


SGS-THOMSON
 MICROELECTRONICS

S G S-THOMSON

TSG8514**T-64-05**

SWITCHED CAPACITOR MASK PROGRAMMABLE FILTER

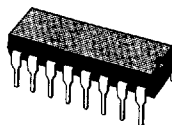
- BUTTERWORTH TYPE
- 8TH ORDER
- STOPBAND ATTENUATION : 74dB (typ) AT $3.6 \times F_c$
- PASSBAND RIPPLE : MAXIMALLY FLAT
- CLOCK TO CUT-OFF FREQ. RATIO : 80
- CLOCK FREQUENCY RANGE : 1 TO 1000kHz
- CUT-OFF FREQUENCY RANGE : 12.5Hz TO 12.5kHz

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

DESCRIPTION

The TSG8514 is a HCMOS lowpass polynomial filter.

PIN CONNECTIONS



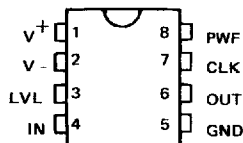
P
DIP-16
(Plastic Package)



FP
SO-16
(Plastic Micropackage)

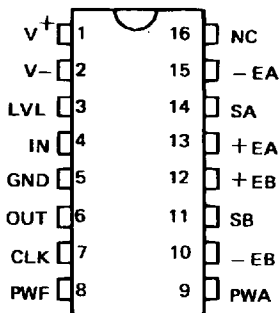


P
DIP-8
(Plastic Package)



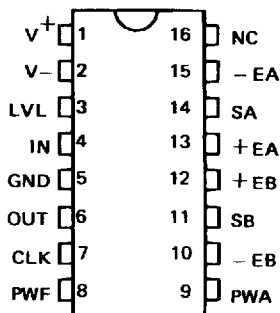
8 pins : FILTER ONLY
DIP-8 Package

E88TSG8514-01



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

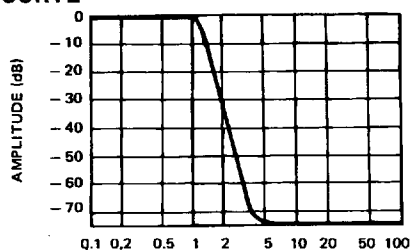
E88TSG8514-02



SO-16 Package

E88TSG8514-03

AMPLITUDE RESPONSE CURVE



NORMALIZED FREQUENCY

E88TSG8514-04

FILTER SPECIFICATIONS

Lowpass Filter : TSG8514 ; Type : Butterworth ; Order : 8.

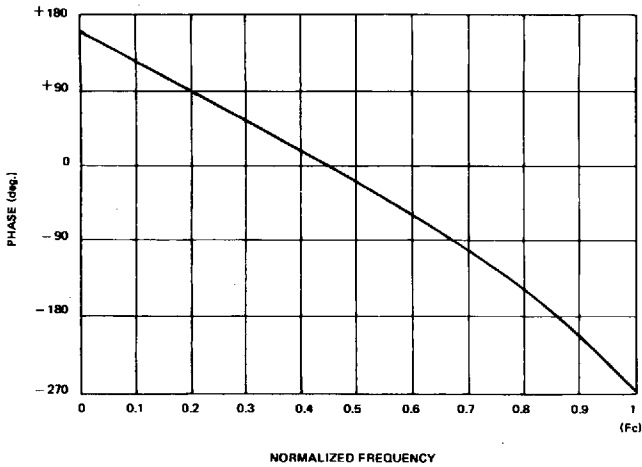
 $V^+ = 5V$, $V^- = -5V$, $T = 25^\circ C$, $R_L = 5k\Omega$, $C_L = 100pF$, $I_{PWF} = 100\mu A$

