55/75450B-F,N • 55/75451B/2B/3B/4B-N,T

DESCRIPTION

Series 55450B/75450B dual peripheral drivers are a family of versatile devices designed for use in systems that employ TTL or DTL logic. The 55450B/75450B family is functionally interchangeable with and replaces the 75450 family and the 75450A family devices manufactured previously. The speed of the 55450B/75450B family is equal to that of the 75450 family and a test to ensure freedom from latch-up has been added. Diode-clamped inputs simplify circuit design. Typical applications include high-speed logic buffers, power drivers, relay drivers, lamp drivers, MOS drivers, line drivers, and memory drivers. Series 55450B drivers are characterized for operation over the full military temperature range of -55°C to 125°C; Series 75450B drivers are characterized for operation from 0°C to 70°C.

The 55450B and 75450B are unique general-purpose devices each featuring two standard Series 54/74 TTL gates and two uncommitted, high-current, high-voltage n-p-n transistors. These devices offer the system designer the flexibility of tailoring the circuit to the application.

The 55451B/75451B, 55452B/75452B, 55453B/75453B, and 55454B/75454B are dual peripheral AND, NAND, OR, and NOR drivers, respectively, (assuming positive logic) with the output of the logic gates internally connected to the bases of the n-p-n output transistors.

FEATURES

- **300mA output current capability**
- **High voltage outputs**
- **No output latch up at 20V**
- **High speed switching**
- **Circuit flexibility for varied applications**
- **TTL or DTL compatible diode—clamped inputs**
- **Standard supply voltages**

TRUTH TABLE (55/75450B and 55/75451B)

A	B	Y
L	L	L (on state)
L	H	L (on state)
H	L	L (on state)
H	H	H (off state)

TRUTH TABLE (55/75452B)

A	B	Y
L	L	H (off state)
L	H	H (off state)
H	L	H (off state)
H	H	L (on state)

TRUTH TABLE (55/75453B)

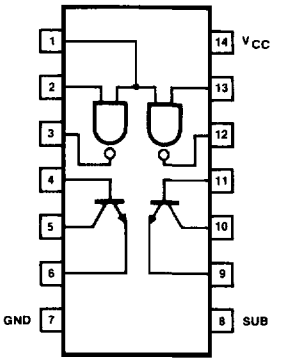
A	B	Y
L	L	L (on state)
L	H	H (off state)
H	L	H (off state)
H	H	H (off state)

TRUTH TABLE (55/75454B)

A	B	Y
L	L	H (off state)
L	H	L (on state)
H	L	L (on state)
H	H	L (on state)

