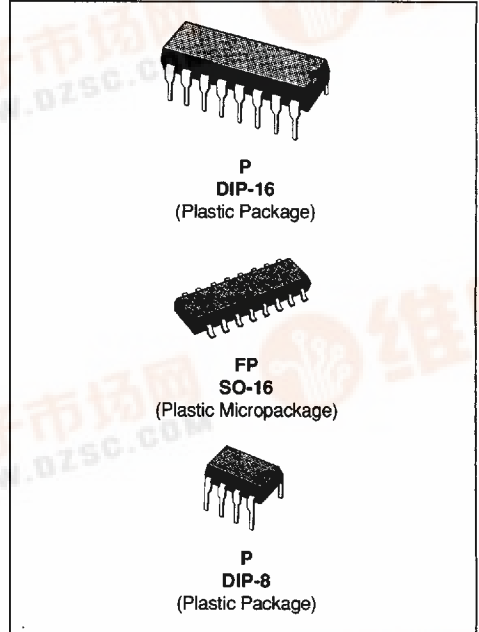




SWITCHED CAPACITOR MASK PROGRAMMABLE FILTER

- CAUER TYPE
- 5TH ORDER
- STOPBAND ATTENUATION : 33dB (typ.)
- PASSBAND RIPPLE : 0.05dB (typ.)
- CLOCK TO CUT-OFF FREQ; RATIO : 75.3
- CLOCK FREQUENCY RANGE : 1 TO 1500kHz
- CUT-OFF FREQUENCY RANGE : 13Hz TO 20kHz

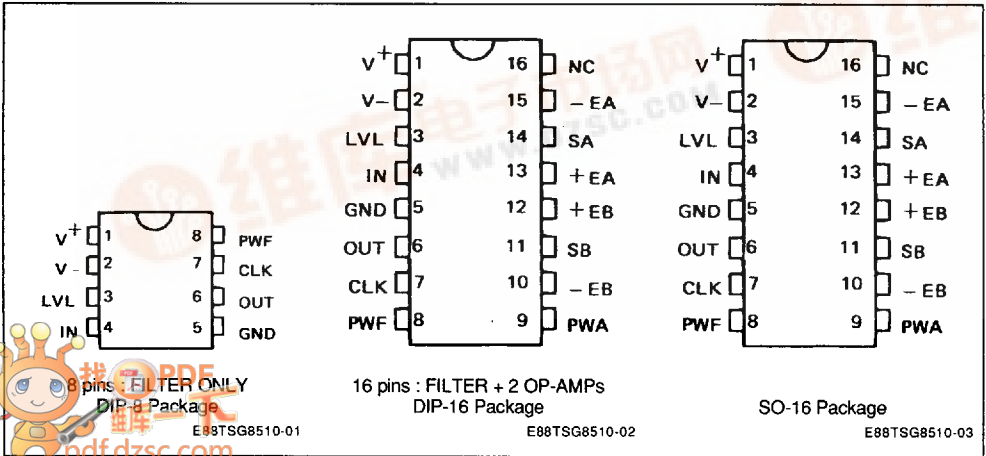
Note : For general characteristics, see TSG85XX specifications. For non standard quality level, consult SGS-THOMSON general ordering information.



DESCRIPTION

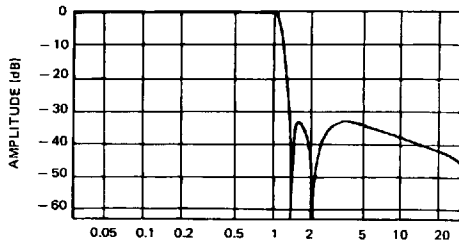
The TSG8510 is a HCMOS lowpass elliptic filter.

PIN CONNECTIONS



AMPLITUDE RESPONSE CURVE

S G S-THOMSON



NORMALIZED FREQUENCY

E88TSG8510-04

FILTER SPECIFICATIONS

Lowpass Filter : TSG8510 ; Type : Cauer ; Order : 5.

