

55326 • 75326 • 55327 • 75327

MEMORY DRIVERS

FAIRCHILD LINEAR INTEGRATED CIRCUITS

GENERAL DESCRIPTION — The 55326, 55327, 75326 and 75327 are monolithic integrated circuit quad memory drivers. These devices accept standard TTL decoder input signals and provide high-current and high-voltage output levels suitable for driving magnetic memory elements. Output transistor selection is determined by using one of the four address inputs and the common timing strobe.

The 55326 and 75326 memory drivers can sink up to 600 mA and operate from a single 5 V supply.

The 55327 and 75327 memory switches can source or sink up to 600 mA and operate from two supplies; one of 5.0 V and the other from 4.5 V to 24 V. The 55327 and 75327 can function as either sink drivers or source drivers since the voltages at the output transistor terminals are capable of swinging between V_{CC2} and ground.

55326, 75326 PERFORMANCE

- QUAD POSITIVE OR SINK MEMORY DRIVERS
- 600 mA OUTPUT CURRENT SINK CAPABILITY
- 24 V OUTPUT CAPABILITY
- CLAMP VOLTAGE VARIABLE TO 24 V

55327, 75327 PERFORMANCE

- QUAD MEMORY SWITCHES
- 600 mA OUTPUT CURRENT CAPABILITY
- V_{CC2} DRIVE VOLTAGE VARIABLE TO 24 V
- OUTPUT CAPABLE OF SWINGING BETWEEN V_{CC2} AND GROUND

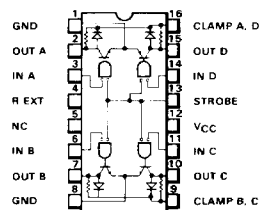
EASE OF DESIGN

- HIGH-REPETITION-RATE DRIVER COMPATIBLE WITH HIGH-SPEED MAGNETIC MEMORIES
- INPUTS COMPATIBLE WITH TTL DECODERS
- MINIMUM TIME SKEW BETWEEN STROBE AND OUTPUT-CURRENT RISE
- PULSE-TRANSFORMER COUPLING ELIMINATED
- DRIVE-LINE LENGTHS REDUCED

CONNECTION DIAGRAM 16-PIN (TOP VIEW)

PACKAGE OUTLINES 7B, 9B, 4L
PACKAGE CODES D P F

55326/75326



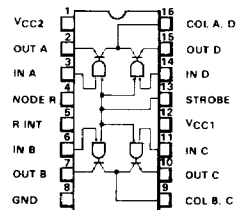
ORDER INFORMATION

TYPE	PART NO.
55326	55326DM
55326	55326FM
75326	75326DC
75326	75326PC

CONNECTION DIAGRAM 16-PIN (TOP VIEW)

PACKAGE OUTLINES 7B, 9B, 4L
PACKAGE CODES D P F

55327/75327



ORDER INFORMATION

TYPE	PART NO.
55327	55327DM
55327	55327FM
75327	75327DC
75327	75327PC

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ELECTRICAL CHARACTERISTICS: Ratings apply over recommended temperature range unless otherwise specified.

