

Product Specification

Call Progress Decoder

NE5900

ORDERING INFORMATION

DESCRIPTION	AMBIENT TEMPERATURE	ORDER CODE
16-Pin Plastic SOL	0 to +70°C	NE5900D
16-Pin Plastic DIP	0 to +70°C	NE5900N

ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING	UNITS
V_{DD}	Power supply voltage	9	V
V_{IN}	Logic control input voltages	-0.3 to +16	V
V_{IN}	All other input voltages ¹	-0.3 to V_{CC} +0.3	V
V_{OUT}	Output voltages	-0.3 to V_{CC} +0.3	V
T_{STG}	Storage temperature range	-65 to +150	°C
T_A	Operating temperature range	0 to +70	°C
T_{SOLD}	Lead soldering temperature (10s)	+300	°C
T_J	Junction temperature	+150	°C

NOTE:

1. Includes Pin 3 — Ext Clock In

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DC ELECTRICAL CHARACTERISTICS Unless otherwise stated, $V_{DD} = +5.0V$; Pin 3 $f_{OSC} = 3.58MHz$; Ambient Temperature = 0 to +70°C. Pin 5 = 0V, Pin 14 = V_{DD} .

SYMBOL	PARAMETER	TEST CONDITONS	LIMITS			UNIT
			Min	Typ	Max	
V_{DD}	Power supply voltage	Pin 16 Pin 14 = V_{DD} Pins 5, 6 = 0V	4.5	5.0	5.5	V
	Quiescent current	As above with no output loads.		2.0	4.0	mA
	Input threshold	Pin 1 level, frequency = 460Hz, $V_{DC} = V_{REF}$ Output Pin 13 = V_{DD}		-39	-35	dB ¹
	Signal rejection	Pin 1 level, 300Hz frequency, $V_{DC} = V_{REF}$ Output Pin 13 = 0V			-50	dB ¹
	Low frequency ² rejection	Pin 1 frequency, 0dB max., $V_{DC} = V_{REF}$ Output Pin 13 = 0V			180	Hz
	High frequency ² rejection	Pin 1 frequency 0dB max., $V_{DC} = V_{REF}$ Output Pin 13 = 0V	800			Hz
V_{IH}	Logic 1 input voltage	Pins 6, 14	2.0		15	V
V_{IL}	Logic 0 input voltage	Pins 6, 14	0		0.8	V
I_{IH}	Logic 1 input current	Pins 3, 6, 14 = V_{DD}	-1.0		1.0	μA
I_{IL}	Logic 0 input current	Pins 3, 6, 14 = 0V	-1.0		1.0	μA
V_{IH}	Logic 1 input voltage	Pin 3 External Clock In/XTAL	$V_{DD} - 1$		V_{DD}	V
V_{IL}	Logic 0 input voltage	Pin 3 External Clock In/XTAL	0		1.0	V
V_{OL}	Logic 0 output voltage	$I_{SINK} = 1.6mA$ Pins 7, 9, 10, 11, 12, 13	0		0.4	V
V_{OH}	Logic 1 output voltage	$I_{SOURCE} = 0.5mA$ Pins 7, 9, 10, 11, 12, 13	$V_{DD} - 0.4$		V_{DD}	V
I_{OZ}	Tri-state leakage	$V_{OUT} = V_{DD}$ or 0V Pins 10, 11, 12, 13 Pin 14 = 0V	-3.0		3.0	μA
	Filter output gain	Input Pin 1, 460Hz - 20dB, $V_{DC} = V_{REF}$ Output Pin 15, $R_{LOAD} = 1M\Omega$	6.5	8.5	10.5	dB
	Filter frequency response	As above from 300Hz to 630Hz, referenced to 460Hz	-1.0		1.0	dBmo
	Input impedance ²	Pin 1, frequency = 460Hz	1			$M\Omega$
V_{REF}	Reference voltage	Pin 2, $V_{DD} = 5V$	2.4	2.5	2.6	V
R_{REF}	Reference resistance	Pin 2		5		Ω
	Envelope response time	Time from removal or application of 460Hz - 20dB ($V_{DC} = V_{REF}$ on Pin 1) to response of Pin 13		38		ms

NOTES:

1. 0dB = 0.775V_{RMS}.
2. By design; not tested.