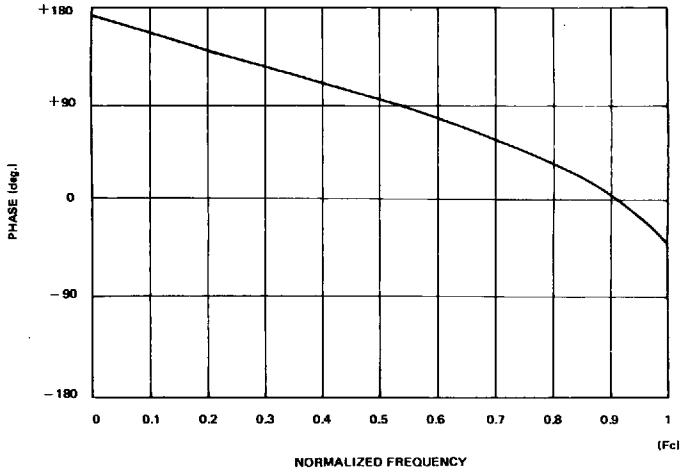
 $V^+ = 5V$, $V^- = -5V$, $T = 25^\circ C$, $R_L = 5k\Omega$, $C_L = 100pF$, $I_{PWF} = 100\mu A$

Symbol	Parameter		Typ.	Tested Limits	Unit
F_e	External Clock Frequency		1 1500(*)		kHz (min) kHz (max)
F_i	Internal Sampling Frequency		0.5 750(*)		kHz (min) kHz (max)
F_e/F_c	Clock to Cutoff fr. Ratio		75.3 \pm 1%		
F_c	Cutoff Frequency		0.013 20(*)		kHz (min) kHz (max)
G_o	Passband Gain		- 0.3 0		dB (min) dB (max)
A_p	Passband Ripple	$F_e = 256kHz$	0.05	0.4	dB (max)
A_s	Stopband Attenuation	$F_e = 256kHz$ $F > 1.37 F_c$	33	32	dB (min)
V_{off}	Output DC Offset Voltage	$LVL = 0V$	± 100	± 200	mV (max)
LVL	DC Level Adjustment		± 60		mV
LG	Level gain		3.3		
R_{PWF}	PWF Resistance		10 72		k Ω (min) k Ω (max)
I_{PWF}	Input Current on PWF		50 250		μA (min) μA (max)
I^+	V^+ Supply Current	$F_e = 100kHz$ $I_{pwa} = 0\mu A$	3	5	mA (max)
I^-	V^- Supply Current		3	5	mA (max)
PSRR ⁺	V^+ Supply Rejection Ratio	$F_e = 256kHz$ $F_{in} = 1kHz$	35		dB
PSRR ⁻	V^- Supply Rejection Ratio		55		dB
R_{IN}	Input Resistance		3		M Ω
C_{IN}	Input Capacitance		20		pF
V_o	Output Voltage Swing		+ 3.5 - 4.5		Vp - p (max)
V_n	Output Noise	BW = 3.4kHz $F_e = 256kHz$ $V_{in} = 2V_{rms}$	89		μV_{rms}
SNR	Signal to Noise Ratio		87		dB

(*) At maximum F_e : - stopband attenuation $A_s > 32dB$ for $F > 1.37F_c$ (with $I_{pwr} = 250\mu A$) - passband ripple : $A_p = 0.8dB$ - passband gain : $G_o = -0.4dB$

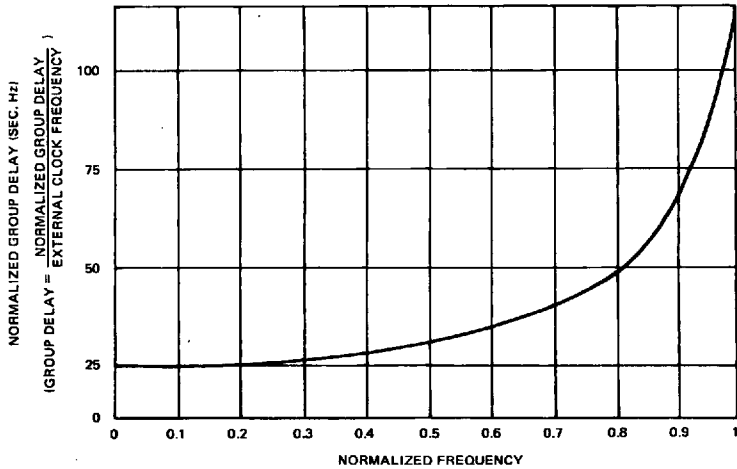
PHASE RESPONSE CURVE (in passband)

