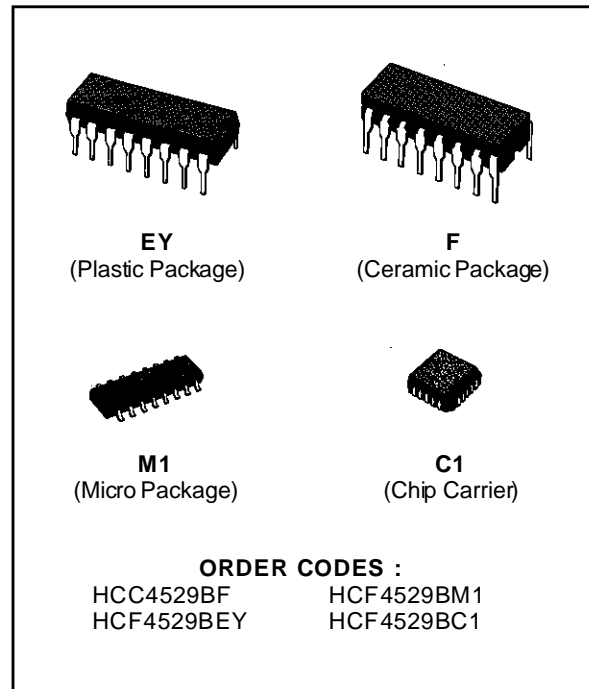


**DUAL 4-CHANNEL OR SINGLE 8-CHANNEL  
ANALOG DATA SELECTOR**

- DATA PATHS ARE BIDIRECTIONAL
- 10 MHz OPERATION (typical)
- 3-STATE OUTPUTS
- "ON" RESISTANCE 125  $\Omega$  TYPICAL @ 15V
- SUPPLY VOLTAGE RANGE = 3Vdc TO 18Vdc

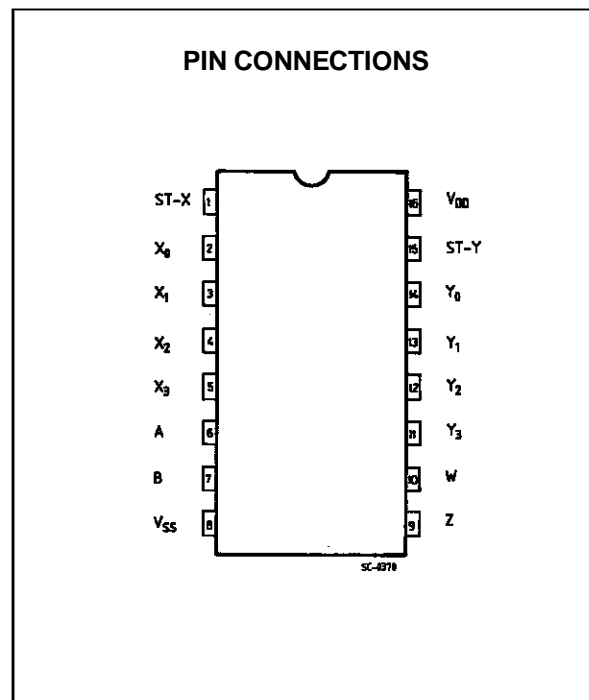


**DESCRIPTION**

The HCC4529B (extended temperature range) and HCF4529b (intermediate temperature range) are monolithic integrated circuits available in 16-lead dual in line plastic or ceramic package and plastic micropackage.

The HCC/HCF4529b is a DUAL 4-CHANNEL or 8-CHANNEL device. One of the two possible functions can be selected by a proper input coding. For the single 8-bit mode Z and W output must be tied together.

HCC/HCF4529B is suitable for digital as well as analogue applications, including 1 of 4 and 1 of 8 data selector functions. Dual binary to 1 of 4 or single binary to 1 of 8 decoder applications can be implemented because the device allow analogue and bidirectional operation.