Symbol	Parameter		Typ.	Tested Limits	Unit
Fe	External Clock Frequency		1 1000(*)		kHz (min) kHz (max)
Fi	Internal Sampling Freq.		0.5 500(*)		kHz (min) kHz (max)
Fe/Fc	Clock to Cutoff fr. Ratio		80 ± 1%		
Fc	Cutoff Frequency		0.0125 12.5(*)		kHz (min) kHz (max)
G _o	Passband Gain		- 0.3 0		dB (min) dB (max)
Ap	Passband Ripple	Fe = 80kHz	maxi mally Flat		dB (max)
As	Stopband Attenuation	Fe = 80kHz F > 3.6 Fc	74	68	dB (min)
Voff	Output DC Offset Voltage	LVL = 0V	± 100	± 200	mV (max)
LVL	DC Level Adjustment		± 100		mV
LG	Level gain		- 2		
R _{PWF}	PWF Resistance		10 72		kΩ (min) kΩ (max)
I _{PWF}	Input Current on PWF		50 250		μA (min) μA (max)
I ⁺	V ⁺ Supply Current	Fe = 100kHz I _{pwa} = 0μA	3.8	5	mA (max)
I ⁻	V ⁻ Supply Current		3.8	5	mA (max)
PSRR ⁺	V ⁺ Supply Rejection Ratio	Fe = 160kHz Fin = 1kHz	30		dB
PSRR ⁻	V ⁻ Supply Rejection Ratio		42		dB
R _{IN}	Input Resistance		3		MΩ
C _{IN}	Input Capacitance		20		pF
Vo	Output Voltage Swing		+ 3.5 - 4.5		Vp-p (max)
Vn	Output Noise	BW = 3.4kHz Fe = 256kHz Vin = 2Vrms	86		μVrms
SNR	Signal to Noise Ratio		87		dB

(*) At maximum Fe : - stopband attenuation As > 50dB for F > 3.6Fc
 (with I_{pwi} = 250 μA) - passband gain : G_o = - 0.5dB

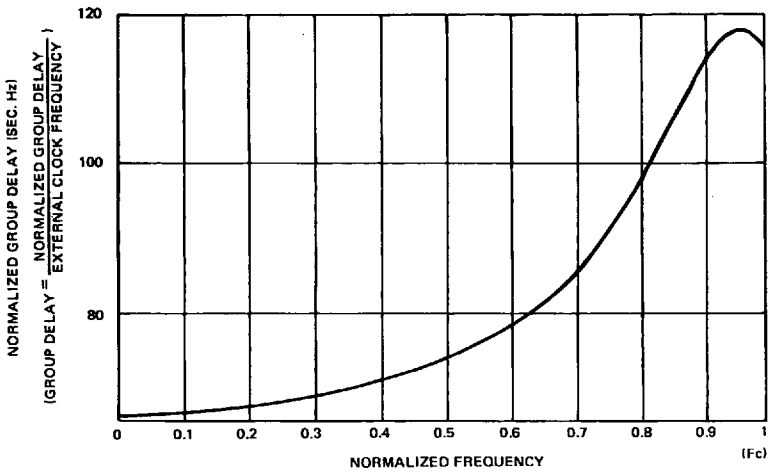
PHASE RESPONSE CURVE (in passband)

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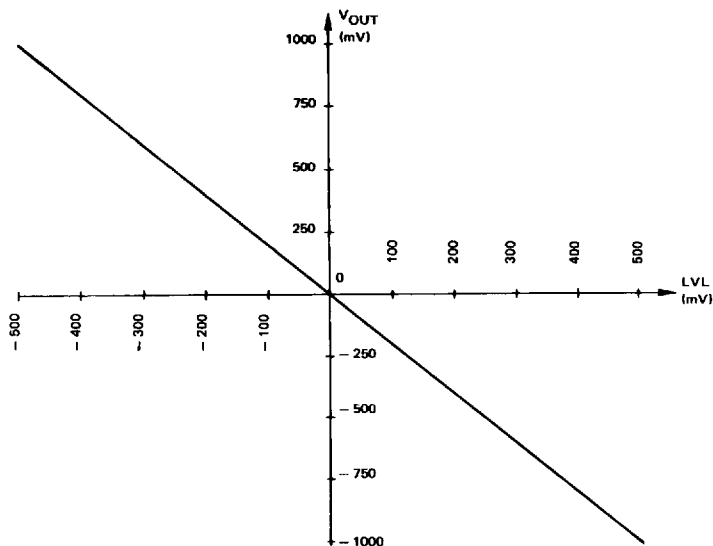
E88TSG8514-05

GROUP DELAY CURVE (in passband)

