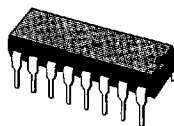


T-64-05

SWITCHED CAPACITOR MASK PROGRAMMABLE FILTER

- 6TH ORDER
- SELECTIVITY FACTOR : $Q = 7$
- GAIN AT CENTER FREQUENCY : 0dB (typ)
- LOW STOPBAND ATTENUATION : 40dB (typ)
- HIGH STOPBAND ATTENUATION : 40dB (typ)
- CLOCK TO CENTER FREQ. RATIO : 48
- CLOCK FREQUENCY RANGE : 1 TO 1200kHz
- CENTER FREQUENCY RANGE : 20.8Hz TO 25kHz

Note : For general characteristics, see TSG85XX specifications. For non standard quality level, consult SGS-THOMSON general ordering information.



P
DIP-16
 (Plastic Package)



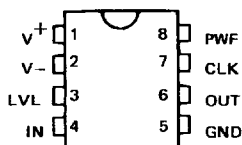
FP
SO-16
 (Plastic Micropackage)



P
DIP-8
 (Plastic Package)

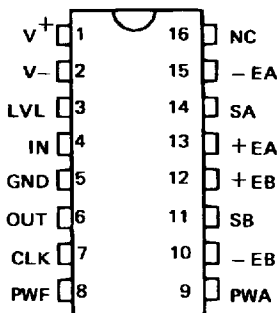
DESCRIPTION

The TSG8550 is a HCMOS Cauer band-pass filter.

PIN CONNECTIONS

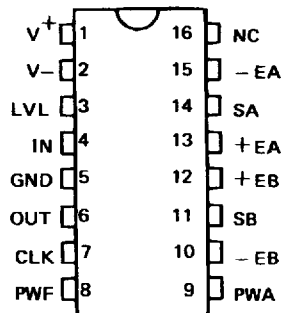
8 pins : FILTER ONLY
 DIP-8 Package

E88TSG8550-01



16 pins : FILTER + 2 OP-AMPS
 DIP-16 Package

E88TSG8550-02

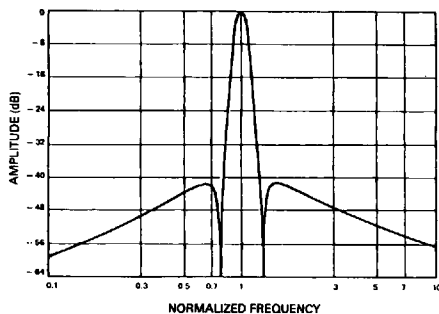


SO-16 Package

E88TSG8550-03

AMPLITUDE RESPONSE CURVE

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E88TSG8550-04

FILTER SPECIFICATIONS

Band-pass Filter : TSG8550 ; Type : CAUER ; Order : 6
 $V^+ = 5V$, $V^- = -5V$, $T = 25^\circ C$, $R_L = 5k\Omega$, $C_L = 100pF$, $I_{PWF} = 50\mu A$

Symbol	Parameter		Typ.	Tested Limits	Unit
Fe	External Clock Frequency		1 1200(*)		kHz (min) kHz (max)
Fi	Internal Sampling Frequency		0.5 600(*)		kHz (min) kHz (max)
Fe/Fo	Clock to Center Frequency Ratio		48 ± 1%		
Fo	Center Frequency		0.0208 25(*)		kHz (min) kHz (max)
Go	Gain at Center Frequency	Typ. Go = -0.2dB for Fe = 48kHz	0	0 - 2	dB (max) dB (min)
F _{lc}	Low Cutoff Frequency	F _{lc} = 0.971 Fo	0.0204 24.5(*)		kHz (min) kHz (max)
F _{hc}	High Cutoff Frequency	F _{hc} = 1.035 Fo	0.0216 25.9(*)		kHz (min) kHz (max)
BW	- 3dB Bandwidth	[0.926 Fo, 1.07 Fo]	0.003 3.15(*)		kHz (min) kHz (max)
Q	Selectivity Coefficient	Q = Fo/BW	7		
A _p	Passband Ripple		0.05	0.3	dB (max)
A _{ls}	Low Stopband Attenuation	F < 0.8 Fo	40.5	40	dB (min)
A _{hs}	High Stopband Attenuation	F > 1.24 Fo	40.5	40	dB (min)
V _{off}	Output DC Offset Voltage	LVL = 0V	± 100	± 200	mV (max)
LG	Level Gain		- 1.7		
LVL	DC Level Adjustment		± 118		mV (max)
R _{PWF}	PWF Resistance		10 72		kΩ (min) kΩ (max)
I _{PWF}	Input Current on PWF		50 250		μA (min) μA (max)

