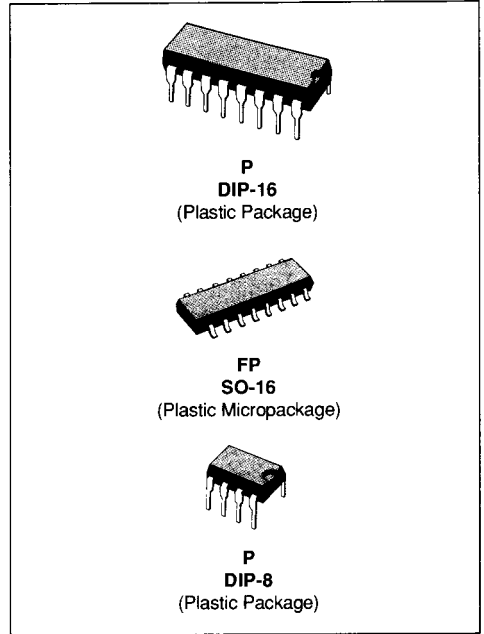


## SWITCHED CAPACITOR MASK PROGRAMMABLE FILTER

- CAUER TYPE
- 7TH ORDER
- STOPBAND ATTENUATION : 85dB (typ)
- PASSBAND RIPPLE : 0.15dB (typ)
- CLOCK TO CUT-OFF FREQ. RATIO : 100
- CLOCK FREQUENCY RANGE : 1 TO 2000kHz
- CUT-OFF FREQUENCY RANGE : 10Hz TO 20kHz

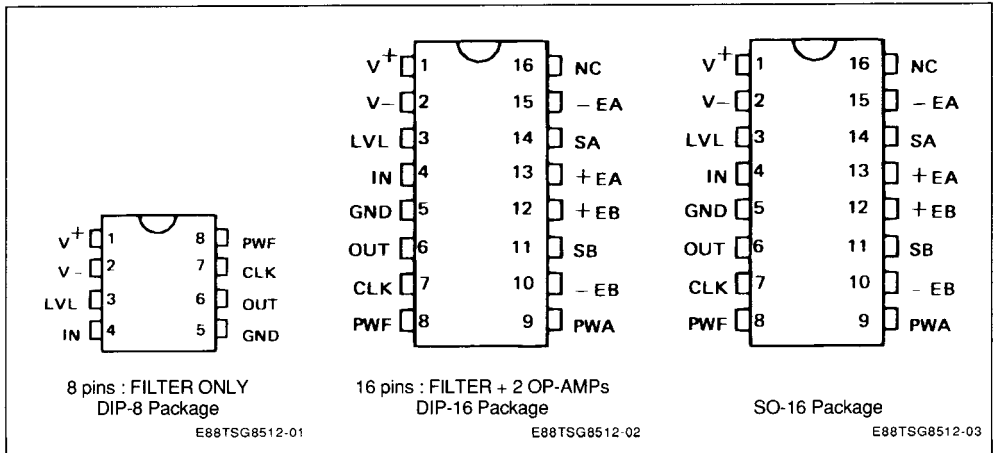
**Note :** For general characteristics, see TSG85XX specifications. For non standard quality level, consult SGS-THOMSON general ordering information.



### DESCRIPTION

The TSG8512 is a HCMOS lowpass elliptic filter.

### PIN CONNECTIONS



**AMPLITUDE RESPONSE CURVE**



NORMALIZED FREQUENCY

EBBTSG8512-04

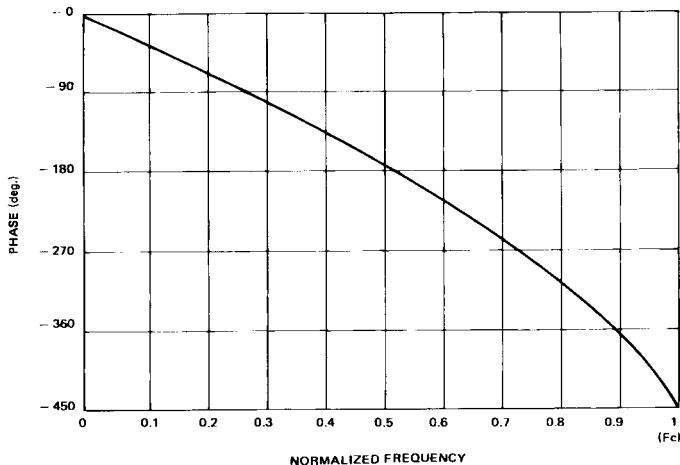
**FILTER SPECIFICATIONS**

Lowpass Filter : TSG8512 ; Type : Cauer ; Order : 7.  
 $V^+ = 5V$ ,  $V^- = -5V$ ,  $T = 25^\circ C$ ,  $R_L = 5k\Omega$ ,  $C_L = 100pF$ ,  $I_{PWF} = 100\mu A$