SYMBOL	CHARACTERISTICS	CONDITIONS†	MIN	TYP††	MAX	UNITS
V_{IH}	Input HIGH Voltage		2.0			V
V_{IL}	Input LOW Voltage				0.8	V
V_{CD}	Input Clamp Diode Voltage	$V_{CC} = 4.5\text{ V}$, $I_{IN} = -10\text{ mA}$, $T_A = 25^\circ\text{C}$		-1.0	-1.7	V
V_{OH}	Output HIGH Voltage	$V_{CC1} = 4.5\text{ V}$, $I_{OUT} = 0$	19	23		V
V_{SAT}	Saturation Voltage Sink Outputs	$V_{CC} = 4.5\text{ V}$ $I_{sink} \approx 600\text{ mA}$ See Note 3	Full Range $T_A = 25^\circ\text{C}$		0.9	V
					0.43	
$V_{F(clamp)}$	Output Clamp Diode, Forward Voltage	$V_{(clamp)} = 0$, $I_{(clamp)} = -10\text{ mA}$, $T_A = 25^\circ\text{C}$			1.5	V
$I_{(clamp)}$	Output Clamp Diode Current, One Output On	$I_{sink} = 50\text{ mA}$, $T_A = 25^\circ\text{C}$		5.0	7.0	mA
I_{IN}	Input Current at Maximum Input Voltage	Address Inputs	$V_{IN} = 5.5\text{ V}$		1.0	mA
		Strobe Inputs			4.0	
I_{IH}	Input HIGH Current	Address Inputs	$V_{IN} = 2.4\text{ V}$		40	μA
		Strobe Inputs			160	
I_{IL}	Input LOW Current	Address Inputs	$V_{IN} = 0.4\text{ V}$	-1.0	-1.6	mA
		Strobe Inputs		-4.0	-6.4	
$I_{CC(off)}$	Supply Current, All Outputs Off	All Inputs at 5.0 V, $T_A = 25^\circ\text{C}$		18	25	mA
$I_{CC(on)}$	Supply Current	$I_{sink} = 50\text{ mA}$, $T_A = 25^\circ\text{C}$		58	75	mA

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SYMBOL	CHARACTERISTICS	CONDITIONS†	MIN	TYP††	MAX	UNITS
V_{IH}	Input HIGH Voltage		2.0			V
V_{IL}	Input LOW Voltage				0.8	V
V_{CD}	Input Clamp Diode Voltage	$V_{CC} = 4.5\text{ V}$, $I_{IN} = -10\text{ mA}$, $T_A = 25^\circ\text{C}$		-1.0	-1.7	V
V_{OH}	Output HIGH Voltage	$V_{CC1} = 4.5\text{ V}$, $I_{OUT} = 0$	19	23		V
V_{SAT}	Saturation Voltage Sink Outputs	$V_{CC} = 4.5\text{ V}$ $I_{sink} \approx 600\text{ mA}$ See Note 3	Full Range $T_A = 25^\circ\text{C}$		0.9	V
					0.43	
$V_{F(clamp)}$	Output Clamp Diode, Forward Voltage	$V_{(clamp)} = 0$, $I_{(clamp)} = -10\text{ mA}$, $T_A = 25^\circ\text{C}$			1.5	V
$I_{(clamp)}$	Output Clamp Diode Current, One Output On	$I_{sink} = 50\text{ mA}$, $T_A = 25^\circ\text{C}$		5.0	7.0	mA
I_{IN}	Input Current at Maximum Input Voltage	Address Inputs	$V_{IN} = 5.5\text{ V}$		1.0	mA
		Strobe Inputs			4.0	
I_{IH}	Input HIGH Current	Address Inputs	$V_{IN} = 2.4\text{ V}$		40	μA
		Strobe Inputs			160	
I_{IL}	Input LOW Current	Address Inputs	$V_{IN} = 0.4\text{ V}$	-1.0	-1.6	mA
		Strobe Inputs		-4.0	-6.4	
$I_{CC(off)}$	Supply Current, All Outputs Off	All Inputs at 5.0 V, $T_A = 25^\circ\text{C}$		18	25	mA
$I_{CC(on)}$	Supply Current	$I_{sink} = 50\text{ mA}$, $T_A = 25^\circ\text{C}$		58	75	mA

† Unless otherwise noted, $V_{CC} = 5.5\text{ V}$, $V_{(clamp)} = 24\text{ V}$. See Figure 3.†† All typical values are at $T_A = 25^\circ\text{C}$.NOTE 3: These characteristics must be measured using pulse techniques; $t_W = 200\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.

NOTE 4: For these tests only one output is to be on at any one time.

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ELECTRICAL CHARACTERISTICS: Ratings apply over recommended temperature range unless otherwise specified.