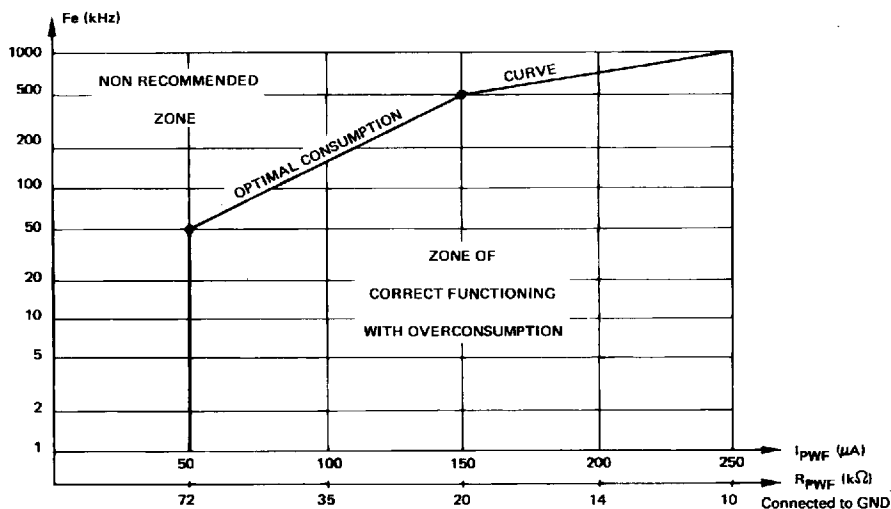


E88TSG8514-06

OUTPUT DC VOLTAGE ADJUSTMENT FROM LVL PIN S G S-THOMSON



E88TSG8514-07

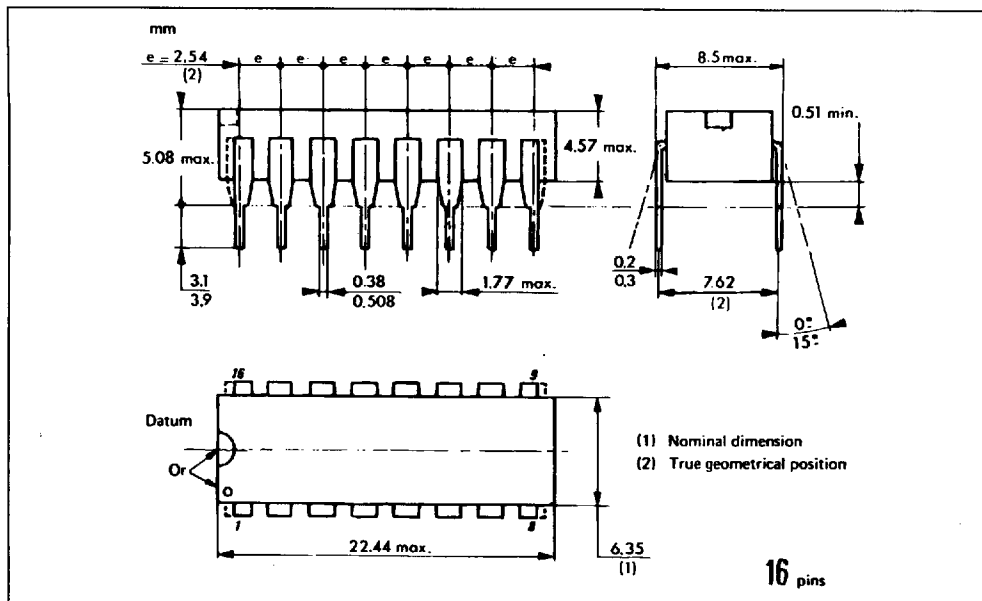
USER'S GUIDE FOR I_{PWF} AND R_{PWF} CHOICE