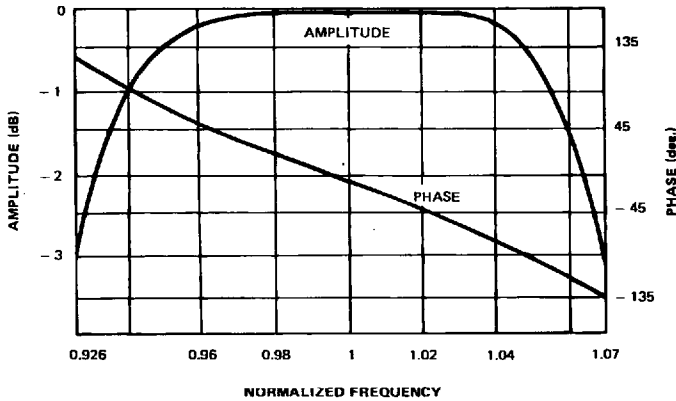
(*) At maximum Fe : - stopband attenuation A_{ls} > 39dB for F < 0.8Fo
 (with I_{PWF} = 250μA) - stopband attenuation A_{hs} > 42dB for F > 1.24Fo
 - passband ripple A_p = 0.3dB
 - Gain at center freq. G_o = -1.5dB
 - -3dB bandwidth BW = 3.15kHz [0.926Fo, 1.052Fo]
 - Selectivity Q = 7.9

FILTER SPECIFICATIONS (continued)

S G S-THOMSON

Symbol	Parameter		Typ.	Tested Limits	Unit
I ⁺	V ⁺ Supply Current	Fe = 48kHz I _{pwa} = 0μA	1.7	5	mA (max)
I ⁻	V ⁻ Supply Current		1.7	5	mA (max)
PSRR ⁺	V ⁺ Supply Rejection Ratio	Fe = 48kHz Fin = 1kHz	9		dB
PSRR ⁻	V ⁻ Supply Rejection Ratio		20		dB
R _{in}	Input Resistance		3		MΩ
C _{in}	Input Capacitance		20		pF
V _o	Output Voltage Swing		+ 3.5 - 4.5		V _{p-p} (max)
V _n	Output Noise	BW = 144kHz C _{PWF} = 33pF Fe = 48kHz V _{in} = 2V _{rms}	272		μV _{rms}
SNR	Signal to Noise Ratio		78		dB

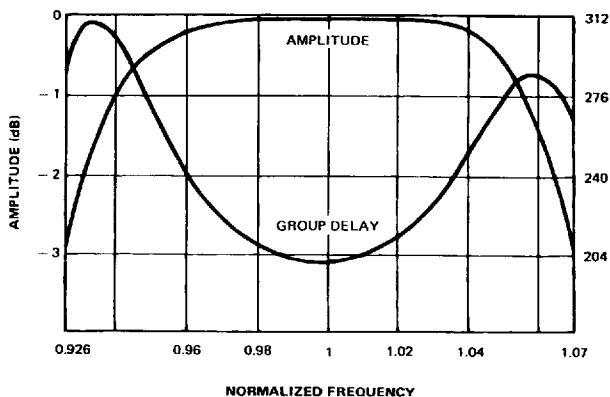
PHASE RESPONSE CURVE (in passband)