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The designer can utilize the input signal, clock, bus, or microprocessor interface which best serves the application. Figure 4 gives a typical timing diagram for the application of Figures 2 and 3.

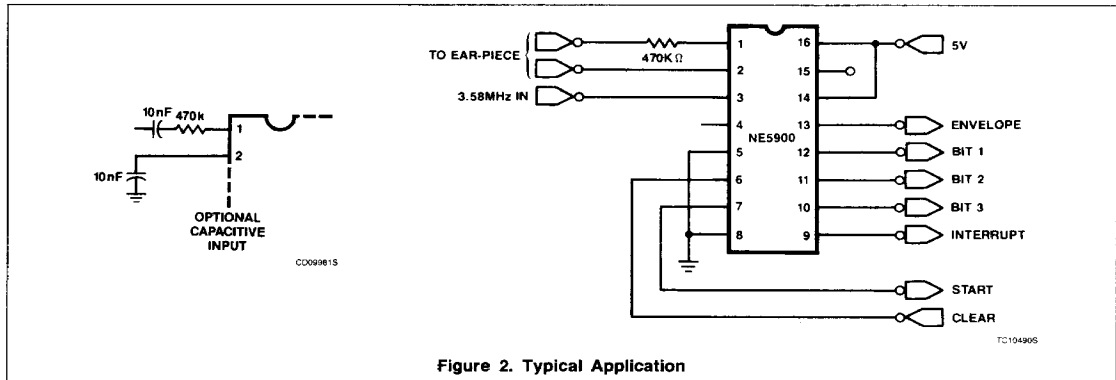
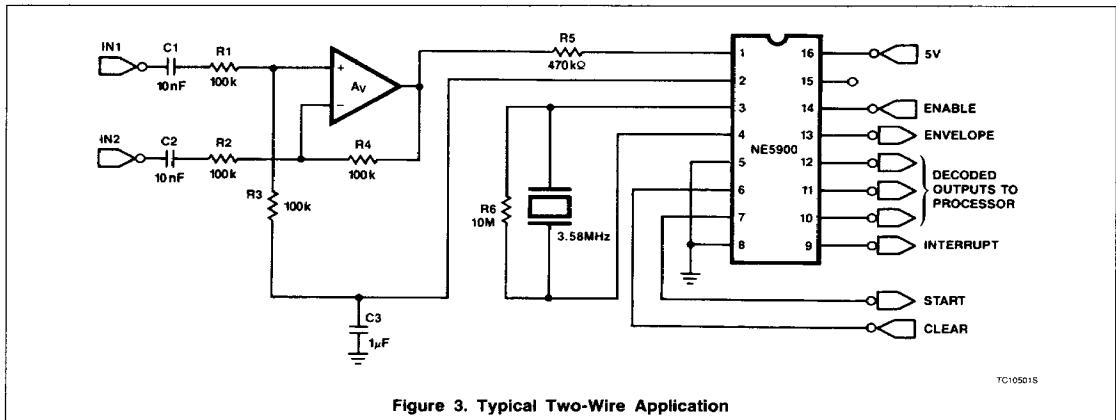
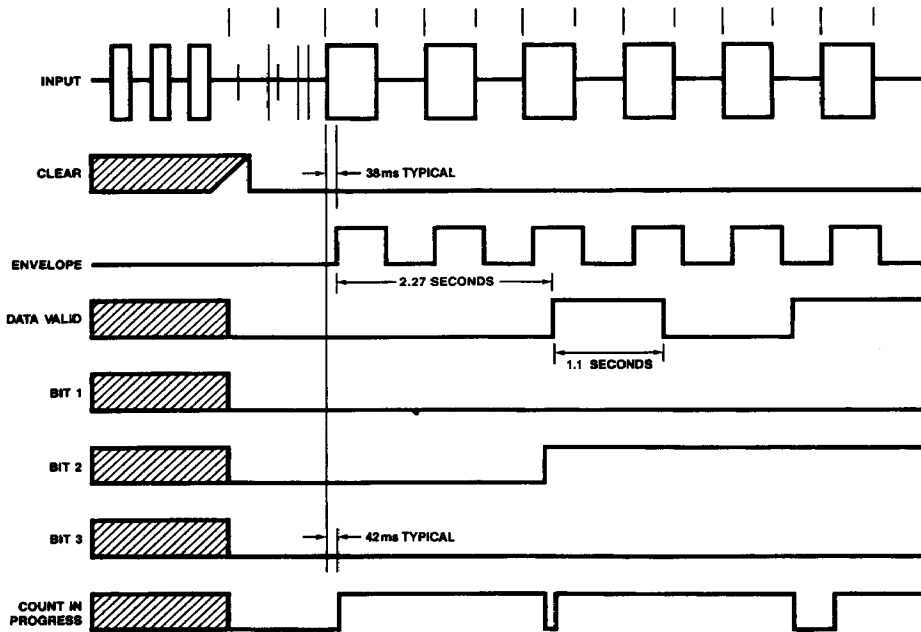


