SGS-THOMSON MICROELECTRONICS

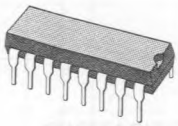
TSG8532

SWITCHED CAPACITOR MASK PROGRAMMABLE FILTER

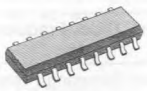
- CHEBYCHEV TYPE
- 6TH ORDER
- STOPBAND ATTENUATION : 60dB (typ) AT 0.25 x F_C
- PASSBAND RIPPLE : 0.45dB (typ)
- CLOCK TO CUT-OFF FREQ. RATIO : 500
- CLOCK FREQUENCY RANGE : 5 TO 1800kHz
- CUT-OFF FREQUENCY RANGE : 10Hz TO 3.6kHz

* According to spectrum aliasing phenomenon, the TSG8532 must be considered as a highpass filter only in the range [Fc, Fi/2], where Fi is the internal sampling frequency.

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



P
DIP-16
(Plastic Package)



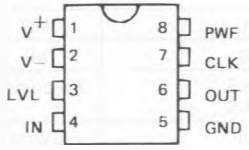
FP
SO-16
(Plastic Micropackage)

P
DIP-8
(Plastic Package)

DESCRIPTION

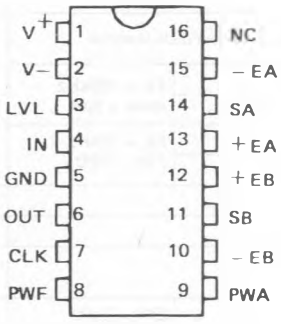
The TSG8532 is a HCMOS highpass* polynomial filter.

PIN CONNECTIONS



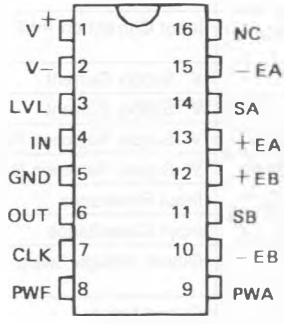
8 pins : FILTER ONLY
DIP-8 Package

E88TSG8532-01



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

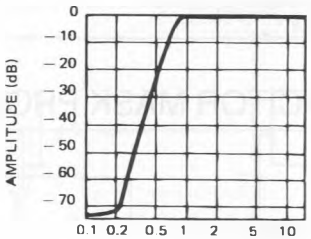
E88TSG8532-02



SO-16 Package

E88TSG8532-03

AMPLITUDE RESPONSE CURVE



E88TSG8532-04

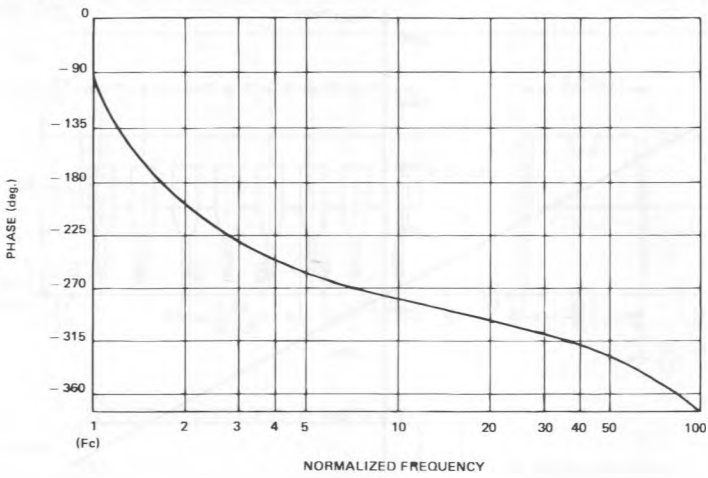
FILTER SPECIFICATIONS

Highpass Filter : TSG8532 ; Type : Chebychev ; Order : 6.
V^+ = 5V, V^- = – 5V, T = 25°C, RL = 5kΩ, CL = 100pF, I_{PWF} = 100µA

Symbol	Parameter		Typ.	Tested Limits	Unit
Fe	External Clock Frequency		5 1800(*)		kHz (min) kHz (max)
Fi	Internal Sampling Frequency		2.5 900(*)		kHz (min) kHz (max)
Fe/Fc	Clock to Cutoff fr. Ratio		500 ± 1%		
Fc	Cutoff Frequency		0.01 3.6(*)		kHz (min) kHz (max)
G_o	Passband Gain		– 0.4 0		dB (min) dB (max)
Ap	Passband Ripple	[1Fc, 45Fc] Fe = 500kHz	0.45	0.8	dB (max)
As	Stopband Attenuation	F < 0.25Fc Fe = 500kHz	60	55	dB (min)
Voff	Output DC Offset Voltage	LVL = 0V	± 80	± 200	mV (max)
LVL	DC Level Adjustment		± 75		mV (max)
LG	Level gain		– 2.7		
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 Ipwa = 0µA	3.4	5	mA (max)
I^-	V^- Supply Current		3.4	5	mA (max)
$PSRR^+$	V^+ Supply Rejection Ratio	Fe = 50kHz Fin = 1kHz	49		dB
$PSRR^-$	V^- Supply Rejection Ratio		46		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 = 2kHz Fe = 50kHz Vin = 2Vrms	88		µVrms
SNR	Signal to Noise Ratio		85		dB