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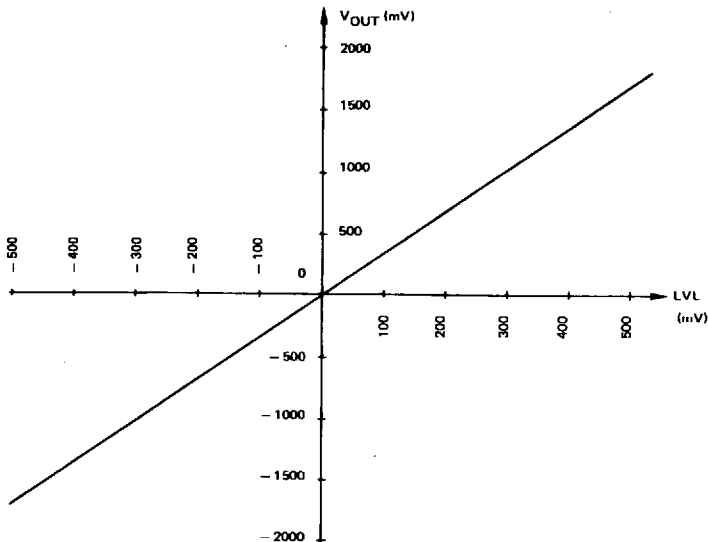
E88TSG8510-05

GROUP DELAY CURVE (in passband)