Symbol	Parameter		Typ.	Tested Limits	Unit
Fe	External Clock Freq.		1 2000(*)		kHz (min) kHz (max)
Fi	Internal Sampling Freq.		0.5 1000(*)		kHz (min) kHz (max)
Fe/Fc	Clock to Cutoff fr. Ratio		100 ± 1%		
Fc	Cutoff Frequency		0.010 20(*)		kHz (min) kHz (max)
Go	Passband Gain		- 0.3 0		dB (min) dB (max)
Ap	Passband Ripple	Fe = 100kHz	0.15	0.5	dB (max)
As	Stopband Attenuation	Fe = 100kHz F > 1.8Fc	85	75	dB (min)
Voff	Output DC Offset Voltage		± 150	± 250	mV (max)
LVL	DC Level Adjustment		± 22.5		mV
LG	Level gain		- 11.1		
RPWF	PWF Resistance		10 72		kΩ (min) kΩ (max)
IPWF	Input Current on PWF		50 250		μA (min) μA (max)
I+	V+ Supply Current	Fe = 100kHz I <sub>pwa</sub> = 0μA	3.5	5	mA (max)
I-	V- Supply Current		3.5	5	mA (max)
PSRR+	V+ Supply Rejection Ratio	Fe = 200kHz Fin = 1kHz	20		dB
PSRR-	V- Supply Rejection Ratio		35		dB
RIN	Input Resistance		3		MΩ
CIN	Input Capacitance		20		pF
Vo	Output Voltage Swing		+ 3.5 - 4.5		Vp-p (max)
Vn	Output Noise		112		μVrms
SNR	Signal to Noise Ratio	BW = 1kHz Fe = 100kHz Vin = 2Vrms		85	

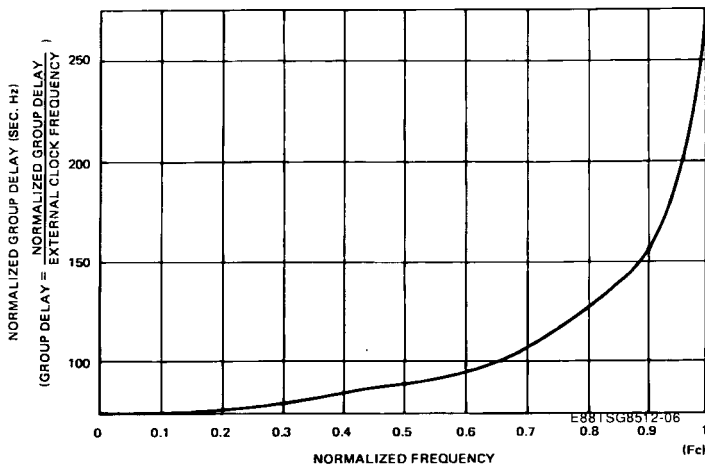
(\*) At maximum Fe : - stopband attenuation As > 62dB for F > 1.8Fc  
 (with I<sub>pwt</sub> = 250μA) - passband ripple : Ap = 0.6dB  
 - passband gain : Go = - 0.4dB

PHASE RESPONSE CURVE (in passband)



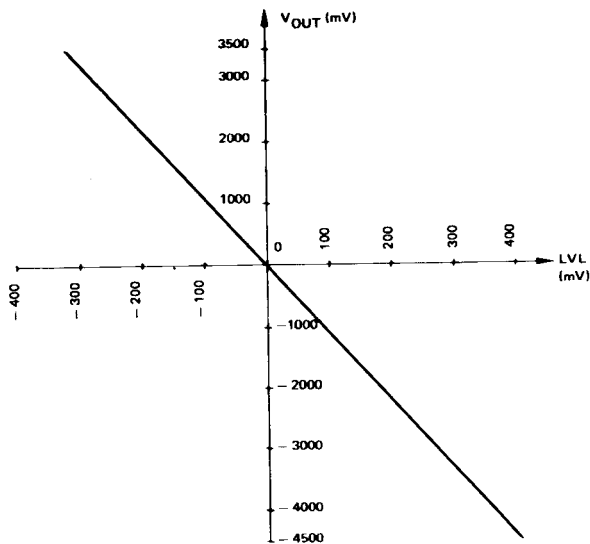
E88TSG8512-05

GROUP DELAY CURVE (in passband)