# HCC/HCF4529B

## ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Unit
V <sub>DD</sub> *	Supply Voltage: <b>HCC</b> Types <b>HCF</b> Types	-0.5 to +20	V
		-0.5 to +18	V
V <sub>i</sub>	Input Voltage	-0.5 to V <sub>DD</sub> + 0.5	V
I <sub>I</sub>	DC Input Current (any one input)	± 10	mA
P <sub>tot</sub>	Total Power Dissipation (per package) Dissipation per Output Transistor for Top = Full Package Temperature Range	200	mW
		100	mW
T <sub>op</sub>	Operating Temperature: <b>HCC</b> Types <b>HCF</b> Types	-55 to +125	°C
		-40 to +85	°C
T <sub>stg</sub>	Storage Temperature	-65 to +150	°C

Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for external periods may affect device reliability.

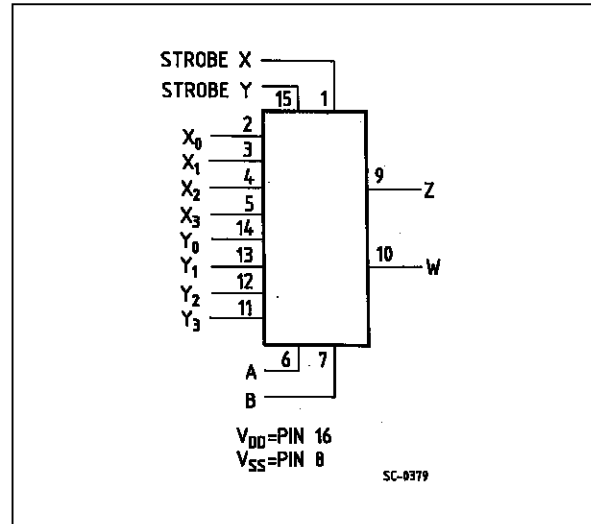
\* All voltage values are referred to V<sub>SS</sub> pin voltage.

## TRUTH TABLE

ST <sub>X</sub>	ST <sub>Y</sub>	B	A	Z	W	MODE
1	1	0	0	X0	Y0	Dual 4-Channel Mode 2 Outputs
1	1	0	1	X1	Y1	
1	1	1	0	X2	Y2	
1	1	1	1	X3	Y3	
1	0	0	0	X0		Single 8-Channel Mode 1 Output (Z and W tied together)
1	0	0	1	X1		
1	0	1	0	X2		
1	0	1	1	X3		
0	1	0	0	Y0		
0	1	0	1	Y1		
0	1	1	0	Y2		
0	1	1	1	Y3		
0	0	X	X			High Impedance