SYMBOL	CHARACTERISTICS	CONDITIONS†	MIN	TYP††	MAX	UNITS
V_{IH}	Input HIGH Voltage		2.0			V
V_{IL}	Input LOW Voltage				0.8	V
V_{CD}	Input Clamp Diode Voltage	$V_{CC} = 4.5 \text{ V}$, $I_{IN} = -10 \text{ mA}$, $T_A = 25^\circ\text{C}$		-1.0	-1.7	V
$I_{(off)}$	Collectors Terminal Off-state Current	$V_{CC1} = 4.5 \text{ V}$, $V_{(col)} = 24 \text{ V}$	Full Range $T_A = 25^\circ\text{C}$		500 150	μA
V_{SAT}	Saturation Voltage	$V_{CC1} = 4.5 \text{ V}$, $V_O = 0$ $I_{source} \approx -600 \text{ mA}$ See Notes 3 and 4	Full Range $T_A = 25^\circ\text{C}$		0.9 0.7	V
I_{IN}	Input Current at Maximum Input Voltage	Address Inputs Strobe Inputs $V_{IN} = 5.5 \text{ V}$			1.0 4.0	mA
I_{IH}	Input HIGH Current	Address Inputs Strobe Inputs $V_{IN} = 2.4 \text{ V}$			40 160	μA
I_{IL}	Input LOW Current	Address Inputs Strobe Inputs $V_{IN} = 0.4 \text{ V}$		-1.0 -4.0	-1.6 -6.4	mA
$I_{CC(off)}$	Supply Current, All Outputs Off	From V_{CC1} From V_{CC2} All Inputs at 5.0 V, $T_A = 25^\circ\text{C}$		7.0 13	10 20	mA
$I_{CC(on)}$	Supply Current	From V_{CC1} From V_{CC2} $I_{source} = -50 \text{ mA}$, $V_{(col)} = 6.0 \text{ V}$ $T_A = 25^\circ\text{C}$, See Note 3		8.0 36	12 55	mA

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ELECTRICAL CHARACTERISTICS: Ratings apply over recommended temperature range unless otherwise specified.

SYMBOL	CHARACTERISTICS	CONDITIONS†	MIN	TYP††	MAX	UNITS
V_{IH}	Input HIGH Voltage		2.0			V
V_{IL}	Input LOW Voltage				0.8	V
V_{CD}	Input Clamp Diode Voltage	$V_{CC} = 4.5 \text{ V}$, $I_{IN} = -10 \text{ mA}$, $T_A = 25^\circ\text{C}$		-1.0	-1.7	V
$I_{(off)}$	Collectors Terminal Off-state Current	$V_{CC1} = 4.5 \text{ V}$, $V_{(col)} = 24 \text{ V}$	Full Range $T_A = 25^\circ\text{C}$		200 200	μA
V_{SAT}	Saturation Voltage	$V_{CC1} = 4.5 \text{ V}$, $V_O = 0$ $I_{source} \approx -600 \text{ mA}$ See Notes 3 and 4	Full Range $T_A = 25^\circ\text{C}$		0.9 0.75	V
I_{IN}	Input Current at Maximum Input Voltage	Address Inputs Strobe Inputs $V_{IN} = 5.5 \text{ V}$			1.0 4.0	mA
I_{IH}	Input HIGH Current	Address Inputs Strobe Inputs $V_{IN} = 2.4 \text{ V}$			40 160	μA
I_{IL}	Input LOW Current	Address Inputs Strobe Inputs $V_{IN} = 0.4 \text{ V}$		-1.0 -4.0	-1.6 -6.4	mA
$I_{CC(off)}$	Supply Current, All Outputs Off	From V_{CC1} From V_{CC2} All Inputs at 5.0 V, $T_A = 25^\circ\text{C}$		7.0 13	10 20	mA
$I_{CC(on)}$	Supply Current	From V_{CC1} From V_{CC2} $I_{source} = -50 \text{ mA}$, $V_{(col)} = 6.0 \text{ V}$ $T_A = 25^\circ\text{C}$, See Note 3		8.0 36	12 55	mA

† Unless otherwise noted, $V_{CC} = 5.5 \text{ V}$, $V_{(clamp)} = 24 \text{ V}$. See Figure 3.†† All typical values are at $T_A = 25^\circ\text{C}$.NOTE 3: These characteristics must be measured using pulse techniques; $t_W = 200 \mu\text{s}$, duty cycle $\leq 2\%$.