E88TSG8550-05

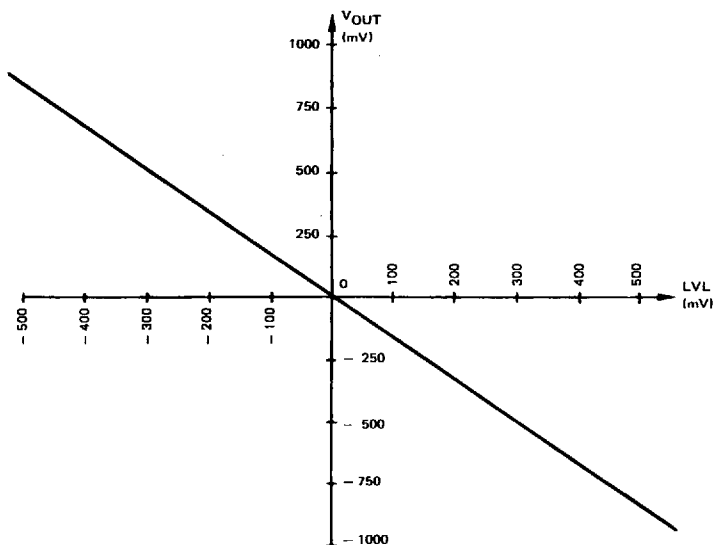
S G S-THOMSON

GROUP DELAY CURVE (in passband)



E88TSG8550-06

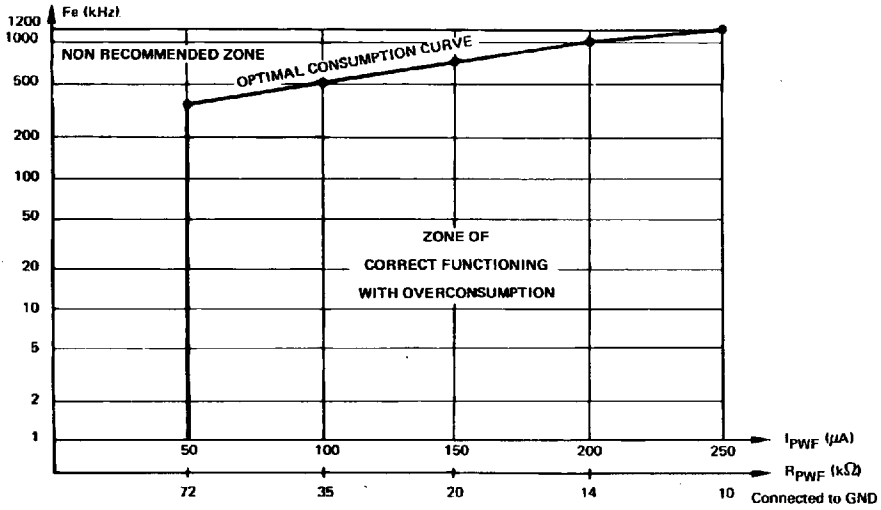
OUTPUT DC VOLTAGE ADJUSTMENT FROM LVL PIN