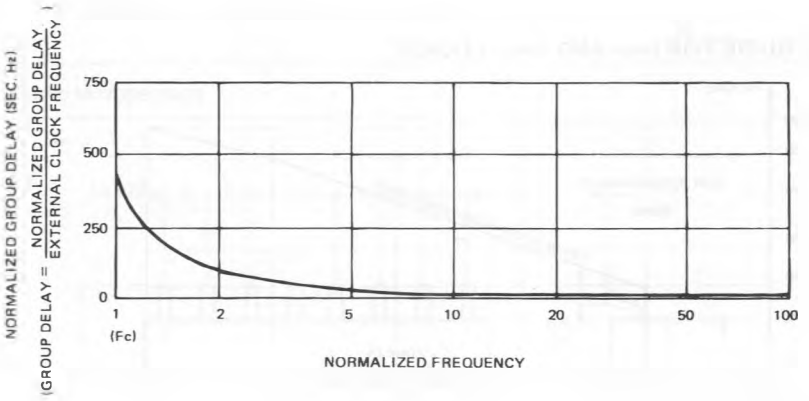
(*) At maximum Fe :
(with I_{pwi} = 250µA) - passband ripple : A_p = 0.8dB
- passband gain : G_o = – 0.8dB

PHASE RESPONSE CURVE (in passband)



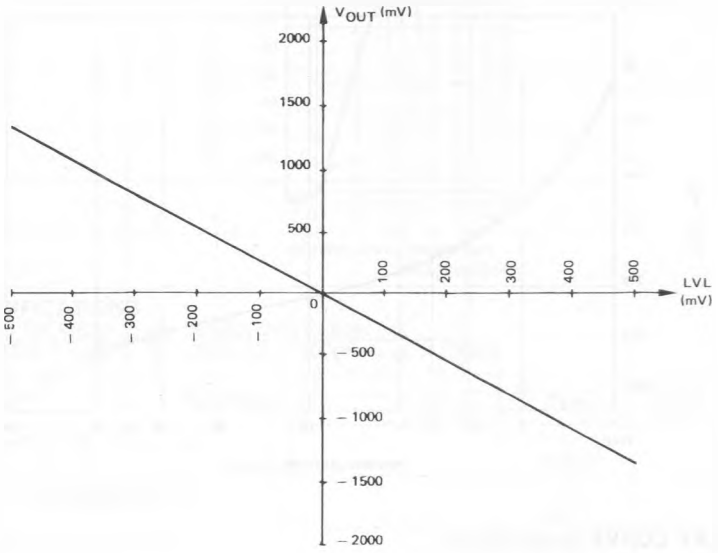
E88TSG8532-05

GROUP DELAY CURVE (in passband)