X = Don't care

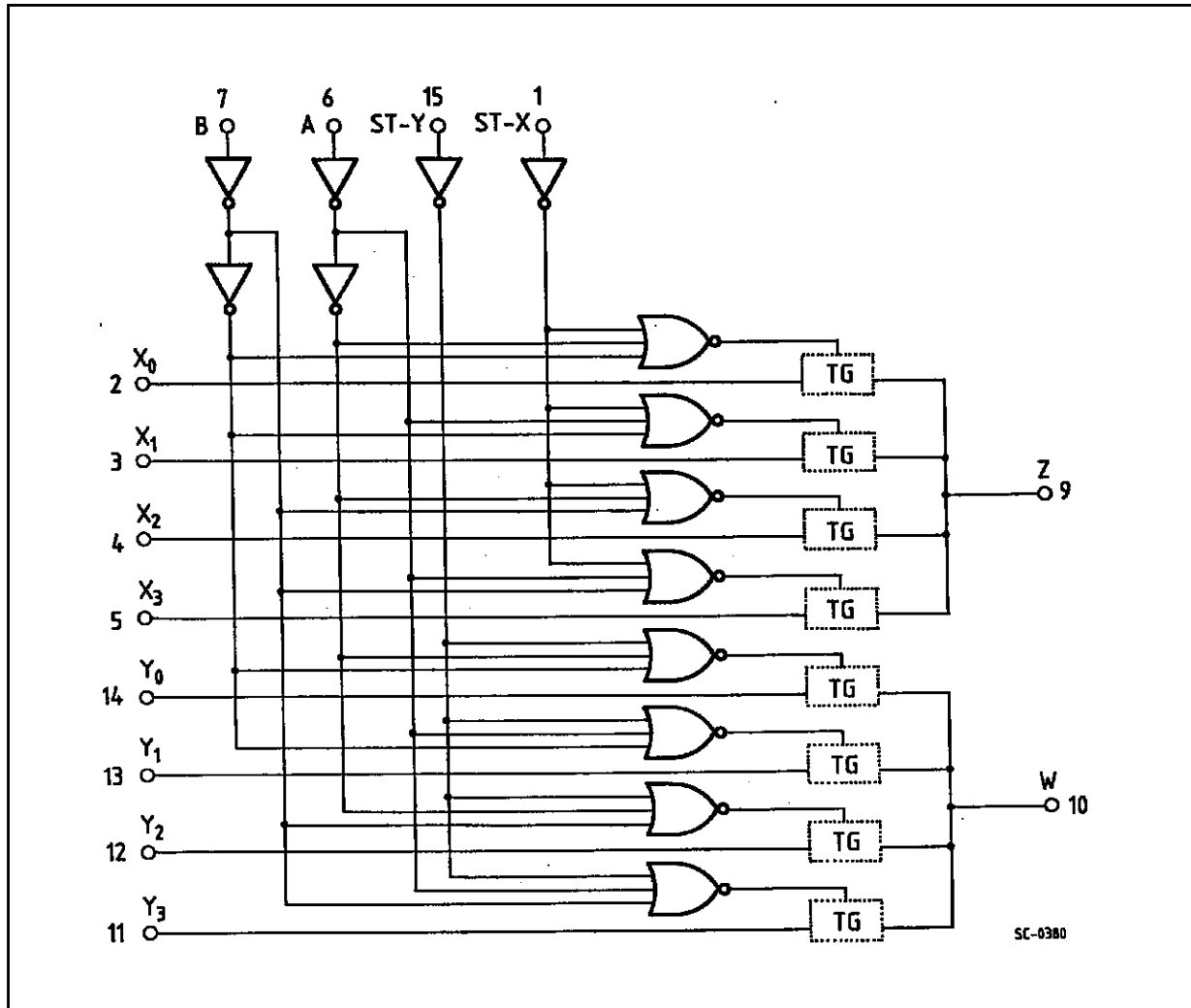
## FUNCTIONAL DIAGRAM



## RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Value	Unit
V <sub>DD</sub>	Supply Voltage: <b>HCC</b> Types <b>HCF</b> Types	3 to 18	V
		3 to 15	V
V <sub>i</sub>	Input Voltage	0 to V <sub>DD</sub>	V
T <sub>op</sub>	Operating Temperature: <b>HCC</b> Types <b>HCF</b> Types	-55 to +125	°C
		-40 to +85	°C