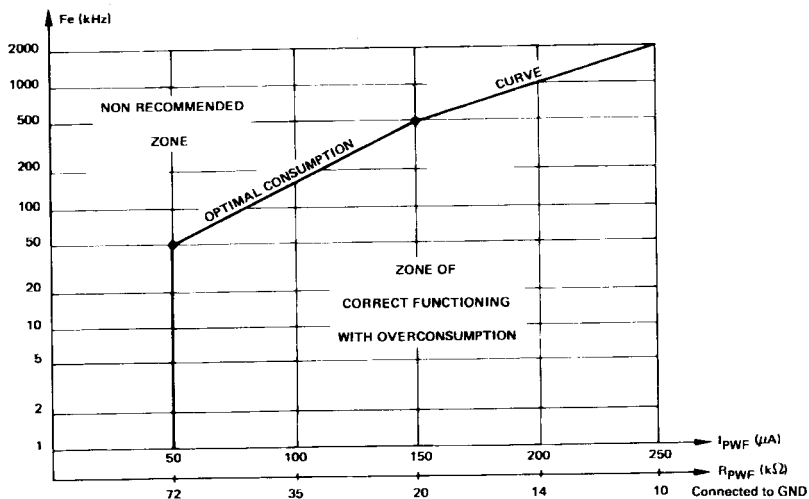
E88TSG8512-06

OUTPUT DC VOLTAGE ADJUSTMENT FROM LVL PIN



E88TSG8512-07

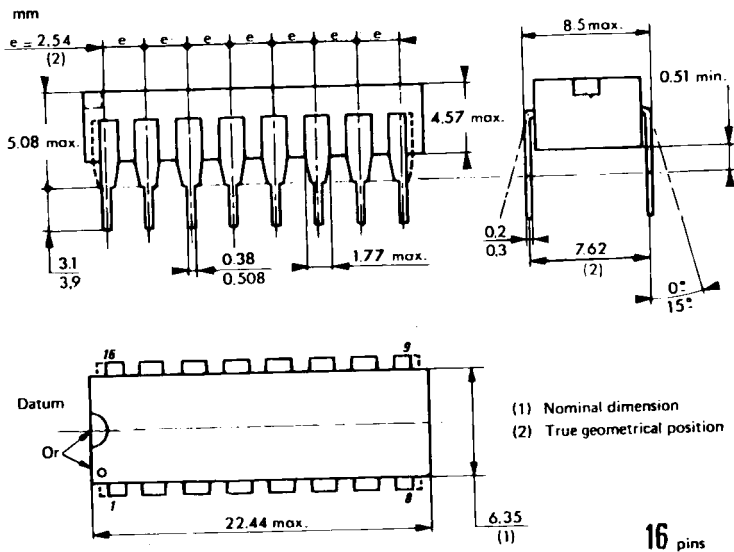
USER'S GUIDE FOR I<sub>PWF</sub> AND R<sub>PWF</sub> CHOICE