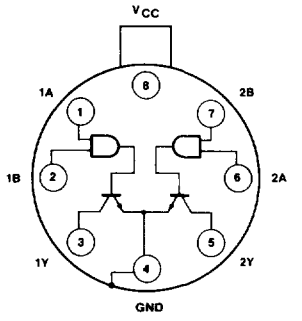
PIN CONFIGURATIONS

F,N PACAGE



ORDER PART NO.
55/775450B

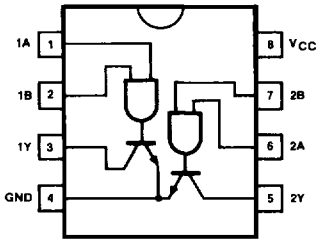
T PACKAGE



Pin 4 is in electrical contact with the case

ORDER PART NO.
55/75451B
55/75452B
55/75453B
55/75454B

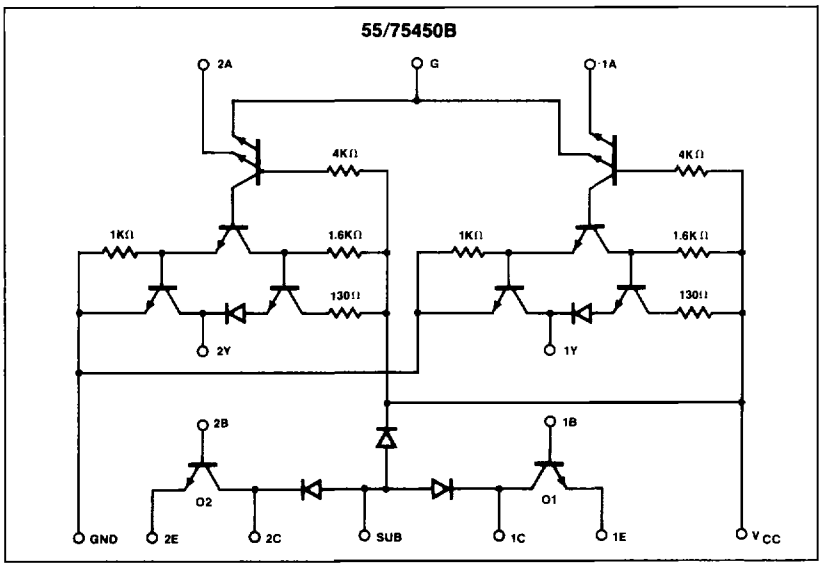
N PACKAGE



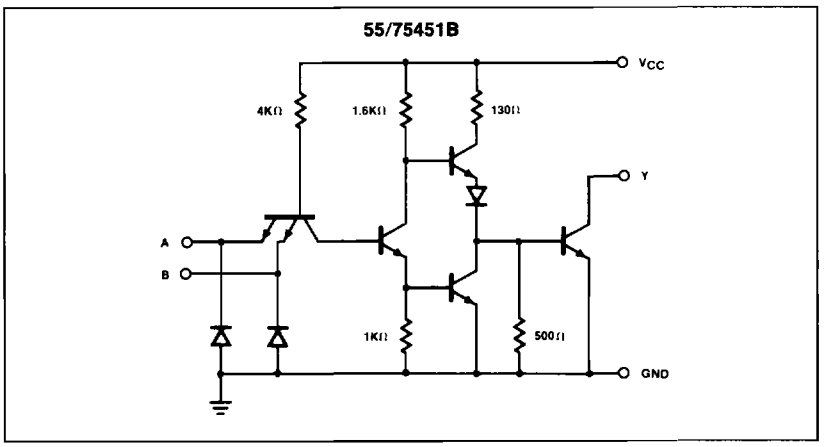
positive logic Y = AB

EQUIVALENT SCHEMATICS

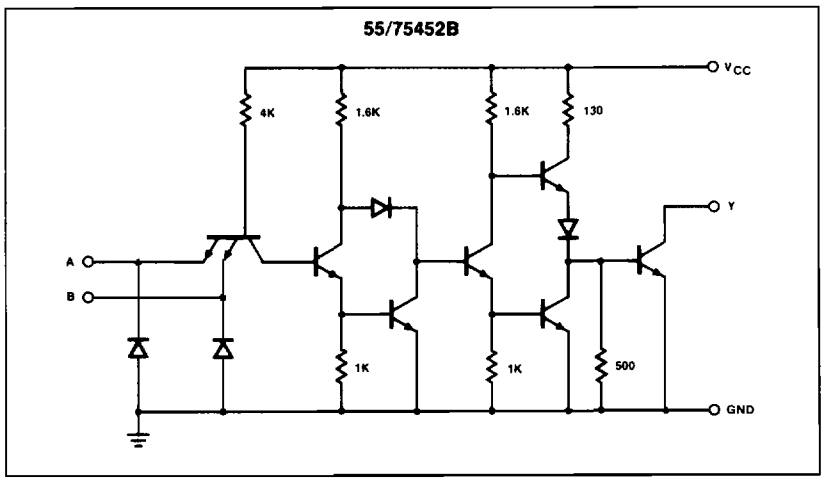
55/75450B



55/75451B

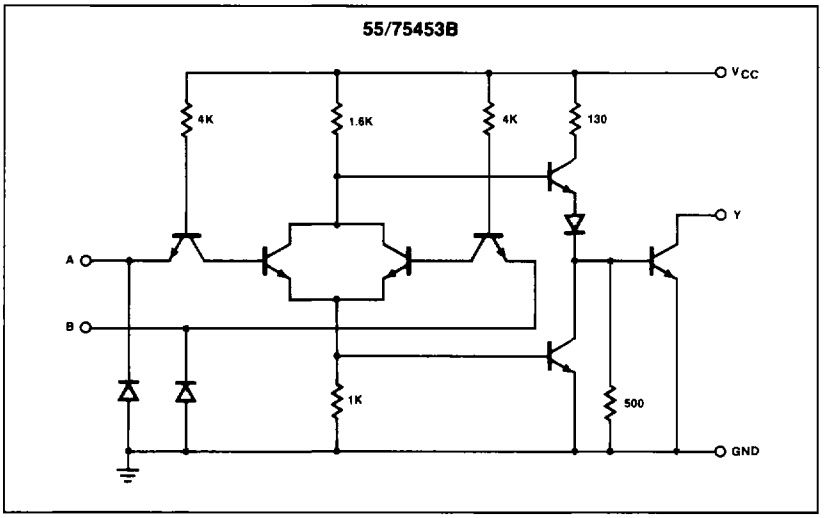


55/75452B

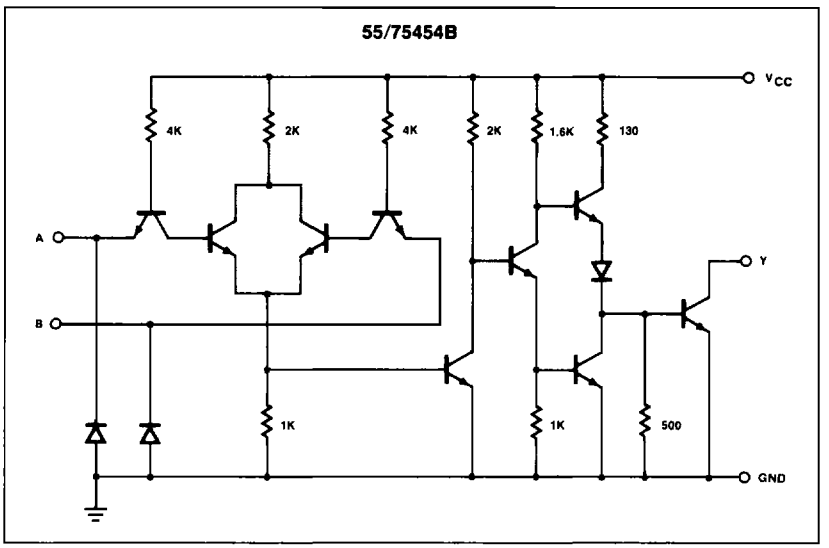


EQUIVALENT SCHEMATICS

55/75453B



55/75454B



ABSOLUTE MAXIMUM RATINGS $T_A = 25°C$ unless otherwise specified.

PARAMETER	55450B	75450B	55454B 55453B 55452B 55451B	75454B 75453B 75452B 75451B	UNIT
Supply voltage, V_{CC}[1]	7	7	7	7	V
Input voltage	5.5	5.5	5.5	5.5	V
Interemitter voltage[2]	5.5	5.5	5.5	5.5	V
V_{CC}-to-substrate voltage	35	35			V
Collector-to-substrate voltage	35	35			V
Collector-base voltage	35	35			V
Collector-emitter voltage[3]	30	30			V
Emitter-base voltage	5	5			V
Output voltage[4]			30	30	V
Collector current[5]	300	300			mA
Output current[5]			300	300	mA
Continuous total dissipation at (or below) 25°C free-air temperature[6]	800	800	800	800	mW
Operating free-air temperature range	-55 to 125	0 to 70	-55 to 125	0 to 70	°C
Storage temperature range	-65 to 150	-65 to 150	-65 to 150	-65 to 150	°C
Lead temperature 1/16 inch from case for 60 seconds F or T package	300	300	300	300	°C
Lead temperature 1/16 inch from case for 10 seconds N package	260	260	260	260	°C

NOTES

1. Voltage values are with respect to network ground terminal unless otherwise specified.
2. This is the voltage between two emitters of a multiple-emitter transitor.
3. This value applies when the base-emitter resistance (R_{BE}) is equal to or less than 500Ω
4. This is the maximum voltage which should be applied to any output when it is in the off state
5. Both halves of these dual circuits may conduct rated current simultaneously; however, power dissipation averaged over a short time interval must fall within the continuous dissipation rating
6. For operation above 25°C free-air temperature, refer to Dissipation Derating Curve, Figure 20. This rating for the T package requires a heat sink that provides a thermal resistance from case to free-air, $R_{\theta CA}$, of not more than 95° C/W.

DC ELECTRICAL CHARACTERISTICS $T_A = 25°C$, $V_{CC} = 5V$ unless otherwise specified.

PARAMETER		TEST CONDITIONS	55450B			75450B			UNIT
			Min	Typ	Max	Min	Typ	Max	
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C = 100\mu A$, $I_E = 0$	35			35			V
$V_{(BR)CER}$	Collector-emitter breakdown voltage	$I_C = 100\mu A$, $R_{BE} = 500\Omega$	30			30			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E = 100\mu A$, $I_C = 0$	5			5			V
h_{FE}	Static forward current transfer ratio	$V_{CE} = 3V$, $I_C = 100mA$	25			25			
h_{FE}	Static forward current transfer ratio	$V_{CE} = 3V$, $I_C = 300mA$	30			30			
h_{FE}	Static forward current transfer ratio	$V_{CE} = 3V$, $I_C = 100mA$	10						
h_{FE}	Static forward current transfer ratio	$V_{CE} = 3V$, $I_C = 300mA$	15						
h_{FE}	Static forward current transfer ratio	$V_{CE} = 3V$, $I_C = 100mA$				20			
h_{FE}	Static forward current transfer ratio	$V_{CE} = 3V$, $I_C = 300mA$				25			
V_{BE}	Base-emitter voltage	$I_B = 10mA$, $I_C = 100mA$		0.85	1.2		0.85	1	V
V_{BE}	Base-emitter voltage	$I_B = 30mA$, $I_C = 300mA$		1.05	1.4		1.05	1.2	V
$V_{CE(SAT)}$	Collector-emitter saturation voltage	$I_B = 10mA$, $I_C = 100mA$		0.25	0.5		0.25	0.4	V
$V_{CE(SAT)}$	Collector-emitter saturation voltage	$I_B = 30mA$, $I_C = 300mA$		0.5	0.8		0.5	0.7	V

DC ELECTRICAL CHARACTERISTICS (Cont'd) $T_A = 25°C$, $V_{CC} = 5V$ unless otherwise specified.