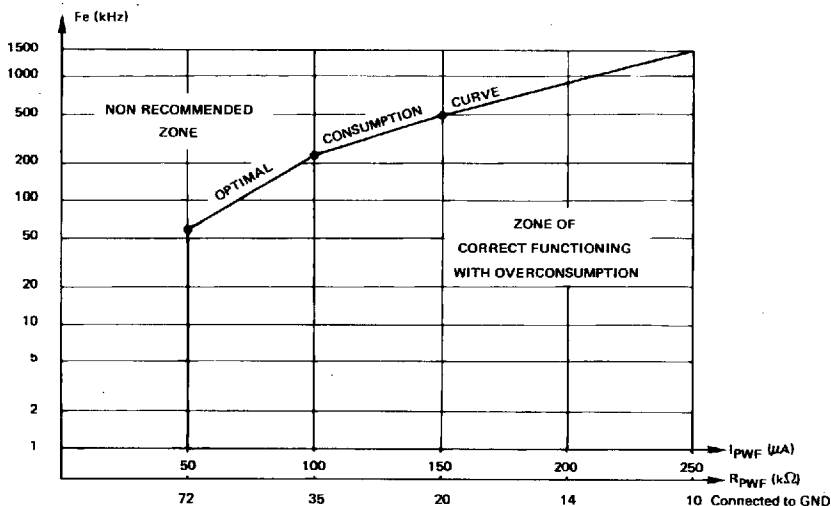
E88TSG8510-06

OUTPUT DC VOLTAGE ADJUSTMENT FROM LVL PIN



E88TSG8510-07

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

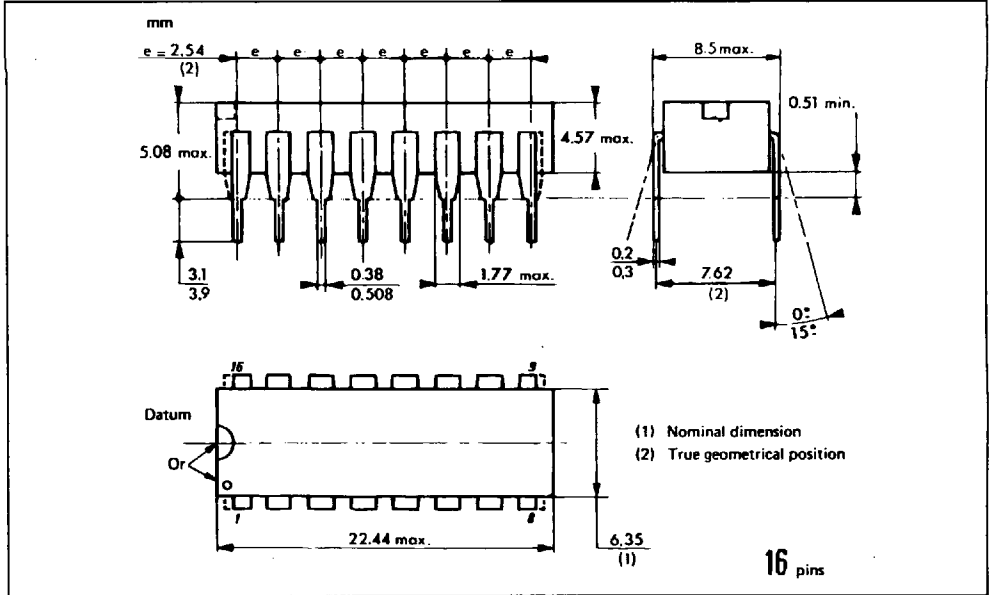


E88TSG8510-08

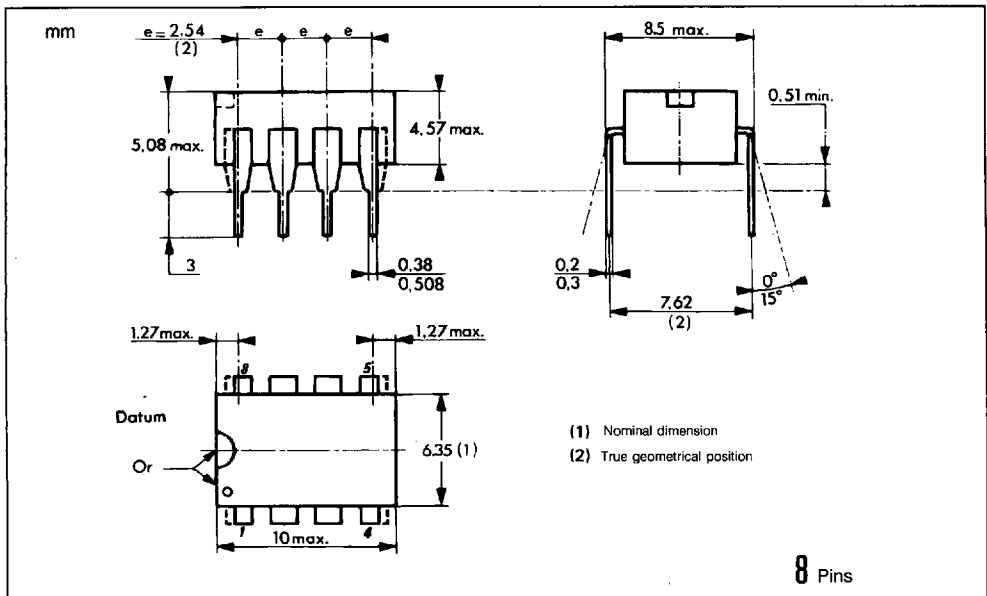
S G S-THOMSON

PACKAGE MECHANICAL DATA

16 PINS - Plastic Dip



8 PINS - Plastic Dip

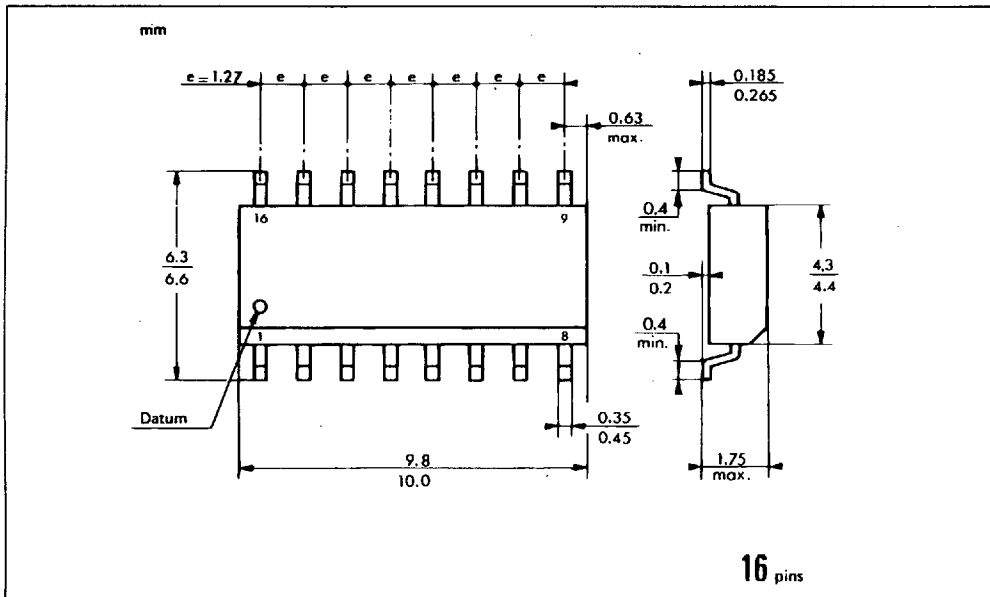


TSG8510

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16 PINS - Plastic Micropackage

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16 pins

ORDER CODES