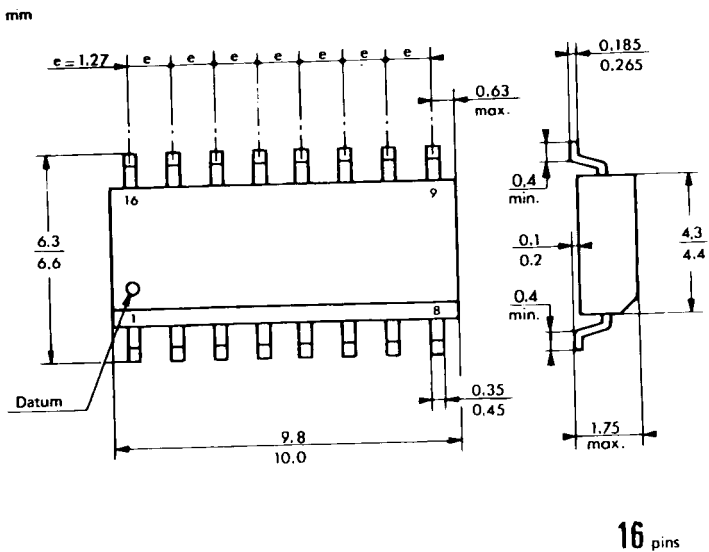
E88TSG8512-08

PACKAGE MECHANICAL DATA

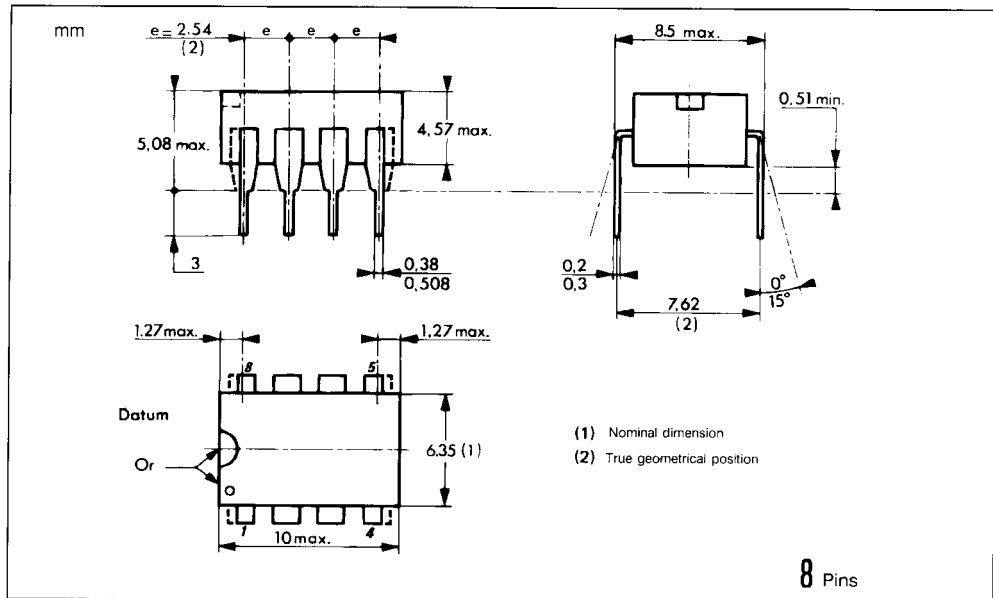
16 PINS - Plastic Dip



16 PINS - Plastic Micropackage



8 PINS - Plastic Dip



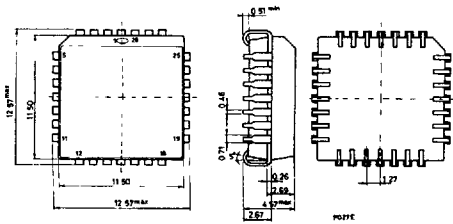
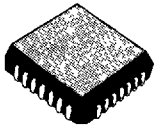
ORDER CODES

Plastic	16 Pins Package : TSG8512XP
Ceramic	16 Pins Package : TSG8512XC
Cerdip	16 Pins Package : TSG8512XJ
Plastic	8 Pins Package : TSG85121XP

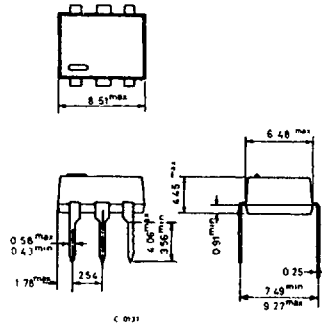
X : Temperature Range : C : 0°C + 70°C  
 I : - 25°C + 85°C  
 V : - 40°C + 85°C  
 M : - 55°C + 125°C



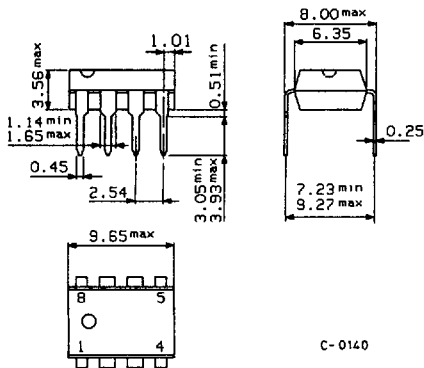
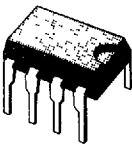
PLCC-28 Plastic Chip Carrier