PARAMETER			TEST CONDITIONS	55450B			75450B			UNIT
				Min	Typ	Max	Min	Typ	Max	
V_{IH}	High-level input voltage			2			2			V
V_{IL}	Low-level input voltage					0.8			0.8	V
V_I	Input clamp voltage		V_{CC} = 4.5V I_I = -12mA			1.5				V
V_I	Input clamp voltage		V_{CC} = 4.75V I_I = -12mA						1.5	V
V_{OH}	High-level output voltage		V_{CC} = 4.5V V_{IL} = 0.8V I_{OH} = -400μA	2.4	3.3					V
V_{OH}	High-level output voltage		V_{CC} = 4.75V V_{IL} = 0.8V I_{OH} = -400μA						2.4	3.3	V
V_{OL}	Low-level output voltage		V_{CC} = 4.5V V_{IH} = 2V I_{OL} = 16mA		0.22	0.5				V
V_{OL}	Low-level output voltage		V_{CC} = 4.75V V_{IH} = 2V I_{OL} = 16mA						0.22	0.4	V
I_I	Input current at maximum input voltage	InputA	V_{CC} = 5.5V V_I = 5.5V			1				mA
		InputG				2				
I_I	Input current at maximum input voltage	InputA	V_{CC} = 5.25V V_I = 5.5V						1	mA
		InputG							2	
I_{IH}	High level input current	InputA	V_{CC} = 5.5V V_I = 2.4V			40				μA
		InputG				80				
I_{IH}	High level input current	InputA	V_{CC} = 5.25V V_I = 2.4V						40	μA
		InputG							80	
I_{IL}	Low-level input current	InputA	V_{CC} = 5.5V V_I = 0.4V			-1.6				mA
		InputG				-3.2				
I_{IL}	Low-level input current	InputA	V_{CC} = 5.25V V_I = 0.4V						-1.6	mA
		InputG							-3.2	
I_{OS}	Short-circuit output current[2]		V_{CC} = 5.5V	-18		-55				mA
I_{OS}	Short-circuit output current[2]		V_{CC} = 5.25V				-18		-55	mA
I_{CCH}	Supply current, outputs high		V_{CC} = 5.5V V_I = 0		2	4				mA
I_{CCH}	Supply current, outputs high		V_{CC} = 5.25V V_I = 0					2	4	mA
I_{CCL}	Supply current, outputs low		V_{CC} = 5.5V V_I = 5V		6	11				mA
I_{CCL}	Supply current, outputs low		V_{CC} = 5.25V V_I = 5V					6	11	mA

NOTES

1. Electrical characteristics over recommended operating free-air temperature range (unless otherwise specified).
2. Not more than one output should be shorted at a time

DC ELECTRICAL CHARACTERISTICS (Cont'd) $T_A = 25°C$, $V_{CC} = 5V$ unless otherwise specified.

PARAMETER		TEST CONDITIONS	55451			75451			UNIT
			Min	Typ	Max	Min	Typ	Max	
V_{IH}	High-level input voltage		2			2			V
V_{IL}	Low-level input voltage				0.8			0.8	V
V_I	Input clamp voltage	$V_{CC} = 4.5V$ $I_I = -12mA$			-1.5				V
V_I	Input clamp voltage	$V_{CC} = 4.75V$ $I_I = -12mA$						1.5	
I_{OH}	High-level output current	$V_{CC} = 4.5V$, $V_{IH} = 2V$, $V_{OH} = 30V$			300				μA
I_{OH}	High-level output current	$V_{CC} = 4.75V$, $V_{IH} = 2V$, $V_{OH} = 30V$						100	μA
V_{OL}	Low-level output voltage	$V_{CC} = 4.5V$, $V_{IL} = 0.8V$, $I_{OL} = 100mA$		0.25	0.5				V
		$V_{CC} = 4.5V$, $V_{IL} = 0.8V$, $I_{OL} = 300mA$		0.5	0.8				
V_{OL}	Low-level output voltage	$V_{CC} = 4.75V$, $V_{IL} = 0.8V$, $I_{OL} = 100mA$					0.25	0.4	V
		$V_{CC} = 4.75V$, $V_{IL} = 0.8V$, $I_{OL} = 300mA$					0.5	0.7	
I_I	Input current at maximum input voltage	$V_{CC} = 5.5V$, $V_I = 5.5V$			1				mA
I_I	Input current at maximum input voltage	$V_{CC} = 5.25V$, $V_I = 5.5V$						1	mA
I_{IH}	High level input current	$V_{CC} = 5.5V$, $V_I = 2.4V$			40				mA
I_{IH}	High level input current	$V_{CC} = 5.25V$ $V_I = 2.4V$						40	μA
I_{IL}	Low level input current	$V_{CC} = 5.5V$ $V_I = 0.4V$		-1	-1.6				mA
I_{IL}	Low-level input current	$V_{CC} = 5.25V$ $V_I = 0.4V$					-1	-1.6	mA
I_{CCH}	Supply current, outputs high	$V_{CC} = 5.5V$ $V_I = 5V$		7	11				mA
I_{CCH}	Supply current, outputs high	$V_{CC} = 5.25V$ $V_I = 5V$					7	11	mA
I_{CCL}	Supply current, outputs low	$V_{CC} = 5.5V$ $V_I = 0$		52	65				mA
I_{CCL}	Supply current, outputs low	$V_{CC} = 5.25V$ $V_I = 0$					52	65	mA

DC ELECTRICAL CHARACTERISTICS (Cont'd) $T_A = 25°C$, $V_{CC} = 5V$ unless otherwise specified.