E88TSG8514-08

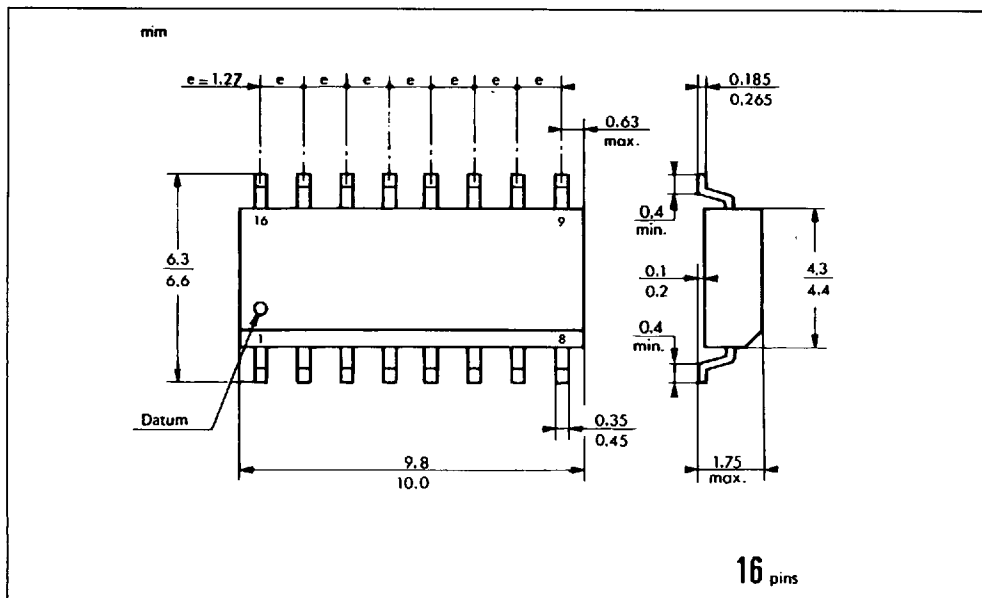
PACKAGE MECHANICAL DATA

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16 PINS - Plastic Dip

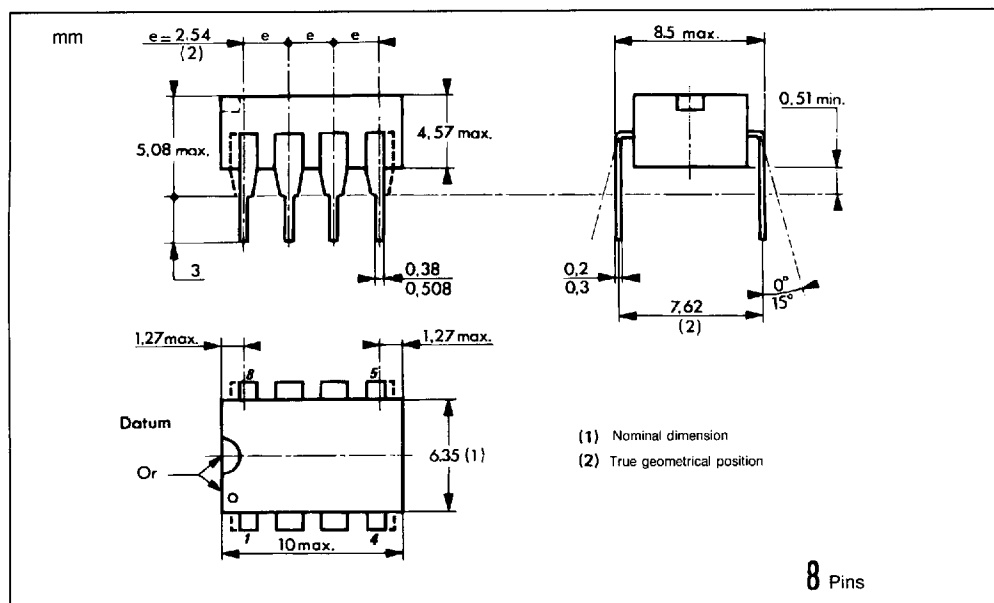


16 PINS - Plastic Micropackage



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8 PINS - Plastic Dip



ORDER CODES

Plastic	16 Pins Package : TSG8514XP
Ceramic	16 Pins Package : TSG8514XC
Cerdip	16 Pins Package : TSG8514XJ
Plastic	8 Pins Package : TSG85141XP