Figure 3. Typical Two-Wire Application



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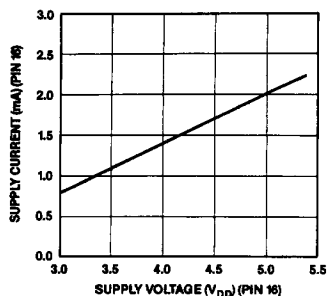
WF157013

Figure 4

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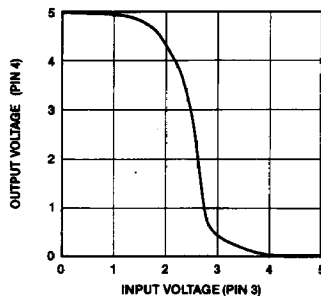
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TYPICAL PERFORMANCE CHARACTERISTICS

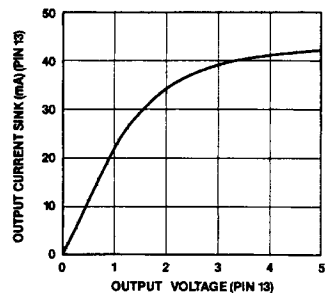
Power Supply Current vs V_{DD} 

OP06640S

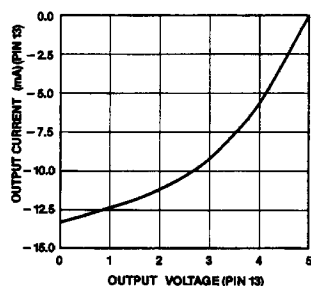
Voltage Transfer Curve



OP06651S

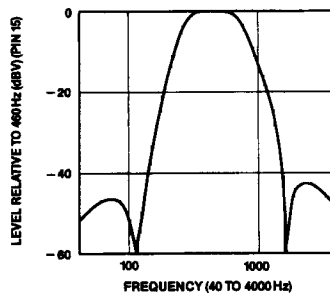
Output Voltage Current Curve
Digital Output Low

OP06661S

Output Voltage Current Curve
Digital Output High

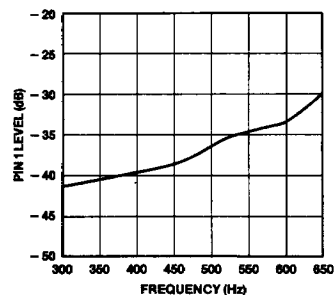
OP06671S

Filter Frequency Response



OP06681S

Typical Threshold



OP15220S