PARAMETER		TEST CONDITIONS	55452			75452			UNIT
			Min	Typ	Max	Min	Typ	Max	
V_{IH}	High-level input voltage		2			2			V
V_{IL}	Low-level input voltage				0.8			0.8	V
V_I	Input clamp voltage	$V_{CC} = 4.5V$ $I_I = -12mA$			-1.5				V
V_I	Input clamp voltage	$V_{CC} = 4.75V$ $I_I = -12mA$						-1.5	
I_{OH}	High-level output current	$V_{CC} = 4.5V$, $V_{IL} = 0.8V$, $V_{OH} = 30V$							μA
I_{OH}	High-level output current	$V_{CC} = 4.75V$, $V_{IL} = 0.8V$, $V_{OH} = 30V$			300			100	μA
V_{OL}	Low-level output voltage	$V_{CC} = 4.5V$, $V_{IH} = 2V$, $I_{OL} = 100mA$		0.25	0.5				V
		$V_{CC} = 4.5V$, $V_{IH} = 2V$, $I_{OL} = 300mA$		0.5	0.8				
V_{OL}	Low-level output voltage	$V_{CC} = 4.75V$, $V_{IH} = 2V$, $I_{OL} = 100mA$					0.25	0.4	V
		$V_{CC} = 4.75V$, $V_{IH} = 2V$, $I_{OL} = 300mA$					0.5	0.7	
I_I	Input current at maximum input voltage	$V_{CC} = 5.5V$, $V_I = 5.5V$			1				mA
I_I	Input current at maximum input voltage	$V_{CC} = 5.25V$, $V_I = 5.5V$						1	mA
I_{IH}	High-level input current	$V_{CC} = 5.5V$, $V_I = 2.4V$			40				μA
I_{IH}	High-level input current	$V_{CC} = 5.25V$, $V_I = 2.4V$						40	μA
I_{IL}	Low-level input current	$V_{CC} = 5.5V$, $V_I = 0.4V$		-1	-1.6				mA
I_{IL}	Low-level input current	$V_{CC} = 5.25V$, $V_I = 0.4V$					-1	-1.6	mA
I_{CCH}	Supply current, outputs high	$V_{CC} = 5.5V$, $V_I = 0V$		11	14				mA
I_{CCH}	Supply current, outputs high	$V_{CC} = 5.25V$, $V_I = 0V$					11	14	mA
I_{CCL}	Supply current, outputs low	$V_{CC} = 5.5V$, $V_I = 5V$		56	71				mA
I_{CCL}	Supply current, outputs low	$V_{CC} = 5.25V$, $V_I = 5V$					56	71	mA

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DC ELECTRICAL CHARACTERISTICS (Cont'd) $T_A = 25°C$, $V_{CC} = 5V$ unless otherwise specified.

PARAMETER		TEST CONDITIONS	55453			75453			UNIT
			Min	Typ	Max	Min	Typ	Max	
V_{IH}	High-level input voltage		2			2			V
V_{IL}	Low-level input voltage				0.8			0.8	V
V_I	Input clamp voltage	$V_{CC} = 4.5V$ $I_I = -12mA$			-1.5				V
V_I	Input clamp voltage	$V_{CC} = 4.75V$ $I_I = -12mA$						-1.5	
I_{OH}	High-level output current	$V_{CC} = 4.5V$, $V_{IH} = 2V$, $V_{OH} = 30V$			300				μA
I_{OH}	High-level output current	$V_{CC} = 4.75V$, $V_{IH} = 2V$, $V_{OH} = 30V$						100	μA
V_{OL}	Low-level output voltage	$V_{CC} = 4.5V$, $V_{IL} = 0.8V$, $I_{OL} = 100mA$		0.25	0.5				V
		$V_{CC} = 4.5V$, $V_{IL} = 0.8V$, $I_{OL} = 300mA$		0.5	0.8				
V_{OL}	Low-level output voltage	$V_{CC} = 4.75V$, $V_{IL} = 0.8V$, $I_{OL} = 100mA$					0.25	0.4	V
		$V_{CC} = 4.75V$, $V_{IL} = 0.8V$, $I_{OL} = 300mA$					0.5	0.7	
I_I	Input current at maximum input voltage	$V_{CC} = 5.5V$, $V_I = 5.5V$			1				mA
I_I	Input current at maximum input voltage	$V_{CC} = 5.25V$, $V_I = 5.5V$						1	mA
I_{IH}	High-level input current	$V_{CC} = 5.5V$, $V_I = 2.4V$			40				μA
I_{IH}	High-level input current	$V_{CC} = 5.25V$, $V_I = 2.4V$						40	μA
I_{IL}	Low-level input current	$V_{CC} = 5.5V$, $V_I = 0.4V$		-1	-1.6				mA
I_{IL}	Low-level input current	$V_{CC} = 5.25V$, $V_I = 0.4V$					-1	-1.6	mA
I_{CCH}	Supply current, outputs high	$V_{CC} = 5.5V$, $V_I = 5V$		8	11				mA
I_{CCH}	Supply current, outputs high	$V_{CC} = 5.25V$, $V_I = 5V$					8	11	mA
I_{CCL}	Supply current, outputs low	$V_{CC} = 5.5V$, $V_I = 0$		54	68				mA
I_{CCL}	Supply current, outputs low	$V_{CC} = 5.25V$, $V_I = 0$					54	68	mA

DC ELECTRICAL CHARACTERISTICS (Cont'd) $T_A = 25°C$, $V_{CC} = 5V$ unless otherwise specified.

PARAMETER		TEST CONDITIONS	55454			75454			UNIT
			Min	Typ	Max	Min	Typ	Max	
V_{IH}	High-level input voltage		2			2			V
V_{IL}	Low-level input voltage				0.8			0.8	V
V_I	Input clamp voltage	$V_{CC} = 4.5V$ $I_I = -12mA$			-1.5				V
V_I	Input clamp voltage	$V_{CC} = 4.75V$ $I_I = -12mA$						-1.5	
I_{OH}	High-level output current	$V_{CC} = 4.5V$, $V_{IL} = 0.8V$, $V_{OH} = 30V$							μA
I_{OH}	High-level output current	$V_{CC} = 4.75V$, $V_{IL} = 0.8V$, $V_{OH} = 30V$			300			100	
V_{OL}	Low-level output voltage	$V_{CC} = 4.5V$, $V_{IH} = 2V$, $I_{OL} = 100mA$		0.25	0.5				V
		$V_{CC} = 4.5V$, $V_{IH} = 2V$, $I_{OL} = 300mA$		0.5	0.8				V
V_{OL}	Low-level output voltage	$V_{CC} = 4.75V$, $V_{IH} = 2V$, $I_{OL} = 100mA$					0.25	0.4	V
		$V_{CC} = 4.75V$, $V_{IH} = 2V$, $I_{OL} = 300mA$					0.5	0.7	
I_I	Input current at maximum input voltage	$V_{CC} = 5.5V$, $V_I = 5.5V$			1				mA
I_I	Input current at maximum input voltage	$V_{CC} = 5.25V$, $V_I = 5.5V$						1	mA
I_{IH}	High-level input current	$V_{CC} = 5.5V$, $V_I = 2.4V$			40				μA
I_{IH}	High-level input current	$V_{CC} = 5.25V$, $V_I = 2.4V$						40	μA
I_{IL}	Low-level input current	$V_{CC} = 5.5V$, $V_I = 0.4V$		-1	-1.6				mA
I_{IL}	Low-level input current	$V_{CC} = 5.25V$, $V_I = 0.4V$					-1	-1.6	mA
I_{CCH}	Supply current, outputs high	$V_{CC} = 5.5V$, $V_I = 0V$		13	17				mA
I_{CCH}	Supply current, outputs high	$V_{CC} = 5.25V$, $V_I = 0V$					13	17	mA
I_{CCL}	Supply current, outputs low	$V_{CC} = 5.5V$, $V_I = 5V$		61	79				mA
I_{CCL}	Supply current, outputs low	$V_{CC} = 5.25V$, $V_I = 5V$					61	79	mA

55/75450B-F,N • 55/75451B/2B/3B/4B-N,T

AC ELECTRICAL CHARACTERISTICS $T_A = 25°C$, $V_{CC} = 5V$ unless otherwise specified.