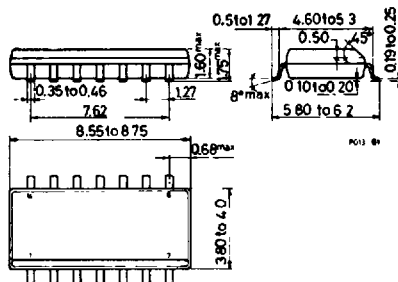
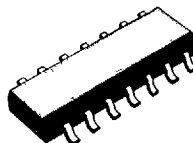
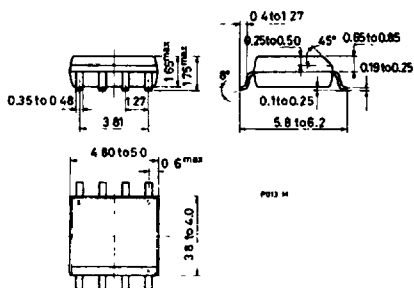
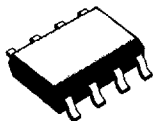
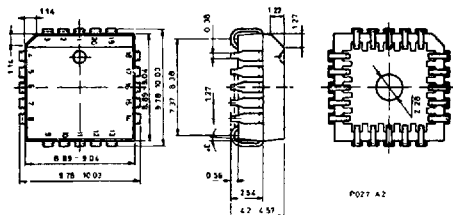
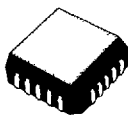
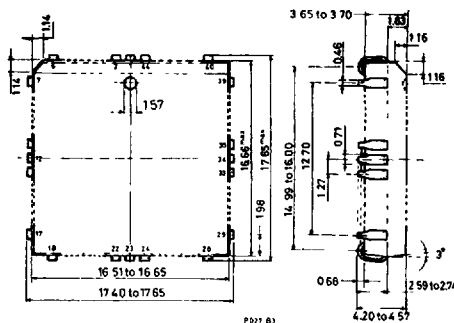
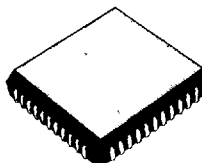
X : Temperature Range = C : $0^\circ\text{C} + 70^\circ\text{C}$
 I : $-25^\circ\text{C} + 85^\circ\text{C}$
 V : $-40^\circ\text{C} + 85^\circ\text{C}$
 M : $-55^\circ\text{C} + 125^\circ\text{C}$

SO-8J

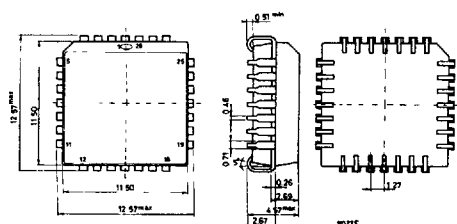
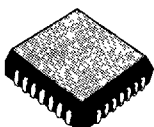
SO-14J

T-90-20

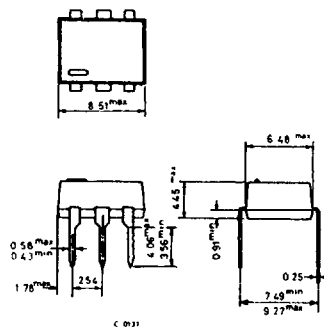
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**PLCC20****PLCC44**

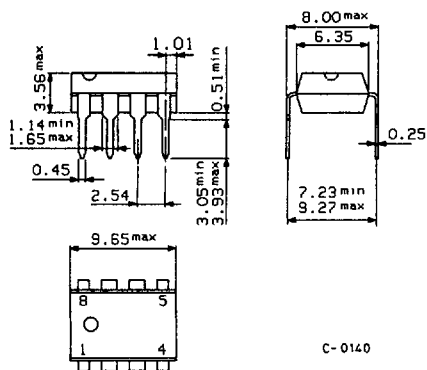
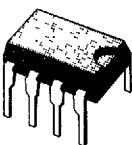
PLCC-28 Plastic Chip Carrier



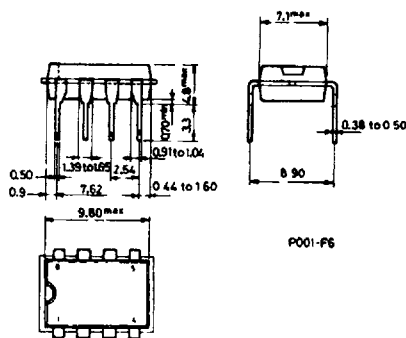
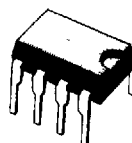
DIP-6