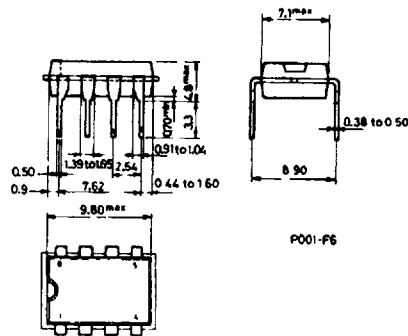
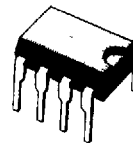
DIP-6



Minidip A Plastic



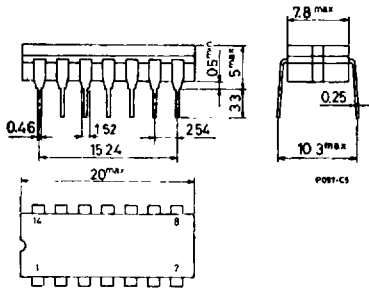
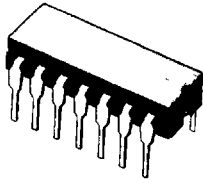
8 lead Plastic Minidip



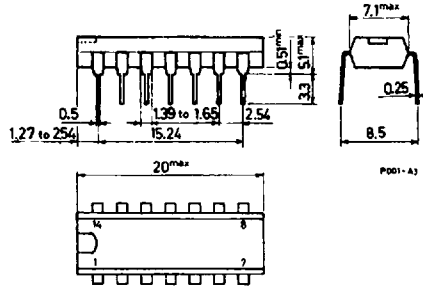
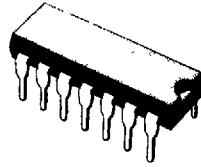


S G S-THOMSON

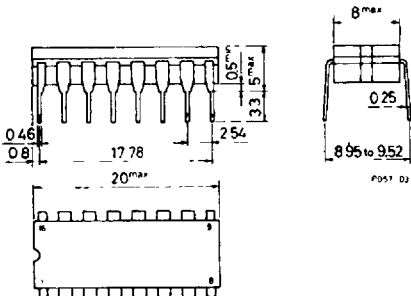
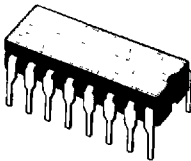
14 lead Ceramic Dip



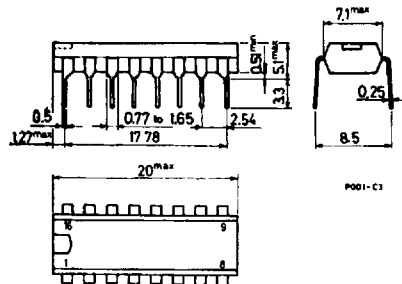
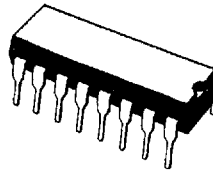
14 lead Plastic Dip



16 lead Ceramic Dip



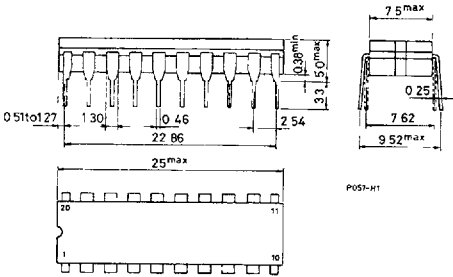
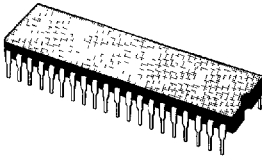
16 lead Plastic Dip (0.25)



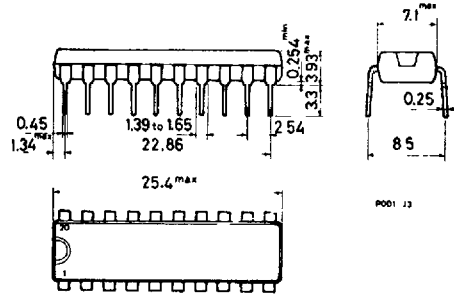
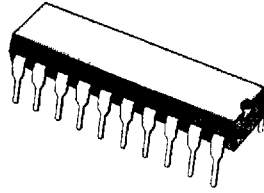
**PACKAGES**