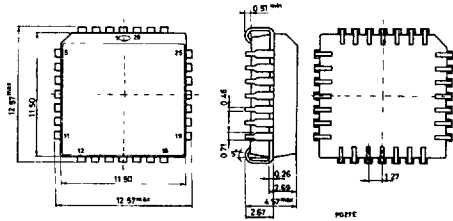
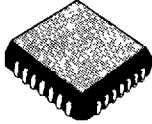
Plastic	16 Pins Package : TSG8510XP
Ceramic	16 Pins Package : TSG8510XC
Cerdip	16 Pins Package : TSG8510XJ
Plastic	8 Pins Package : TSG85101XP

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

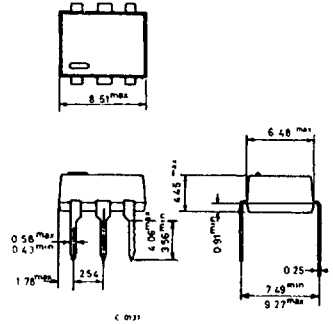
PACKAGES

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S G S-THOMSON

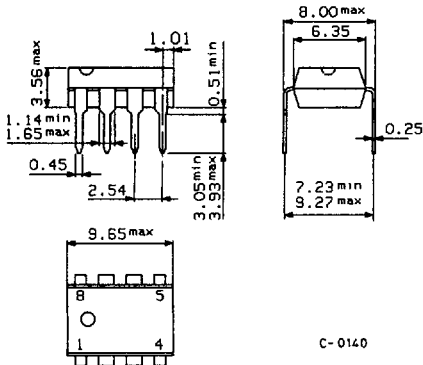
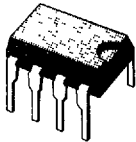
PLCC-28 Plastic Chip Carrier



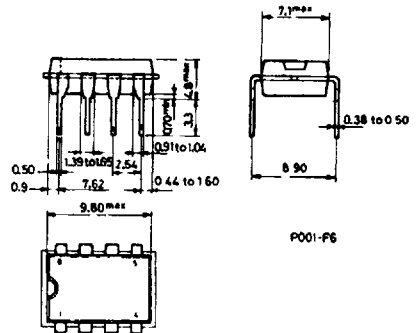
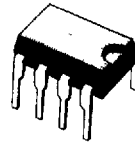
DIP-6