E88TSG8550-07

USER'S GUIDE FOR I_{PWF} AND R_{PWF} CHOICE

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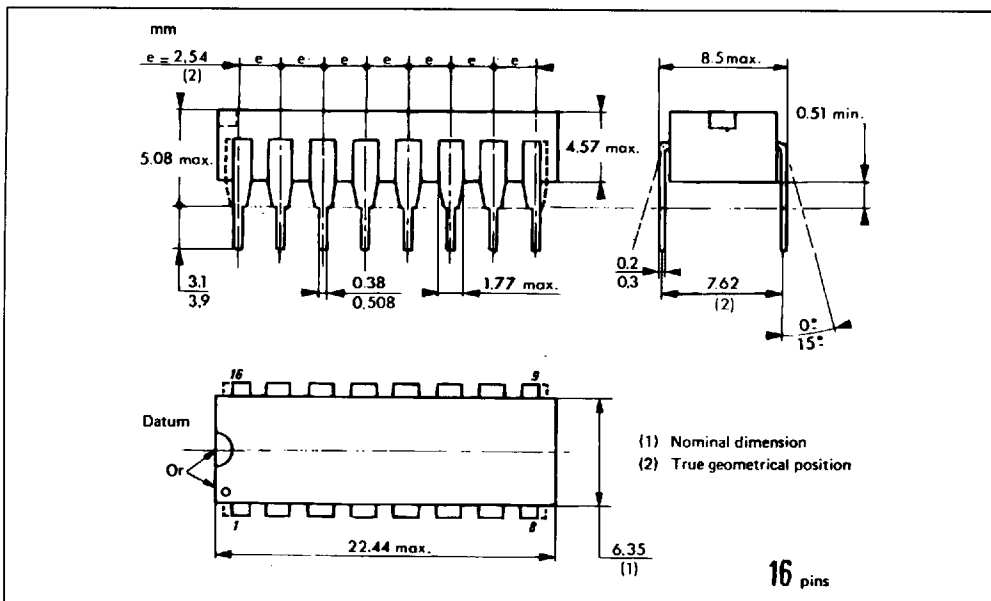


