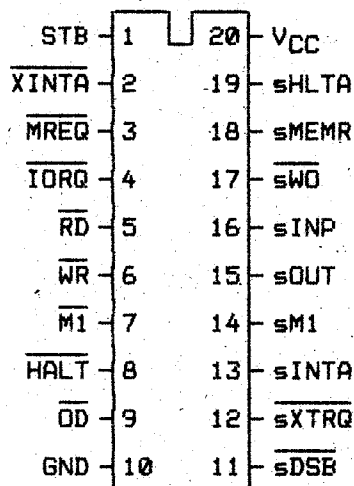* Complete Z-80 to IEEE-696 status encoder in 20 pin package

* Three-state outputs directly drive status bus

* Built-in transparent latch for status word output

* Fast status word generation:
      25ns maximum for 16L802
      15ns maximum for 16L802-1

* Input for generating proper INTA status for multi-byte interrupt instructions (e.g. CALL)

```
            16L802, 16L802-1
               TOP VIEW

    STB  ─┤ 1    ⊔  20 ├─ V_CC
  XINTA  ─┤ 2       19 ├─ sHLTA
   MREQ  ─┤ 3       18 ├─ sMEMR
   IORQ  ─┤ 4       17 ├─ sWO
     RD  ─┤ 5       16 ├─ sINP
     WR  ─┤ 6       15 ├─ sOUT
     M1  ─┤ 7       14 ├─ sM1
   HALT  ─┤ 8       13 ├─ sINTA
     OD  ─┤ 9       12 ├─ sXTRQ
    GND  ─┤ 10      11 ├─ sDSB
```

description

The 16L802 provides an interface between the Z-80 microprocessor and the IEEE-696 status bus. Two disable pins are provided for the high current three-state output drivers along with a transparent latch for the encoded status word.

The transparent latch is used to hold the current status word throughout a bus cycle, as the Z-80 status signals change after the read or write strobes return to their inactive states. While STB is high and the three-state drivers are enabled (OD and SDSB both high), the status word on the output pins follow changes (through the encoding logic) on the input pins. When STB goes low, the status word on the output pins are latched and the inputs are free to change. The latching action does not affect the sHLTA or sXTRQ outputs. This is of no consequence as the Z-80 HALT signal remains active throughout the HALT state, and sXTRQ is always high. Note that the function of the transparent latch is to "remember" whatever is present on the output pins as long as the STB input is low. This means that if STB is low and the three-state drivers are disabled, the latch will retain the logic levels present on the output pins when the 16L802 outputs are once again enabled. This breeds no side effects however, as the 16L802 outputs should never be disabled during a bus cycle.

The XINTA input may be used with external logic to generate proper INTA status for multi-byte instruction interrupts (e.g. CALL) for use with 8259 type interrupt controllers. If the XINTA input is not used, it should be tied high.

TYPES 16L802, 16L802-1
IEEE-696 STATUS REGISTER FOR Z-80

function table

INPUTS										OUTPUTS							
$\overline{SDSB}$	$\overline{CD}$	XINTA	STB	$\overline{MREQ}$	$\overline{IORQ}$	$\overline{RD}$	$\overline{WR}$	$\overline{M1}$	$\overline{HALT}$	sMEMR	$\overline{sWO}$	sINP	sOUT	sM1	sINTA	$\overline{sHLTA}$	$\overline{sXTRQ}$
L	X	X	X	X	X	X	X	X	X	Z	Z	Z	Z	Z	Z	Z	Z
X	L	X	X	X	X	X	X	X	X	Z	Z	Z	Z	Z	Z	Z	Z
H	H	H	H	L	H	L	H	L	H	H	H	L	L	H	L	L	H
H	H	H	H	L	H	L	H	H	H	H	H	L	L	L	L	L	H
H	H	H	H	L	H	H	L	H	H	L	L	L	L	L	L	L	H
H	H	H	H	H	L	L	H	H	H	L	H	H	L	L	L	L	H
H	H	H	H	H	L	H	L	H	H	L	L	L	H	L	L	L	H
H	H	H	H	H	L	H	H	L	H	L	H	L	L	H	H	L	H
H	H	L	H	L	H	L	H	L	H	L	H	L	L	H	H	L	H
H	H	L	H	L	H	L	H	H	H	L	H	L	L	L	H	L	H
H	H	X	X	X	X	X	X	X	H	*	*	*	*	*	*	L	H
H	H	X	X	X	X	X	X	X	L	*	*	*	*	*	*	H	H
H	H	X	L	X	X	X	X	X	L	sMEMR	$\overline{sWO}$	sINP	sOUT	sM1	sINTA	H	H
H	H	X	L	X	X	X	X	X	H	sMEMR	$\overline{sWO}$	sINP	sOUT	sM1	sINTA	L	H

* Indeterminate output

recommended operating conditions

PARAMETER	16L802 16L802-1 MIN NOM MAX	UNIT
Supply voltage, V_{CC}	4.75 5 5.25	V
Off-state output voltage, V_O (off)	5.5	V
Low-level output current, I_{OL}	24	mA
High-level output current, I_{OH}	-3.2	mA
Operating free-air temperature	0 70	deg C

electrical characteristics over operating conditions

PARAMETER	TEST CONDITIONS	16L802 16L802-1 MIN TYP MAX	UNIT
V_{IL} Low-level input voltage		0.8	V
V_{IH} High-level input voltage		2	V
V_{IK} Input clamp voltage	V_{CC} = MIN I_I = -18mA	-0.8 -1.5	V
I_{IL} Low-level input current	V_{CC} = MAX V_I = 0.4V	-.02 -.25	mA
I_{IH} High-level input current	V_{CC} = MAX V_I = 2.4V	25	mA
I_I Maximum input current	V_{CC} = MAX V_I = 5.5V	1	mA
V_{OL} Low-level output voltage	V_{CC} = MIN V_{IL} = MAX I_{OL} = MAX V_{IH} = MIN	0.3 0.5	V
V_{OH} High-level output voltage	V_{CC} = MIN V_{IL} = MAX I_{OH} = MAX V_{IH} = MIN	2.4 2.8	V
I_{OS} Short-circuit output current	V_{CC} = 5V	-30 -70 -130	mA
I_{CC} Supply current	V_{CC} = MAX	120 180	mA

switching characteristics over operating conditions
   TEST CONDITIONS: R_1 = 200 ohms, R_2 = 390 ohms, C_L = 50 pF

PARAMETER	FROM (INPUT)	TO (OUTPUT)	16L802-1 MIN TYP MAX	16L802 MIN TYP MAX	UNIT
t_{PLH}			15	25	ns
t_{PHL}			15	25	
t_{PLH}			15	25	ns
t_{PHL}			15	25	
t_{PLH}			30	50	ns
t_{PHL}			30	50	
t_{PLH}			30	50	ns
t_{PHL}			30	50	