BLOCK DIAGRAM



**STATIC ELECTRICAL CHARACTERISTICS** (over recommended operating conditions)

Symbol	Parameter		Test Conditions			Value						Unit	
			V <sub>IS</sub> (V)	V <sub>SS</sub> (V)	V <sub>DD</sub> (V)	T <sub>LOW</sub> *		25 °C			T <sub>HIGH</sub> *		
						Min.	Max.	Min.	Typ.	Max.	Min.		Max.
I <sub>L</sub>	Quiescent Current	HCC Types			5		5		0.04	5		150	μA
					10		10		0.04	10		300	
					15		20		0.04	20		600	
					20		100		0.08	100		3000	
		HCF Types			5		20		0.04	20		150	
					10		40		0.04	40		300	
					15		80		0.04	80		600	
<b>SWITCH</b>													
ON	Resistance	HCC Types	0 ≤ V <sub>I</sub> ≤ V <sub>DD</sub>	0	5		880		470	1050		1200	Ω
					10		310		180	400		580	
					15		220		125	280		400	
		HCC Types			5		880		470	1050		1200	
					10		330		180	400		520	
					15		230		125	280		360	
ΔON	Resistance ΔR <sub>ON</sub> (Between any 2 channels)			0	5				10			Ω	
					10				10				
					15				5				
OFF Channel Leakage Current	Any Channel OFF	HCC Types	0	0	18		100		±0.1	100		1000	nA
	All Channel OFF (common OUT/IN)	HCC Types			18		100		±0.1	100		1000	nA
	Any Channel OFF	HCC Types			15		300		±0.1	300		1000	nA
	All Channel OFF (common OUT/IN)	HCC Types			15		300		±0.1	300		1000	nA
<b>CONTROL (Address or Inhibit)</b>													
V <sub>IL</sub>	Input Low Voltage		= V <sub>DD</sub> thru 1KΩ	R <sub>L</sub> =1KΩ to V <sub>SS</sub> I <sub>IS</sub> < 2μA (On All OFF Channels)	5		1.5			1.5		1.5	V
					10		3			3		3	
					15		4			4		4	
V <sub>IH</sub>	Input High Voltage				5	3.5		3.5			3.5	V	
					10	7		7			7		
					15	11		11			11		
I <sub>IH</sub> , I <sub>IL</sub>	Input Leakage Current	HCC Types	V <sub>I</sub> = 0/18V		18		±0.1		±10 <sup>-3</sup>	±0.1		±1	μA
		HCF Types			V <sub>I</sub> = 0/15V	15		±0.3		±10 <sup>-3</sup>	±0.3		
C <sub>I</sub>	Input Capacitance		Any Input						5	7.5		pF	

\* T<sub>LOW</sub> = -55 °C for HCC device; -40 °C for HCF device.

\* T<sub>HIGH</sub> = +125 °C for HCC device; +85 °C for HCF device.

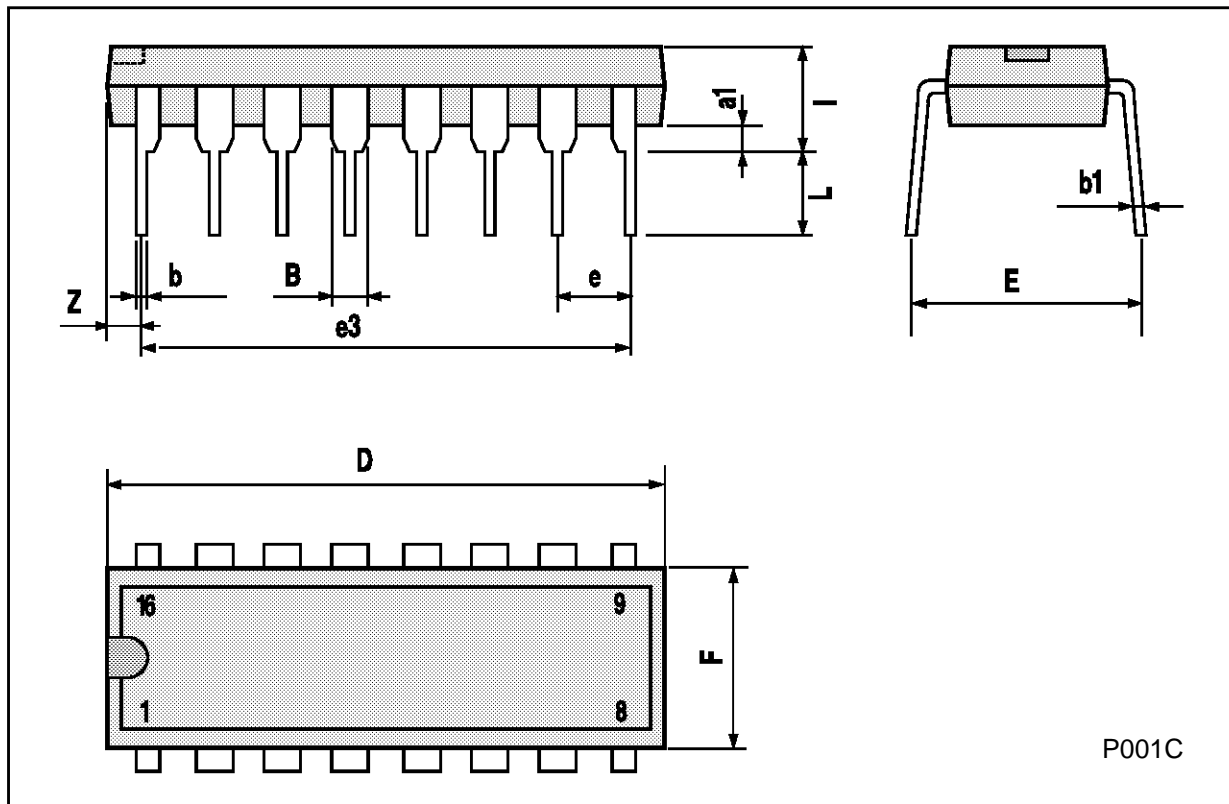
The Noise Margin for both "1" and "0" level is: 1V min. with V<sub>DD</sub> = 5V, 2V min. with V<sub>DD</sub> = 10V, 2.5V min. with V<sub>DD</sub> = 15V