E88TSG8550-08

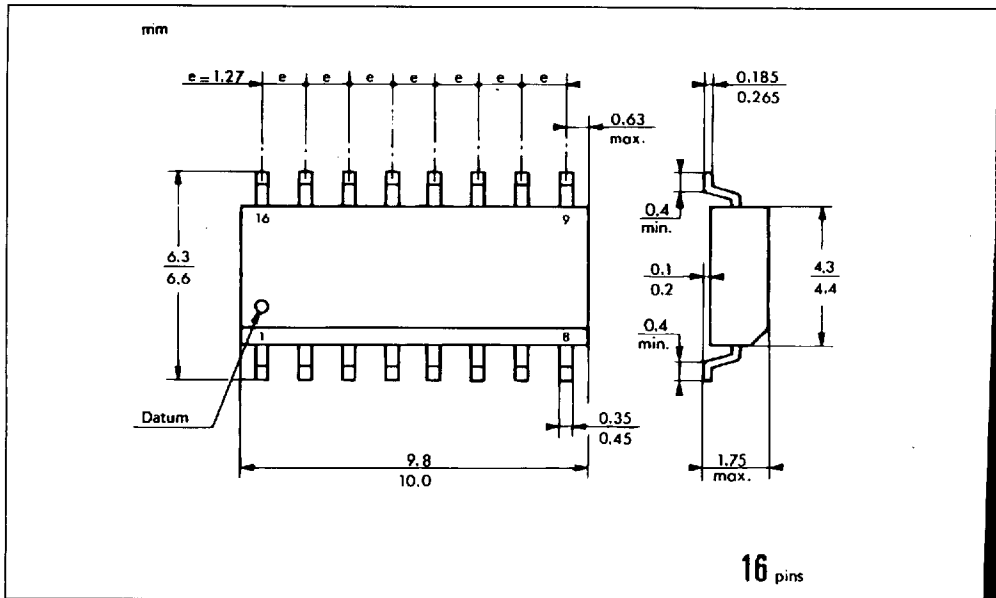
PACKAGE MECHANICAL DATA

S G S-THOMSON

16 PINS - Plastic Dip

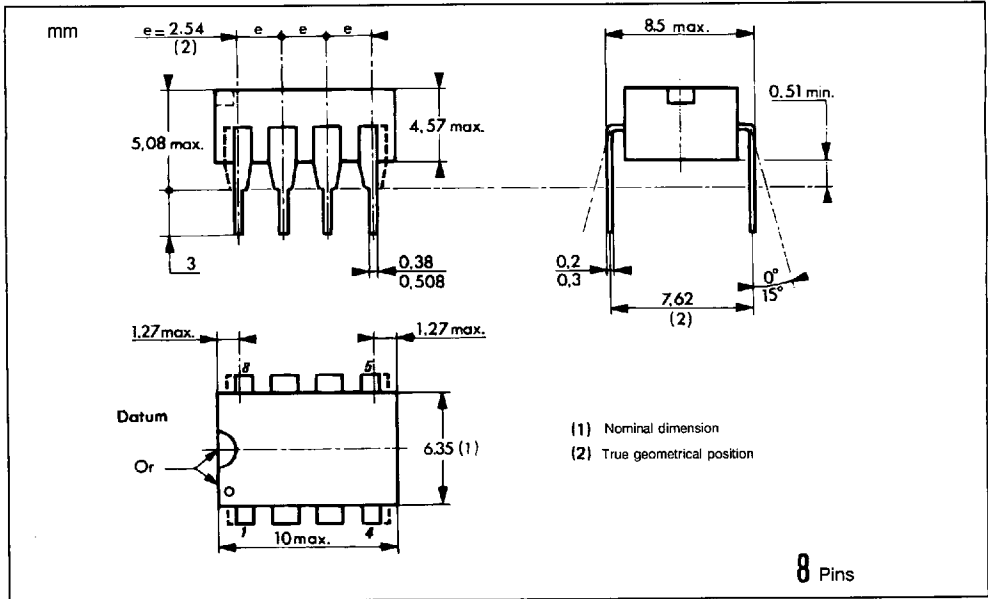


16 PINS - Plastic Micropackage



8 PINS - Plastic Dip

S G S-THOMSON

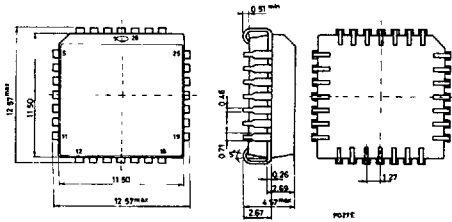
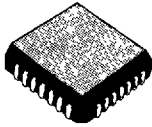


ORDER CODES

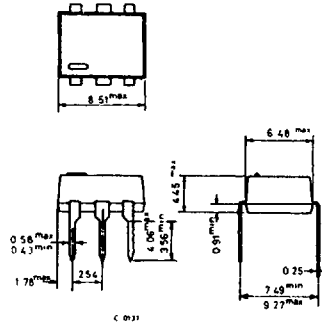
Plastic	16 Pins Package : TSG8550XP
Ceramic	16 Pins Package : TSG8550XC
Cerdip	16 Pins Package : TSG8550XJ
Plastic	8 Pins Package : TSG85501XP

X : Temperature Range = C : 0°C + 70°C
 I : -25°C + 85°C
 V : -40°C + 85°C
 M : -55°C + 125°C

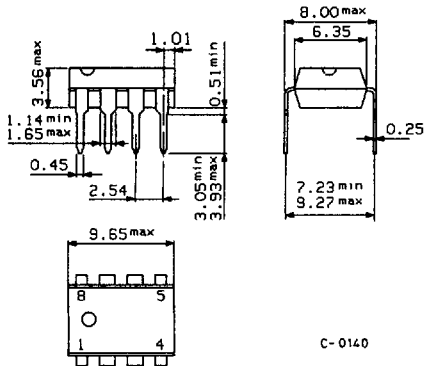
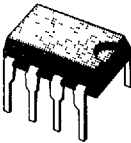
PLCC-28 Plastic Chip Carrier



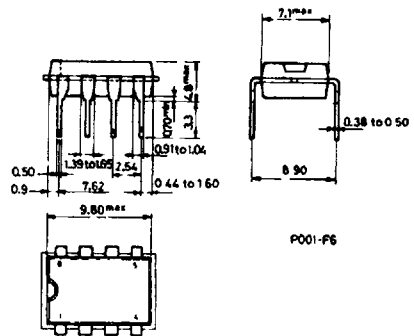
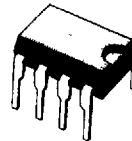
DIP-6