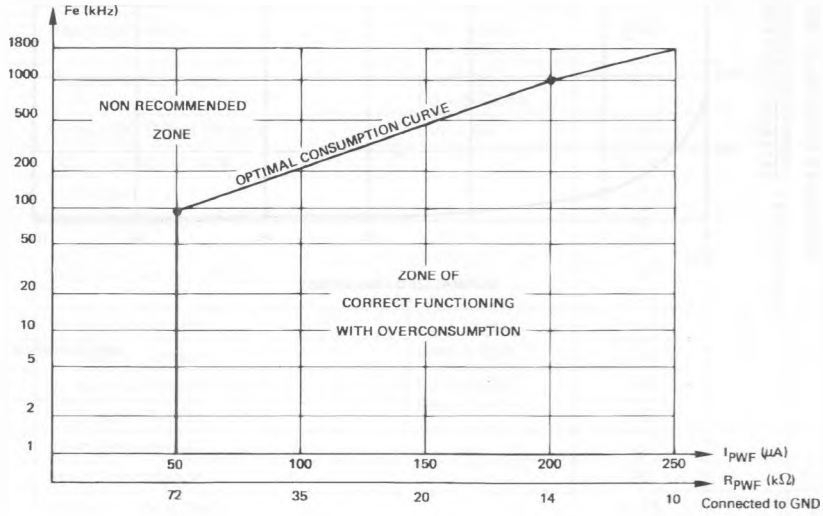
E88TSG8532-06

OUTPUT DC VOLTAGE ADJUSTMENT FROM LVL PIN



E88TSG8532-07

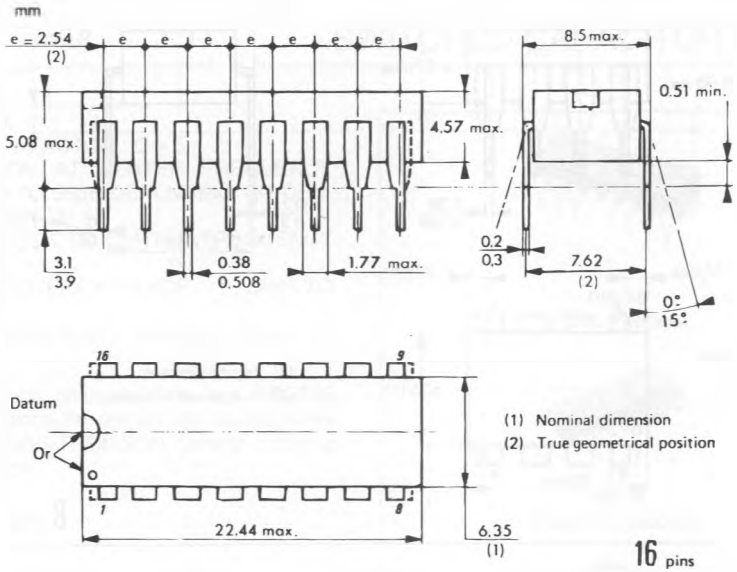
USER'S GUIDE FOR I_{PWF} AND R_{PWF} CHOICE



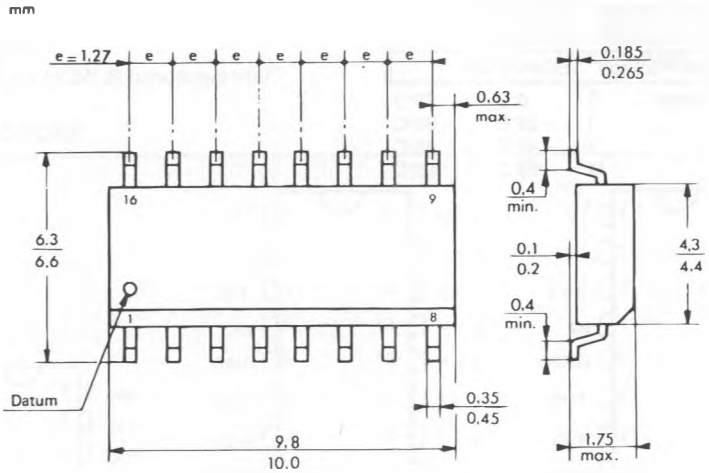
E88TSG8532-08

PACKAGE MECHANICAL DATA

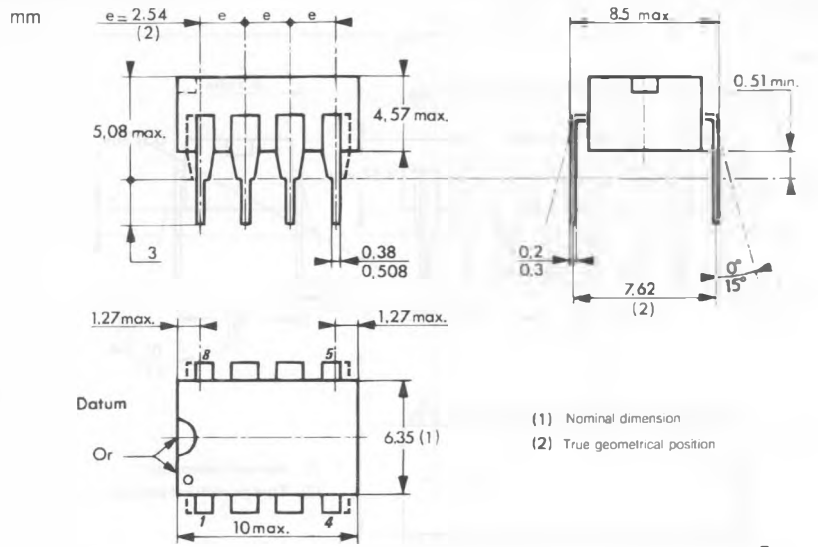
16 PINS - Plastic Dip



16 PINS - Plastic Micropackage



8 PINS - Plastic Dip



ORDER CODES

Plastic	16 Pins Package : TSG8532XP
Ceramic	16 Pins Package : TSG8532XC
Cerdip	16 Pins Package : TSG8532XJ
Plastic	8 Pins Package : TSG85321XP

X : Temperature Range =

C :	0°C	+	70°C
I :	– 25°C	+	85°C
V :	– 40°C	+	85°C
M :	– 55°C	+	125°C