**DYNAMIC ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ ,  $C_L = 50\text{ pF}$ ,  $R_L = 200\text{ K}\Omega$ , typical temperature coefficient for all  $V_{DD}$  values is  $03\text{ } \%/^{\circ}\text{C}$ , all input rise and fall times =  $20\text{ ns}$ )

Symbol	Parameter	Test Conditions		Value			Unit
		$V_{SS}$ (V)	$V_{DD}$ (V)	Min.	Typ.	Max.	
$t_{PLH}$ $t_{PHL}$	$V_{in}$ to $V_{out}$ Propagation Delay Time ( $C_L = 50\text{ pF}$ , $R_L = 1\text{ K}\Omega$ )	0	5		20	40	ns
			10		10	20	
			15		8	15	
$t_{PLH}$ $t_{PHL}$	Propagation Delay Time, Control to Output, $V_{in} = V_{DD}$ or $V_{SS}$ ( $V_{in} \leq 10\text{ Vdc}$ , $C_L = 50\text{ pF}$ , $R_L = 1\text{ K}\Omega$ )	0	5		200	400	ns
			10		80	160	
			15		50	120	
	Crosstalk, Control to Output ( $C_L = 50\text{ pF}$ , $R_L = 1\text{ K}\Omega$ , $R_{out} = 10\text{ K}\Omega$ )	0	5		5		mV
			10		5		
			15		5		
	Maximum Control Input Pulse Frequency ( $C_L = 50\text{ pF}$ , $R_L = 1\text{ K}\Omega$ )	0	5		5		MHz
			10		10		
			15		12		
	Sine Wave (Distortion) ( $V_{in} = 1.77\text{ Vdc RMS}$ Centred @ $0.0\text{ Vdc}$ , $R_L = 10\text{ K}\Omega$ , $f = 1\text{ KHz}$ )	-5	5		0.36		%
BW	Bandwidth (-3 dB) ( $V_{in} = 1.77\text{ Vdc RMS}$ Centred @ $0.0\text{ Vdc}$ ) ( $R_L = 1\text{ K}\Omega$ ) ( $R_L = 10\text{ K}\Omega$ ) ( $R_L = 100\text{ K}\Omega$ ) ( $R_L = 1\text{ M}\Omega$ )	-5	5		35		MHz
					28		
					27		
					26		
	Feedthrough and Crosstalk $\left(-20 \text{ Log}_{10} \frac{V_{out}}{V_{in}} = -50\text{ dB}\right)$ ( $R_L = 1\text{ K}\Omega$ ) ( $R_L = 10\text{ K}\Omega$ ) ( $R_L = 100\text{ K}\Omega$ ) ( $R_L = 1\text{ M}\Omega$ )	-5	5		850		KHz
					100		
					12		
					1.5		