PARAMETER		TEST CONDITIONS	55/75450B			UNIT
			Min	Typ	Max	
TTL GATES						
t_{PLH}	Propagation delay time, low-to-high output	$C_L = 15pF$, $R_L = 400\Omega$		12	22	ns
t_{PHL}	Propagation delay time, high-to-low level output			8	15	ns
OUTPUT TRANSISTORS						
t_d	Delay time	$I_C = 200mA$, $I_{B(1)} = 20mA$,		8	15	ns
t_r	Rise time	$I_{B(2)} = -40mA$,		12	20	ns
t_s	Storage time	$V_{BE(OFF)} = -1V$, $C_L = 15pF$,		7	15	ns
t_f	Full time	$R_L = 50\Omega$		6	15	ns
GATES AND TRANSISTORS COMBINED						
t_{PLH}	Propagation delay time, low-to-high level output	$I_C \approx 200mA$, $C_L = 15pF$, $R_L = 50\Omega$		20	30	ns
t_{PHL}	Propagation delay time, high-to-low level output			20	30	ns
t_{TLH}	Transition time, low-to-high level output			7	12	ns
t_{THL}	Transition time, high-to-low level output			9	15	ns
V_{OH}	High-level output voltage after switching	$V_S = 20V$, $I_C \approx 300mA$ $R_{BE} = 500\Omega$	V_S-6.5			mV

AC ELECTRICAL CHARACTERISTICS $T_A = 25°C$, $V_{CC} = 5V$ unless otherwise specified.

PARAMETER		TEST CONDITIONS	55451/75451			55452/75452			UNIT
			Min	Typ	Max	Min	Typ	Max	
t_{PLH}	Propagation delay time, low-to-high level output	$I_O \approx 200mA$, $C_L = 15pF$, $R_L = 50\Omega$		18	25		26	35	ns
t_{PHL}	Propagation delay time, high-to-low level output	$I_O \approx 200mA$, $C_L = 15pF$, $R_L = 50\Omega$		18	25		24	35	ns
t_{TLH}	Transition time, low-to-high level output	$I_O \approx 200mA$, $C_L = 15pF$, $R_L = 50\Omega$		5	8		5	8	ns
t_{THL}	Transition time, High-to-low level output	$I_O \approx 200mA$, $C_L = 15pF$, $R_L = 50\Omega$		7	12		7	12	ns
V_{OH}	High-level output voltage after switching	$V_S = 20V$, $I_O \approx 300mA$	V_S-6.5			V_S-6.5			mV

NOTE

Voltage and current values shown are nominal; exact values vary slightly with transistor parameters.

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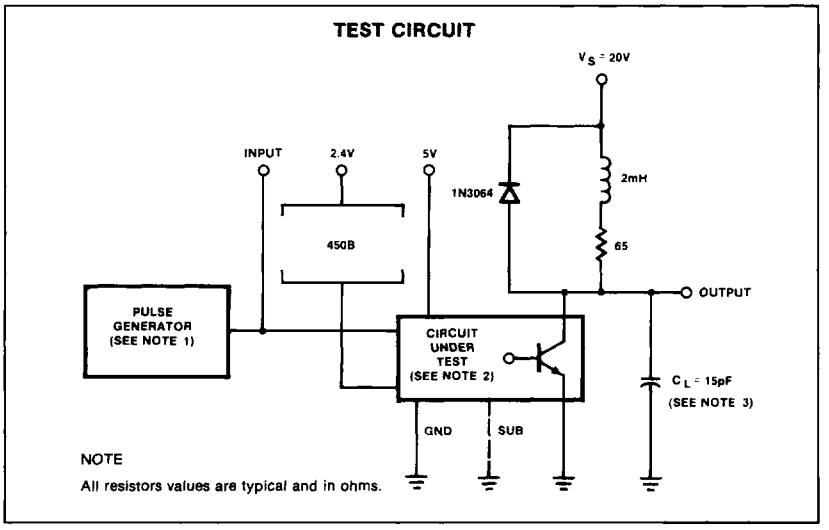
AC ELECTRICAL CHARACTERISTICS (Cont'd) $T_A = 25°C$, $V_{CC} = 5V$ unless otherwise specified.

PARAMETER		TEST CONDITIONS	55453/75453			55454/75454			UNIT
			Min	Typ	Max	Min	Typ	Max	
t_{PLH}	Propagation delay time, low-to-high level output	$I_O \approx 200mA$, $C_L = 15pF$, $R_L = 50\Omega$		18	25		27	35	ns
t_{PHL}	Propagation delay time, high-to-low level output	$I_O \approx 200mA$, $C_L = 15pF$, $R_L = 50\Omega$		16	25		24	35	ns
t_{TLH}	Transition time, low-to-high level output	$I_O \approx 200mA$, $C_L = 15pF$, $R_L = 50\Omega$		5	8		5	8	ns
t_{THL}	Transition time, High-to-low level output	$I_O \approx 200mA$, $C_L = 15pF$, $R_L = 50\Omega$		7	12		7	12	ns
V_{OH}	High-level output voltage after switching	$V_S = 20V$, $I_O \approx 300mA$	V_S-6.5			V_S-6.5			mV

NOTE

Voltage and current values shown are nominal; exact values vary slightly with transistor parameters.

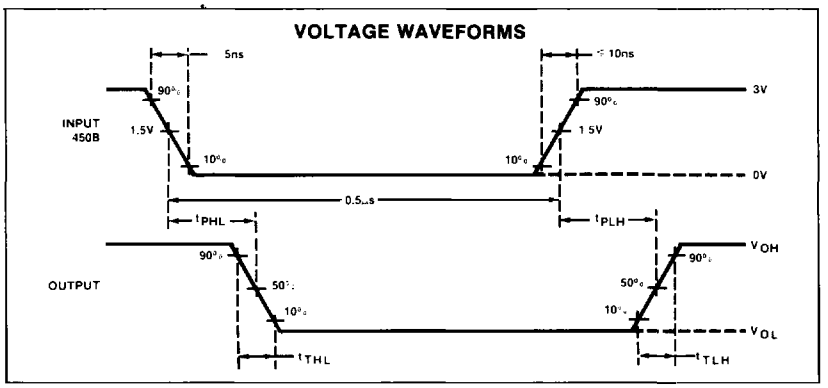
LATCH-UP TEST OF COMPLETE DRIVERS



NOTES

1. The pulse generator has the following characteristics: PRR = 12.5kHz, $Z_{OUT} = 50\Omega$.
2. When testing 55450B or 75450B, connect output Y to transistor base with a 500-Ω resistor from there to ground, and ground to substrate terminal.
3. C_L includes probe and jig capacitance.