NOTE 4: For these tests only one output is to be on at any one time.

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SWITCHING CHARACTERISTICS: $V_{CC1} = 5.0 \text{ V}$, $T_A = 25^\circ\text{C}$ (See Test Circuit Figure 5)

SYMBOL	CHARACTERISTICS	CONDITIONS (See Note 4)	MIN	TYP	MAX	UNITS
t _{PLH}	Propagation Delay Time to A, B, C or D	V _S = V _(clamp) = 15 V, R _L = 24 Ω, C _L = 25 pF		30	50	ns
t _{PHL}				25	50	
t _{TLH}	Transition Time to A, B, C or D			7.0	15	ns
t _{THL}				10	20	
t _s	Storage Time to A, B, C or D				24	35
V _{OH}	Output HIGH Voltage	V _S = V _(clamp) = 24 V, R _L = 47 Ω, C _L = 25 pF, I _{sink} ≈ 500 mA	V _S - 25			mV

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SWITCHING CHARACTERISTICS: $V_{CC1} = 5.0 \text{ V}$, $T_A = 25^\circ\text{C}$ (See Test Circuit Figure 5)

SYMBOL	CHARACTERISTICS	CONDITIONS (See Note 4)	MIN	TYP	MAX	UNITS
t_{PLH}	Propagation Delay Time to Collectors A,D or B,C	$V_S = V_{CC2} = 15 \text{ V}$, $R_L = 24 \Omega$, $C_L = 25 \text{ pF}$, See Figure 5 and Note 5		35	55	ns
t_{PHL}				30	55	
t_{TLH}	Transition Time to A,B,C or D	$V_{(col)} = V_{CC2} = 20 \text{ V}$, $R_L = 100 \Omega$, $C_L = 25 \text{ pF}$, See Figure 6 and Note 5		30		ns
t_{THL}				10		
V_{OH}	Output HIGH Voltage to Collectors A,D or B,C	$V_S = V_{CC2} = 24 \text{ V}$, $R_L = 47 \Omega$, $C_L = 24 \text{ pF}$, $I_{sink} \approx 500 \text{ mA}$, See Figure 5 and Note 5	$V_S - 25$			mV

† Unless otherwise noted, $V_{CC} = 5.5 \text{ V}$, $V_{(clamp)} = 24 \text{ V}$. See Figure 3.

†† All typical values are at $T_A = 25^\circ\text{C}$.

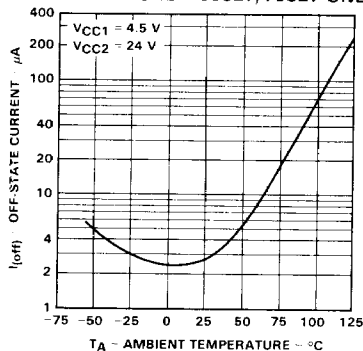
NOTE 3: These characteristics must be measured using pulse techniques: $t_W = 200 \mu\text{s}$, duty cycle $\leq 2\%$.

NOTE 4: For these tests only one output is to be on at any one time.

NOTE 5: A 350 Ω resistor is connected between node R (pin 4) and V_{CC2} (pin 1) with R_{int} (pin 5) open.

TYPICAL PERFORMANCE CURVES

OFF-STATE CURRENT INTO
SOURCE COLLECTORS AS A
FUNCTION OF AMBIENT
TEMPERATURE - 55327/75327 ONLY



SINK OUTPUT HIGH VOLTAGE
AS A FUNCTION OF AMBIENT
TEMPERATURE - 55326/75326 ONLY