Minidip A Plastic

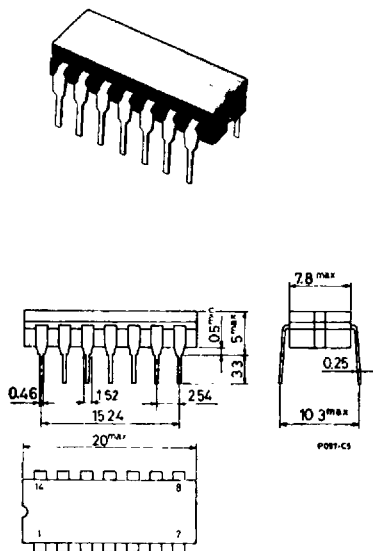


8 lead Plastic Minidip

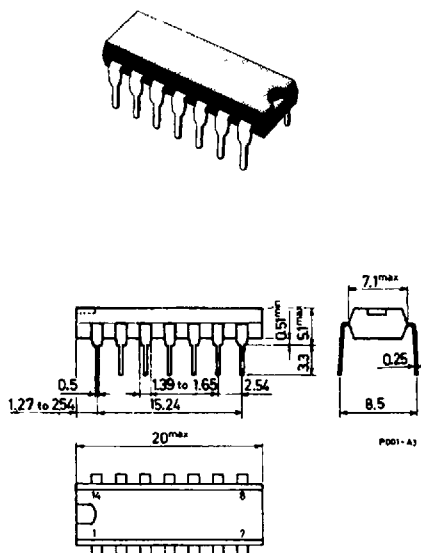


S G S-THOMSON

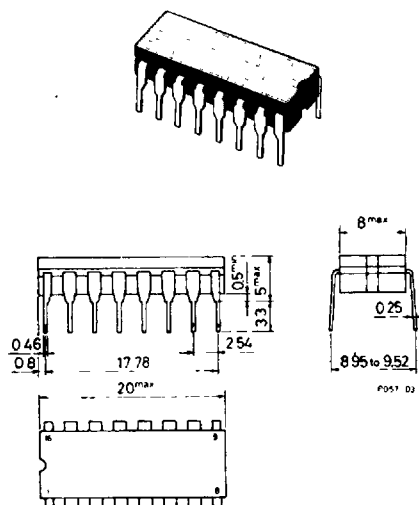
14 lead Ceramic Dip



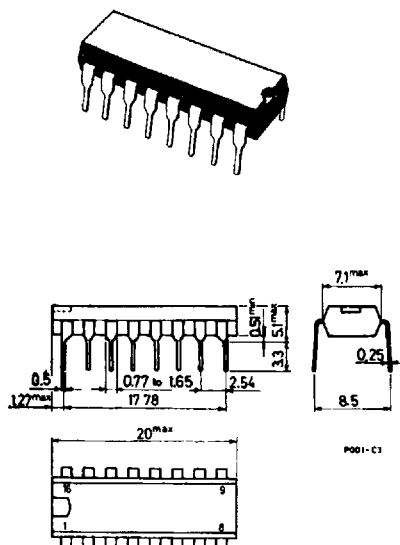
14 lead Plastic Dip



16 lead Ceramic Dip



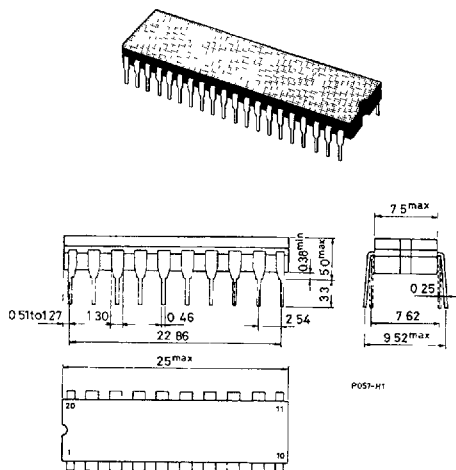
16 lead Plastic Dip (0.25)



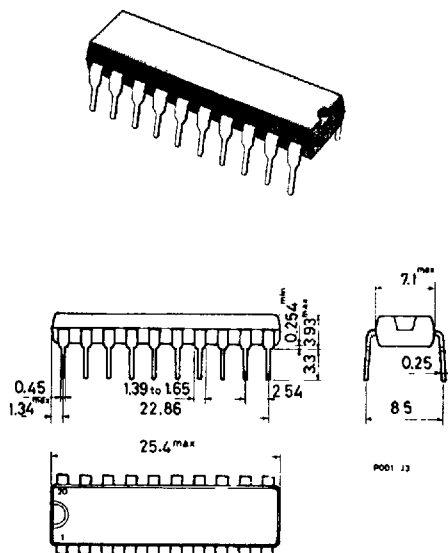
PACKAGES

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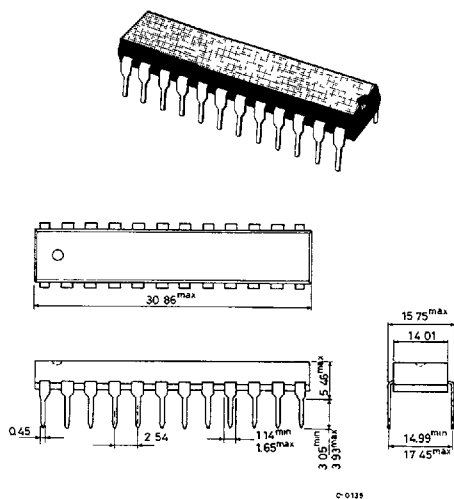
DIP-20 Ceramic