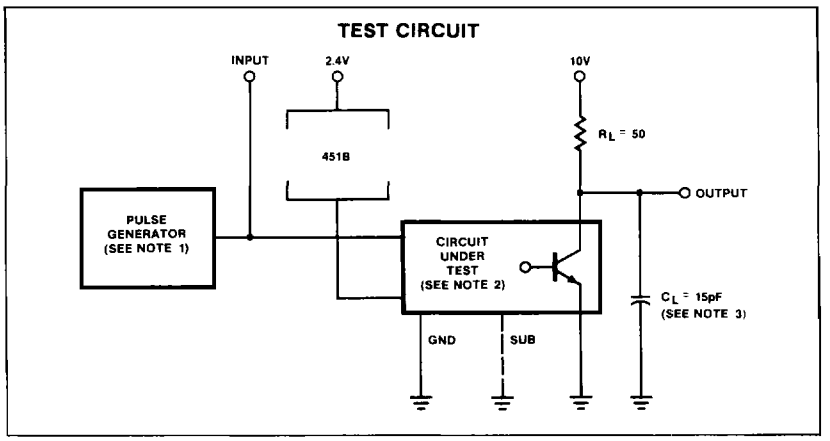
LATCH-UP TEST OF COMPLETE DRIVERS (Cont'd)

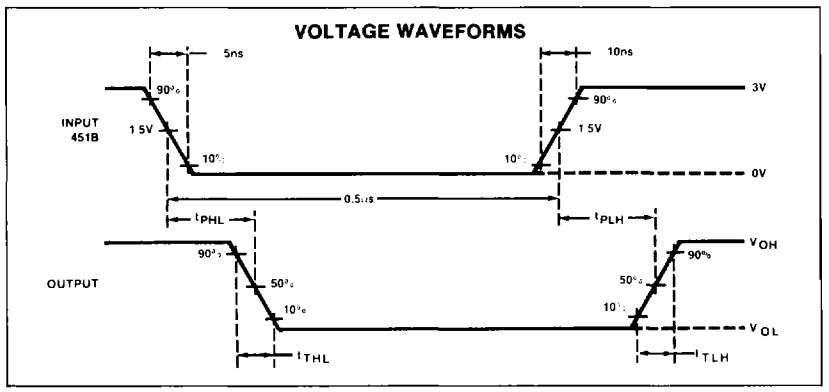


NOTES

1. The pulse generator has the following characteristics: PRR = 12.5kHz, Z_{OUT} = 50Ω.
2. When testing 55450B or 75450B, connect output Y to transistor base with a 500-Ω resistor from there to ground, and ground to substrate terminal.
3. C_L includes probe and jig capacitance.

SWITCHING TIMES OF COMPLETE DRIVERS

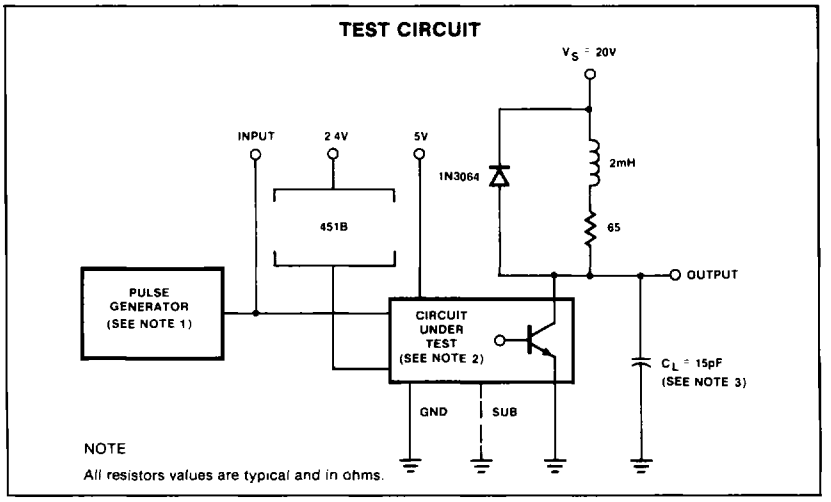


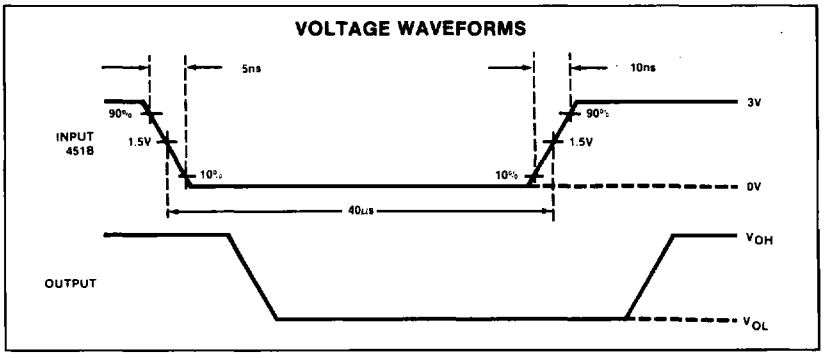


NOTES

1. The pulse generator has the following characteristics: PRR = 1MHz, Z_{OUT} ≈ 50Ω.
2. When testing 55451B or 75451B, connect output Y to translator base and ground the substrate terminal.
3. C_L includes probe and jig capacitance

