nebenwellendämpfung bezogen auf 455 ± 100 kHz

Langzeit-Stabilität der Mittenfrequenz ≤ 0,4 % (10 Jahre)

Temperature range -20... +80°C

\* Ripple in 3 dB bandwidth is 3 dB max.

\* Ripple in 6 dB bandwidth is 6 dB max.

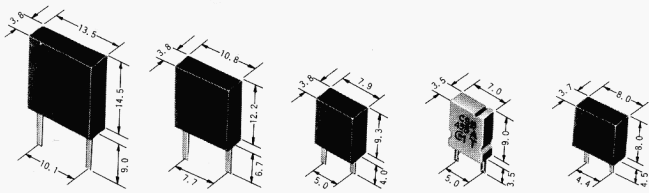
Mode suppression is specified at 455 ± 100 kHz

Long term frequency stability of center frequency ≤ 0,4% (10 years)



CSB

190~250KHz 250~380KHz 380~450KHz 450~500KHz 500~600KHz



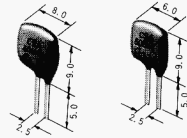
Keramik-Resonatoren

Keramik-Resonatoren eignen sich hervorragend zur Frequenzstabilisation von Oszillatorschaltungen mit guten Eigenschaften bezüglich Temperaturverhalten und Frequenzgenauigkeit. Anwendungsbeispiele: Zeitbasen für Mikroprozessoren, Referenzfrequenz für digitale Signalaufbereitung und Signalspeicher u. a.

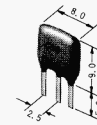
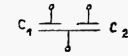
Charakteristik	CSB Serie	CSA Serie
Frequenzbereich	190 - 800 kHz	3 - 30 MHz
Schwingungsart	Flächenschwingung	Dickenschwingung
Frequenzgenauigkeit bei 25°C	± 0,3 % max.	± 0,3 % max.
Temperaturstabilität	± 0,3 % max (± 30 ppm/°C)	± 0,3 % max (± 30 ppm/°C)
Alterung (10 Jahre)	± 0,5 % max.	± 0,5 % max.
Resonanzwiderstand	20 Ω max.	40 Ω max.

CSA

3~7MHz 7~30MHz



CSC

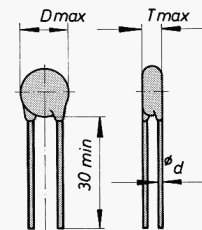


Ceramic resonators

Ceramic resonators are highly suitable for frequency stabilisation of oscillator circuits with good characteristics regarding temperature response and frequency accuracy. Application examples: time bases for microprocessors, reference frequency for digital signal preparation and signal store.

Characteristic	CSB series	CSA series
Frequency range	190 - 800 kHz	3 - 30 MHz
Vibration mode	Area vibration	Thickness vibration
Frequency accuracy at 25°C	± 0,3 % max.	± 0,3 % max.
Temperature stability	± 0,3 % max (± 30 ppm/°C)	± 0,3 % max (± 30 ppm/°C)
Ageing (10 years)	± 0,5 % max.	± 0,5 % max.
Resonant resistance	20 Ω max.	40 Ω max.

4101



PTC-Widerstände für allgemeine Anwendungen

PTC resistors for general applications

Max. Volt.	Typ Type	Widerstand / Resistance (Ω)				U	T	Max. Isp. Inrush current	Abm./Dim. (mm)		
		AR	BD	BG	BM				DØ max.	T min.	d
16 V Series	PTH60	10	10	—	—	—	—	0,5 A	7,4	5,0	0,5
	PTH61	4,7-10	—	—	—	—	—	1,0 A	9,6	5,0	0,65
	PTH62	2,2-6,8	2,2-6,8	—	—	—	—	2,0 A	15,1	5,0	0,65
	PTH63	1,5-4,7	1,5-4,7	—	—	—	—	3,0 A	19,1	5,0	0,65
31,5 V Series	PTH59	—	—	—	220	1,5K-3,3K	—	0,1 A	5,5	4,0	0,5
	PTH60	15-68	15-68	33-47	33-100	330-2,2K	1K-10K	0,5 A	7,4	5,0	0,5
	PTH61	15-33	15-33	22-33	15-47	150-680	470-4,7K	1,0 A	9,6	5,0	0,65
	PTH62	10	10	10-15	10-33	68-470	220-2,2K	2,0 A	15,1	5,0	0,65
	PTH63	6,8	6,8	6,8-10	6,8-22	47-220	150-1K	3,0 A	19,1	5,0	0,65
	PTH81	47-330	47-330	220-330	330-1,5K	3,3K-15K	10K-100K	0,1 A	5,8	5,0	0,5

Die Widerstandswerte sind erhältlich nach der E6-Reihe.

The above resistance values are available acc. to E6 series.

Schalttemperatur (°C):	AE = 260	AN = 150	BE = 70
	AF = 240	AP = 140	BF = 60
	AG = 220	AS = 130	BG = 50
	AH = 200	AR = 120	BH = 40
	AJ = 190	BA = 110	BM = 20
	AK = 180	BB = 100	U = -30
	AL = 170	BC = 90	T = -50
	AM = 160	BD = 80	

Switching temperature (°C):	AE = 260	AN = 150	BE = 70
	AF = 240	AP = 140	BF = 60
	AG = 220	AS = 130	BG = 50
	AH = 200	AR = 120	BH = 40
	AJ = 190	BA = 110	BM = 20
	AK = 180	BB = 100	U = -30
	AL = 170	BC = 90	T = -50
	AM = 160	BD = 80	

Nummernschlüssel:

PTH60	AR	100	M
Typ	Temperaturcharakteristik	Widerstandswert	Widerstandstoleranz

Code:

PTH60	AR	100	M
Type	Temperature characteristic	Resistance value	Resistance tolerance