Minidip A Plastic

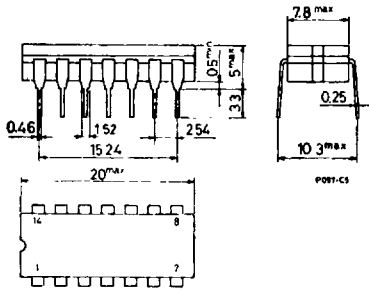
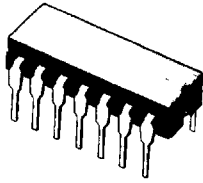


8 lead Plastic Minidip

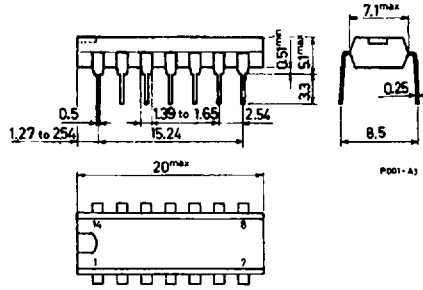
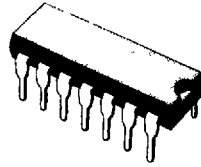


S G S-THOMSON

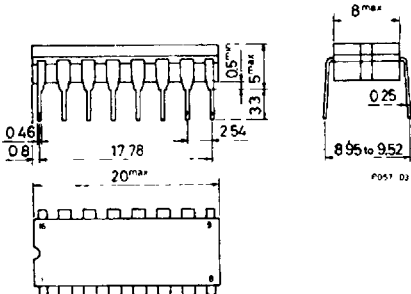
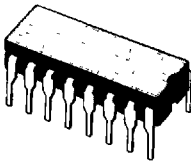
14 lead Ceramic Dip



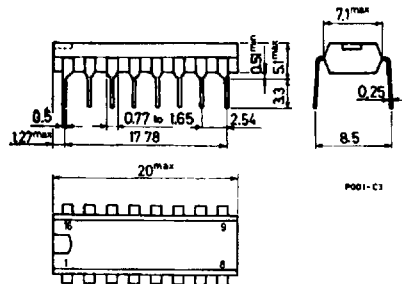
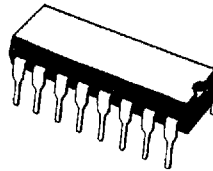
14 lead Plastic Dip



16 lead Ceramic Dip



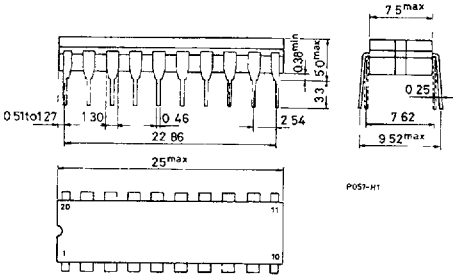
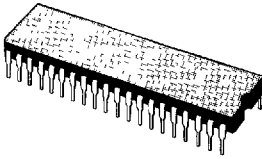
16 lead Plastic Dip (0.25)



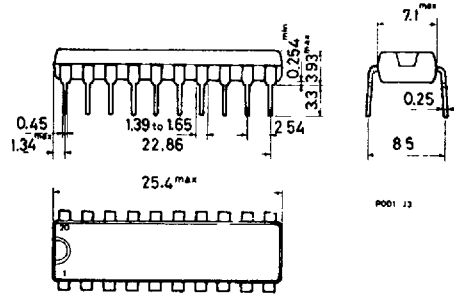
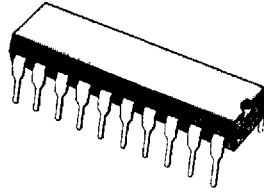
PACKAGES

S G S-THOMSON

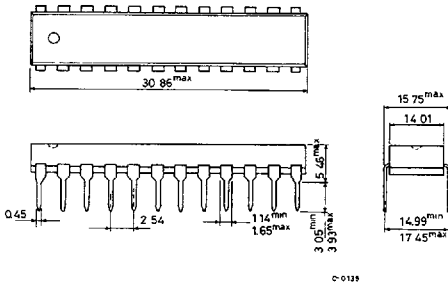
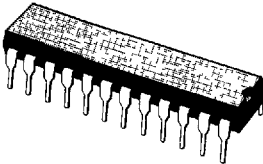
DIP-20 Ceramic