**Plastic DIP16 (0.25) MECHANICAL DATA**

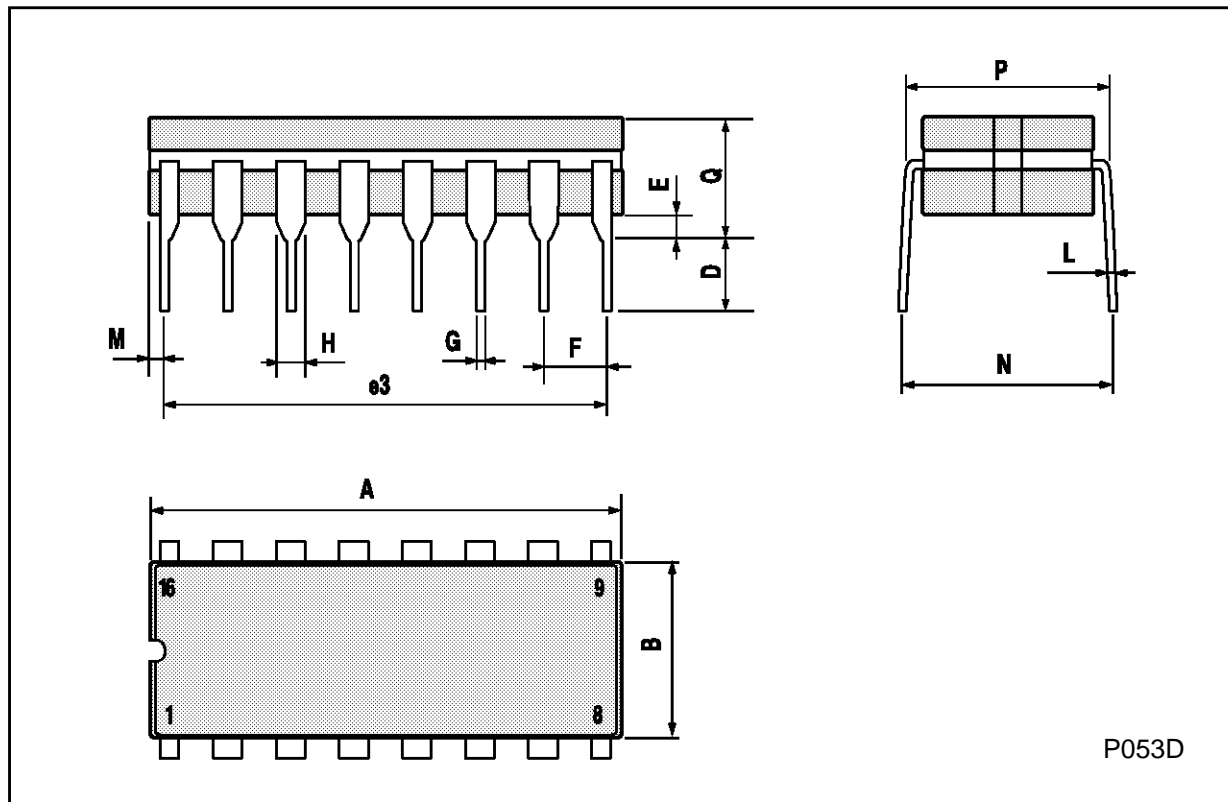
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
a1	0.51			0.020		
B	0.77		1.65	0.030		0.065
b		0.5			0.020	
b1		0.25			0.010	
D			20			0.787
E		8.5			0.335	
e		2.54			0.100	
e3		17.78			0.700	
F			7.1			0.280
I			5.1			0.201
L		3.3			0.130	
Z			1.27			0.050