Minidip A Plastic

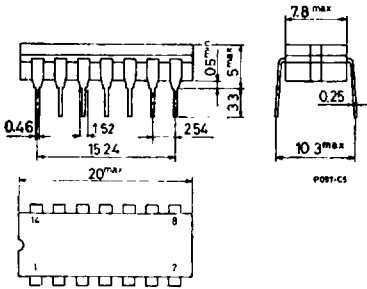
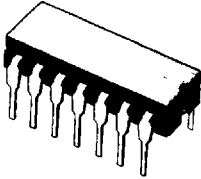


8 lead Plastic Minidip

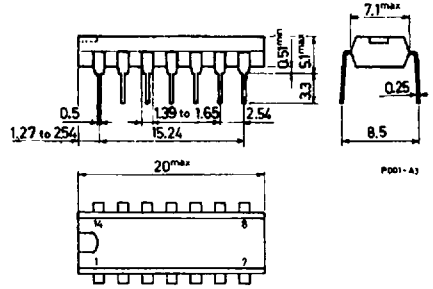
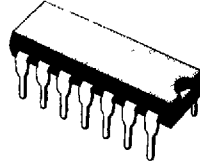


S G S-THOMSON

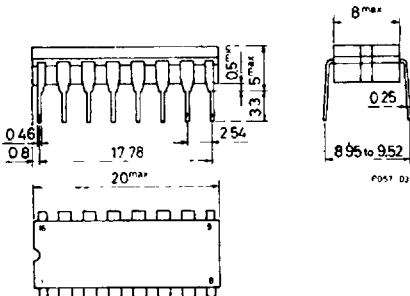
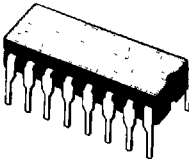
14 lead Ceramic Dip



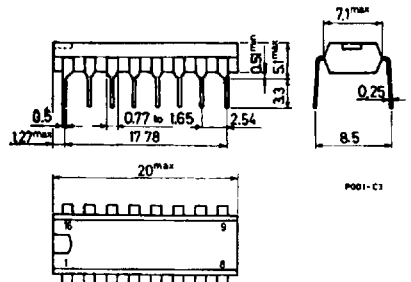
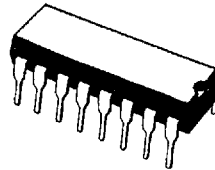
14 lead Plastic Dip



16 lead Ceramic Dip



16 lead Plastic Dip (0.25)

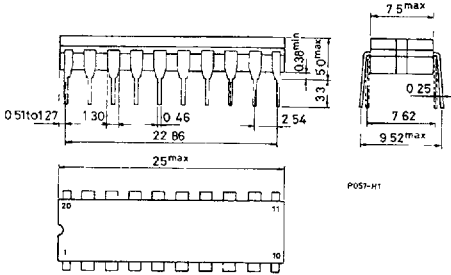
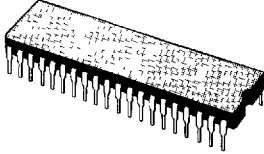


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PACKAGES

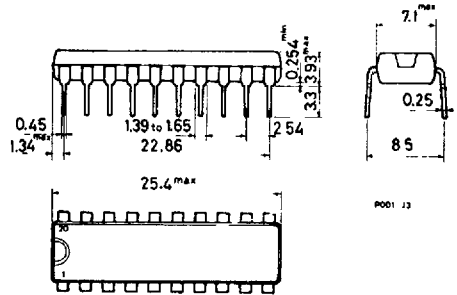
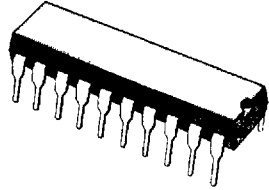
S G S-THOMSON

DIP-20 Ceramic



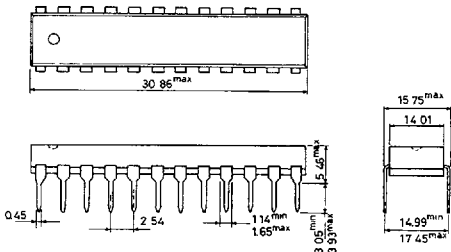
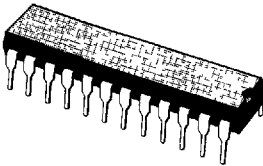
POST-HI