LATCH-UP TEST OF COMPLETE DRIVERS

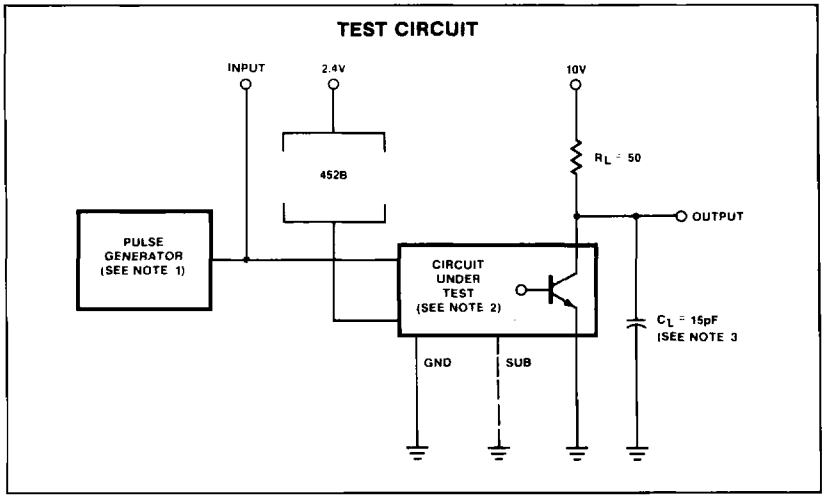




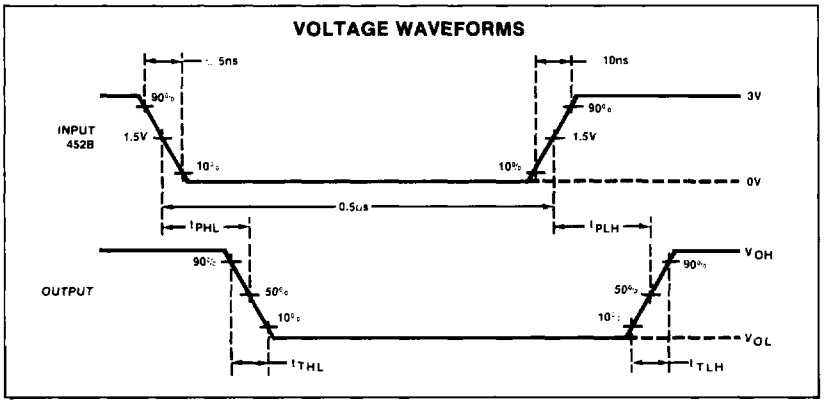
NOTES

1. The pulse generator has the following characteristics: PRR = 12.5kHz, Z_{OUT} = 50Ω.
2. When testing 55451B or 75451B, connect output Y to transistor base with a 500-Ω resistor from there to ground, and ground the substrate terminal.
3. C_L includes probe and jig capacitance.

SWITCHING TIMES OF COMPLETE DRIVERS



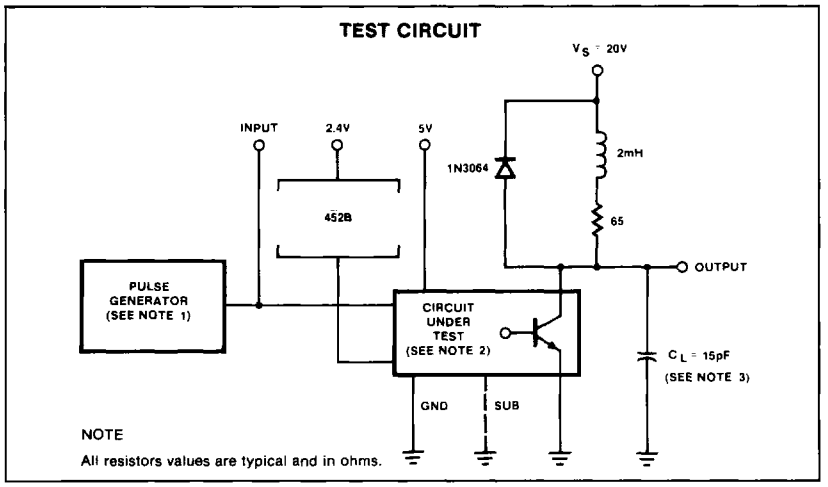
SWITCHING TIMES OF COMPLETE DRIVERS (Cont'd)

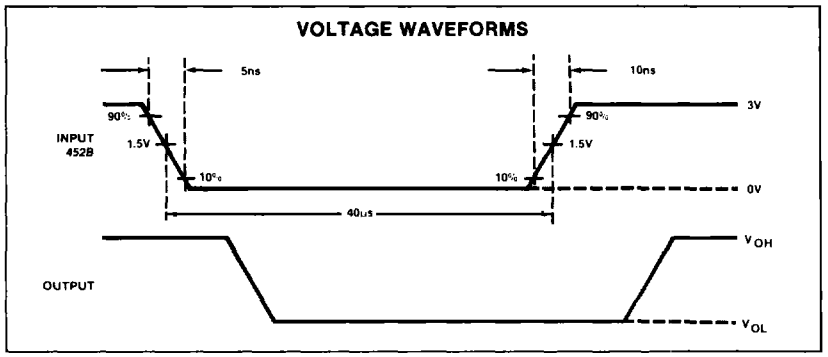


NOTES

1. *The pulse generator has the following characteristics:* PRR = 1MHz, $Z_{OUT} \approx 50\Omega$.
2. When testing 55452B or 75452B, connect output Y to transistor base and ground the substrate terminal.
3. C_L includes probe and jig capacitance.

LATCH-UP TEST OF COMPLETE DRIVERS





NOTES

1. The pulse generator has the following characteristics: PRR = 12.5kHz, Z_{OUT} = 50Ω.
2. When testing 55452B or 75452B, connect output Y to transistor base with a 500-Ω resistor from there to ground, and ground the substrate terminal
3. C_L includes probe and jig capacitance.

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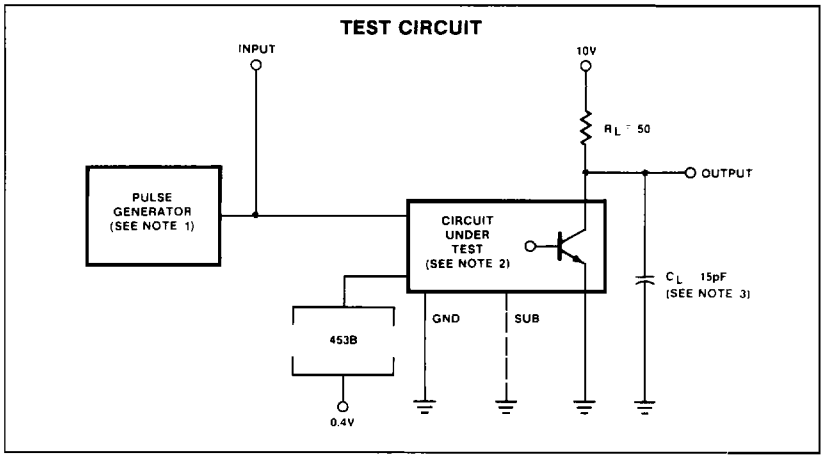
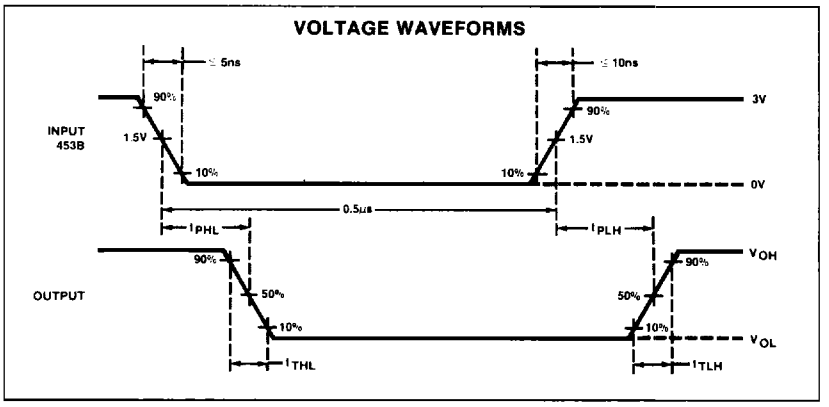
SWITCHING TIMES OF COMPLETE DRIVERS