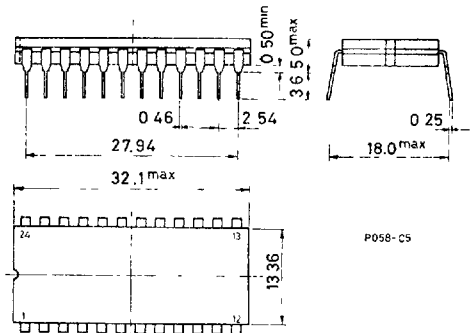
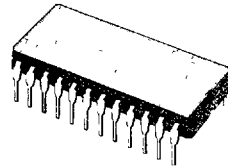
20 lead Plastic Dip (0.25)



DIP-24 Plastic

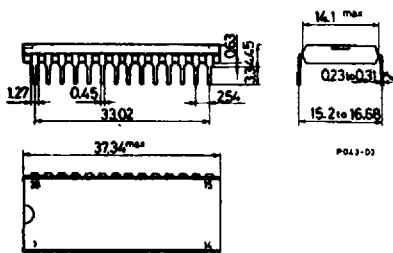
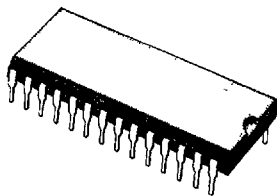


DIP-24 Ceramic (0.25)

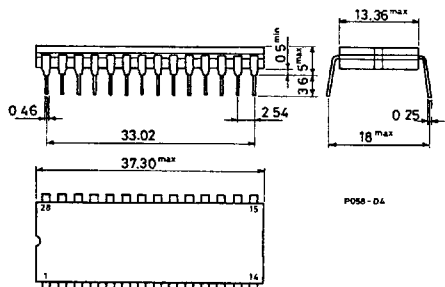
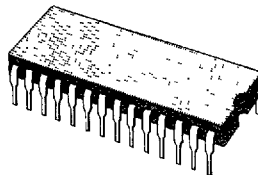


S G S-THOMSON

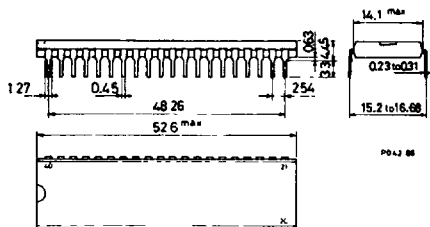
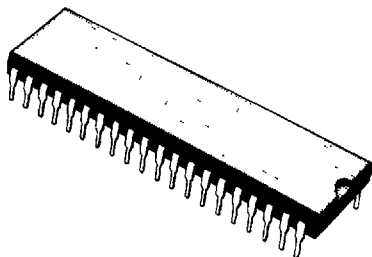
28 lead Plastic Dip



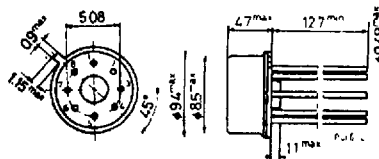
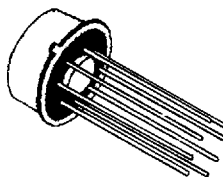
DIP-28 Ceramic (0.25)



40 lead Plastic Dip



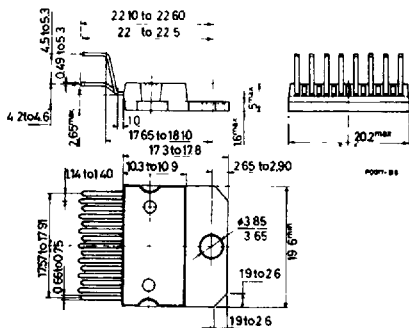
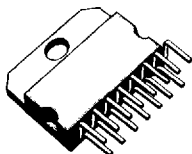
TO-99



PACKAGES

S G S-THOMSON

MULTIWATT-15



FLEXIWATT-15