20 lead Plastic Dip (0.25)



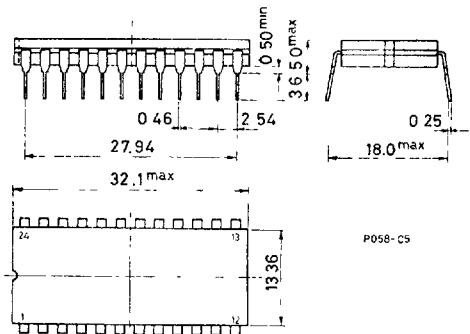
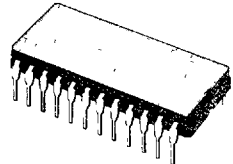
P001 J3

DIP-24 Plastic



C-0123

DIP-24 Ceramic (0.25)



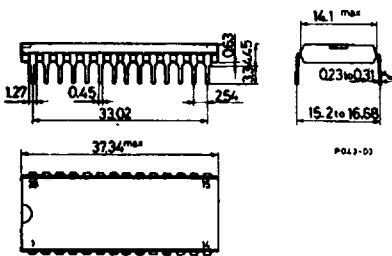
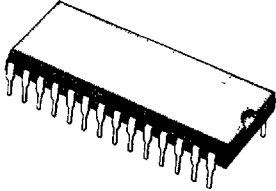
P058-C5

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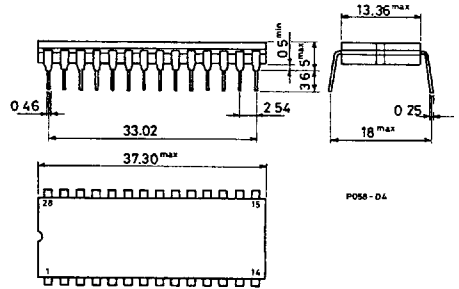
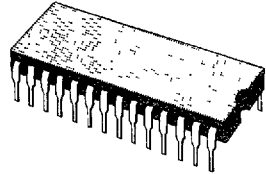
PACKAGES

S G S-THOMSON

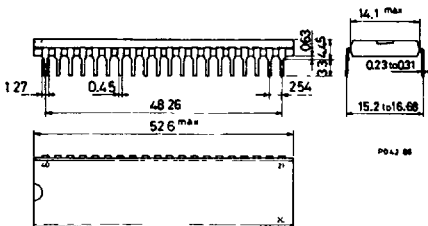
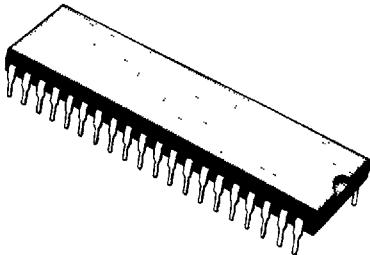
28 lead Plastic Dip



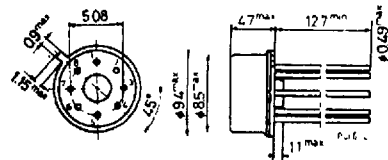
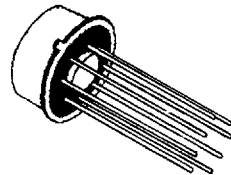
DIP-28 Ceramic (0.25)



40 lead Plastic Dip



TO-99

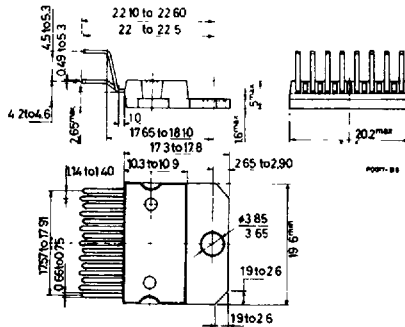
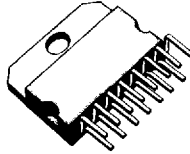


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PACKAGES

S G S-THOMSON

MULTIWATT-15



FLEXIWATT-15