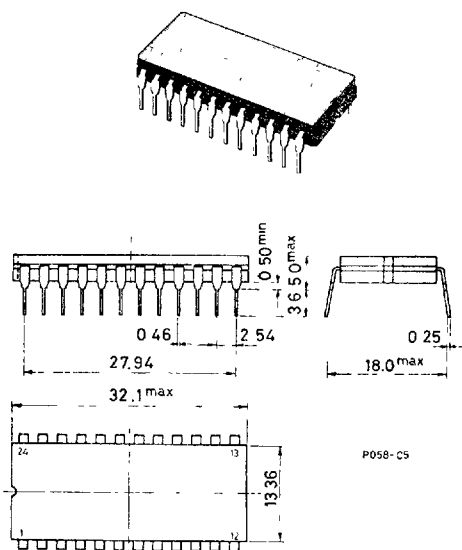
20 lead Plastic Dip (0.25)



DIP-24 Plastic

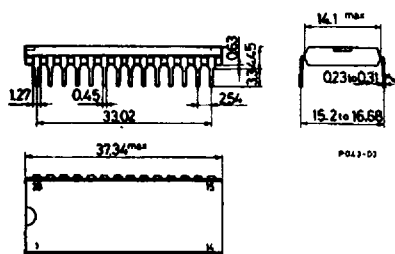
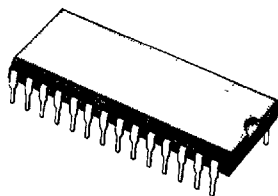


DIP-24 Ceramic (0.25)

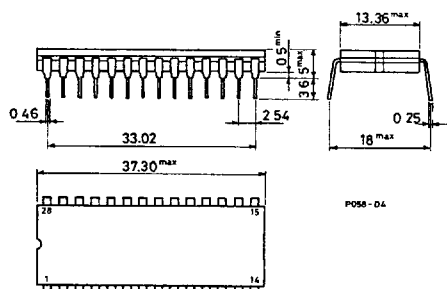
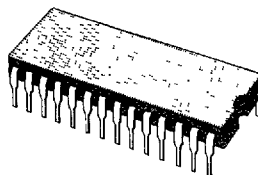


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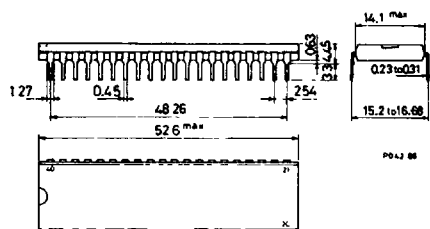
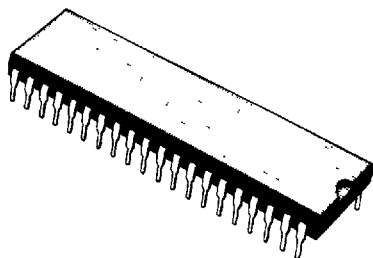
28 lead Plastic Dip



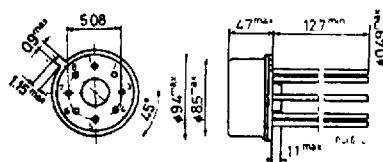
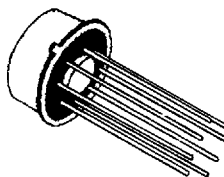
DIP-28 Ceramic (0.25)



40 lead Plastic Dip



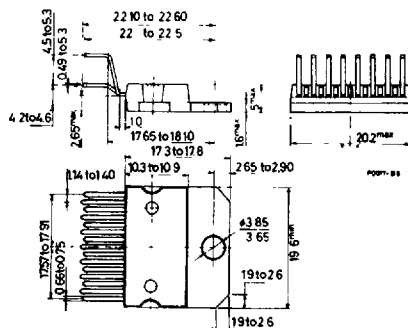
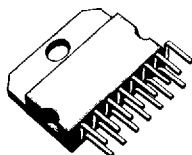
TO-99



PACKAGES

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MULTIWATT-15



FLEXIWATT-15