S G S-THOMSON

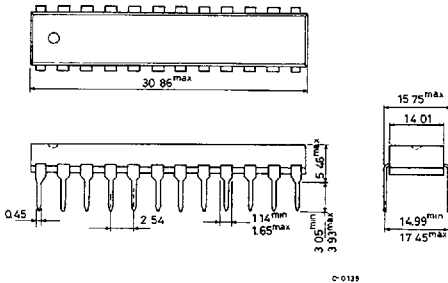
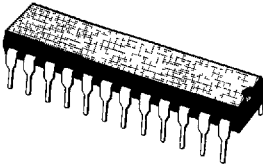
**DIP-20 Ceramic**



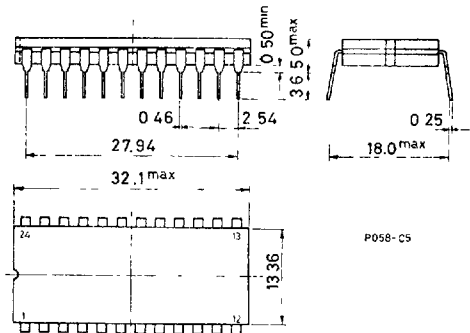
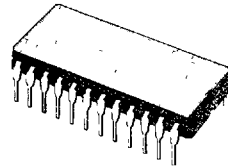
**20 lead Plastic Dip (0.25)**



**DIP-24 Plastic**

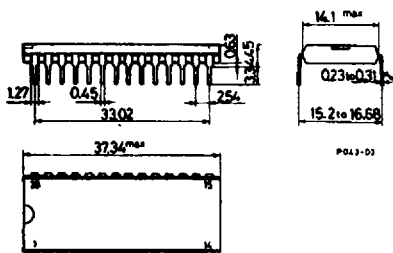
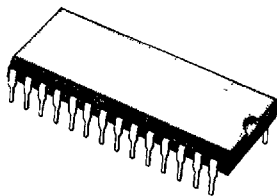


**DIP-24 Ceramic (0.25)**

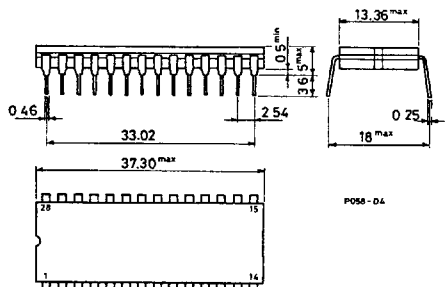
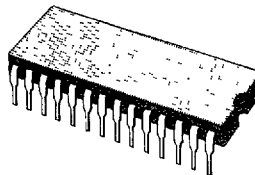


S G S-THOMSON

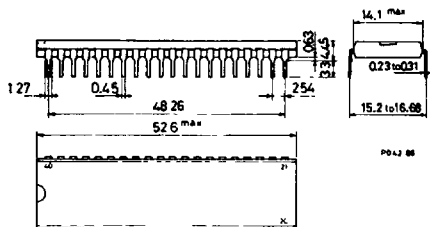
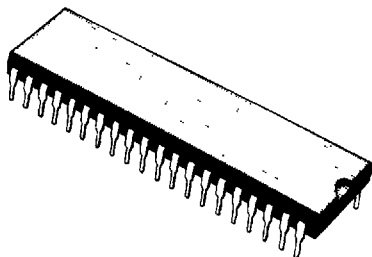
28 lead Plastic Dip



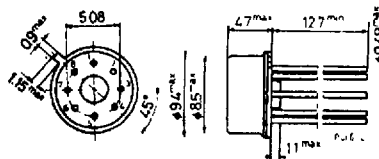
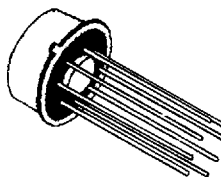
DIP-28 Ceramic (0.25)



40 lead Plastic Dip



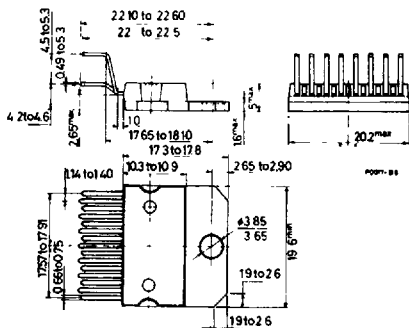
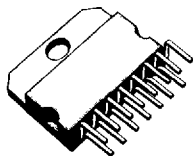
TO-99



PACKAGES

S G S-THOMSON

MULTIWATT-15



FLEXIWATT-15