P001C

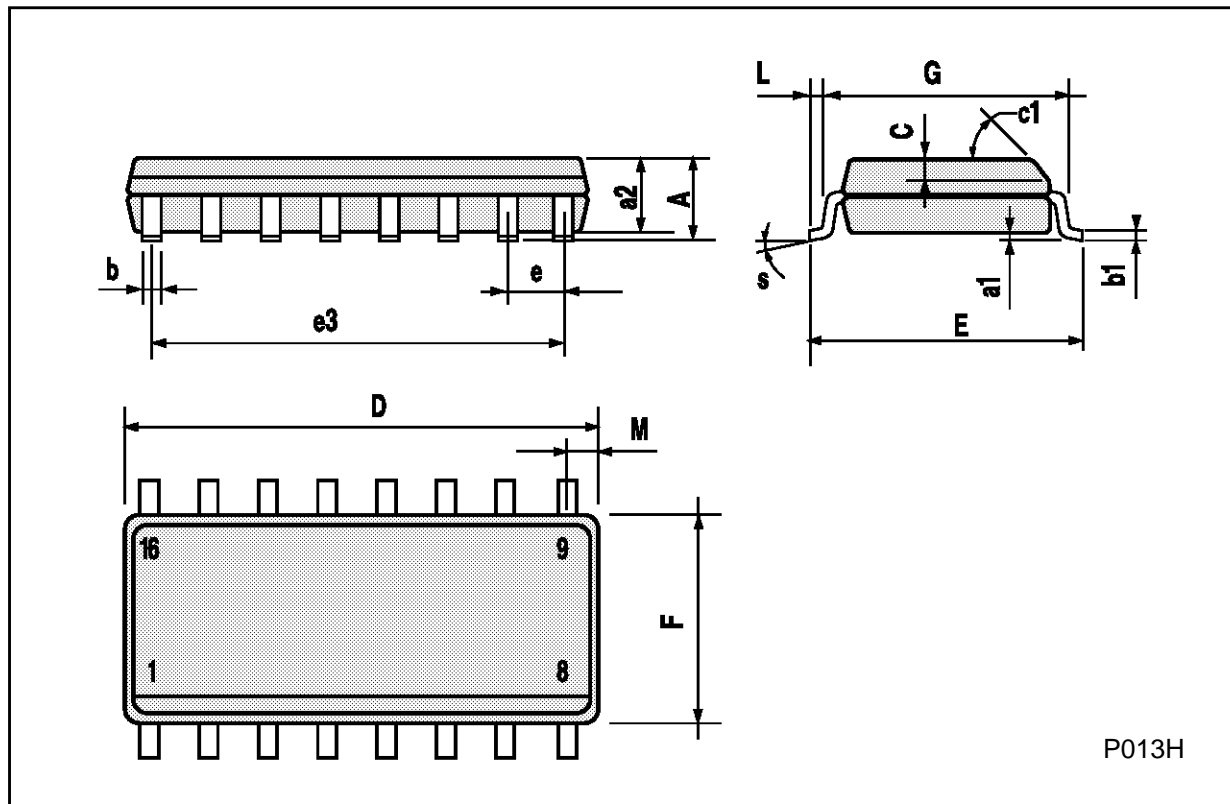
## Ceramic DIP16/1 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			20			0.787
B			7			0.276
D		3.3			0.130	
E	0.38			0.015		
e3		17.78			0.700	
F	2.29		2.79	0.090		0.110
G	0.4		0.55	0.016		0.022
H	1.17		1.52	0.046		0.060
L	0.22		0.31	0.009		0.012
M	0.51		1.27	0.020		0.050
N			10.3			0.406
P	7.8		8.05	0.307		0.317
Q			5.08			0.200



SO16 (Narrow) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.75			0.068
a1	0.1		0.2	0.004		0.007
a2			1.65			0.064
b	0.35		0.46	0.013		0.018
b1	0.19		0.25	0.007		0.010
C		0.5			0.019	
c1	45° (typ.)					
D	9.8		10	0.385		0.393
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		8.89			0.350	
F	3.8		4.0	0.149		0.157
G	4.6		5.3	0.181		0.208
L	0.5		1.27	0.019		0.050
M			0.62			0.024
S	8° (max.)					



P013H



## PLCC20 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	9.78		10.03	0.385		0.395
B	8.89		9.04	0.350		0.356
D	4.2		4.57	0.165		0.180
d1		2.54			0.100	
d2		0.56			0.022	
E	7.37		8.38	0.290		0.330
e		1.27			0.050	
e3		5.08			0.200	
F		0.38			0.015	
G			0.101			0.004
M		1.27			0.050	
M1		1.14			0.045	



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -  
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A

This datasheet has been downloaded from:

[www.DatasheetCatalog.com](http://www.DatasheetCatalog.com)

Datasheets for electronic components.