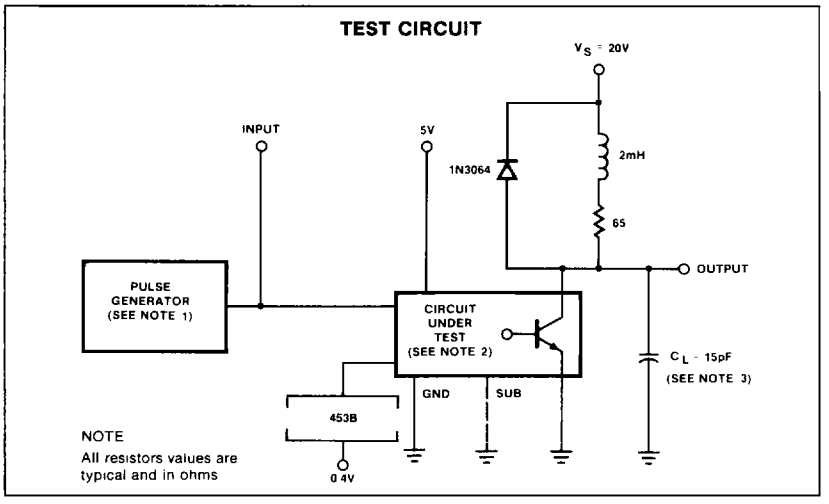




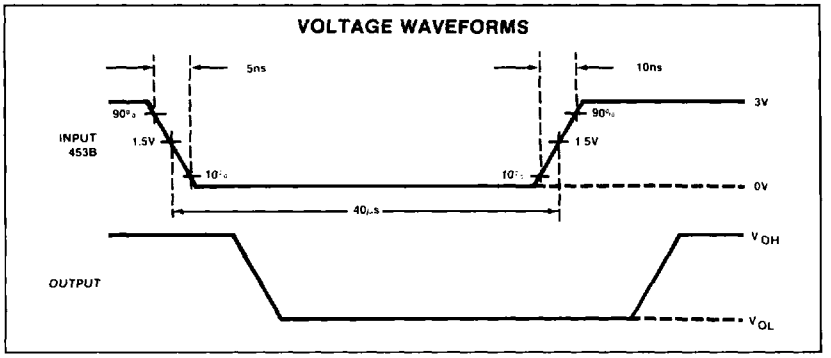
NOTES

1. The pulse generator has the following characteristics: PRR = 1MHz, $Z_{OUT} \approx 50\Omega$.
2. When testing 55453B or 75453B, connect output Y to transistor base and ground the substrate terminal.
3. C_L includes probe and jig capacitance

LATCH-UP TEST OF COMPLETE DRIVERS



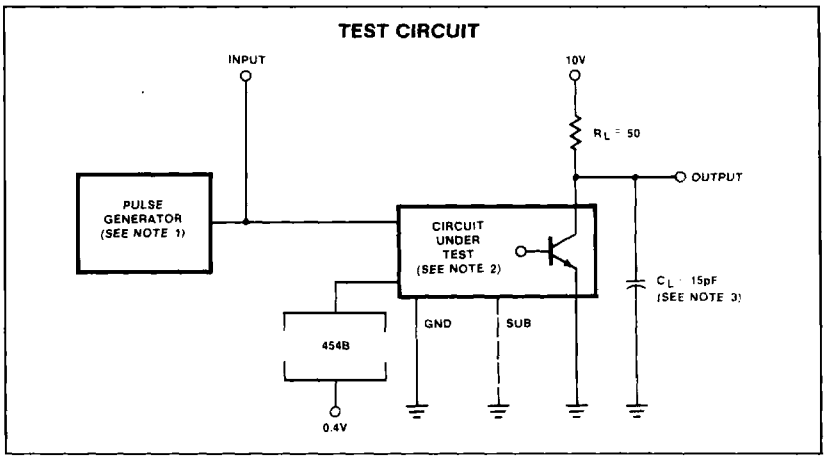
LATCH-UP TEST OF COMPLETE DRIVERS (Cont'd)

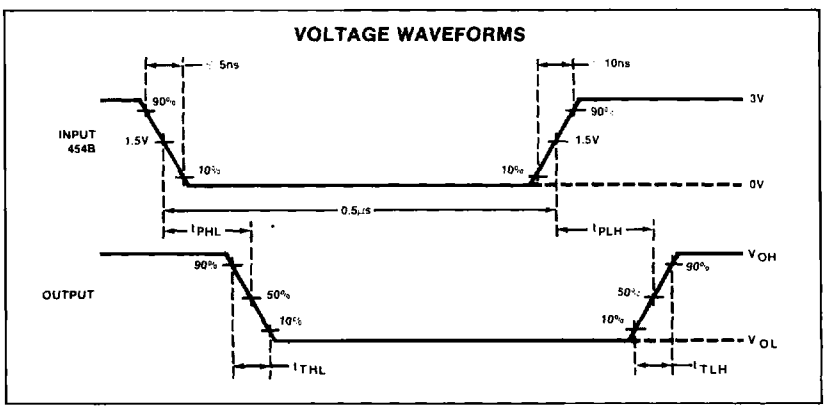


NOTES

1. The pulse generator has the following characteristics: PRR = 12.5kHz, Z_{OUT} = 50Ω
2. When testing 55453B or 75453B, connect output Y to transistor base with a 500-Ω resistor from there to ground, and ground the substrate terminal.
3. C_L includes probe and jig capacitance.

SWITCHING TIMES OF COMPLETE DRIVERS

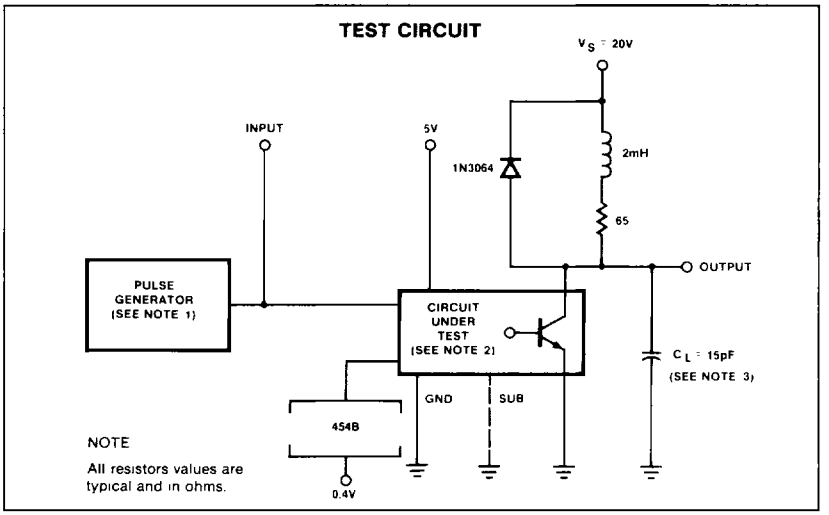


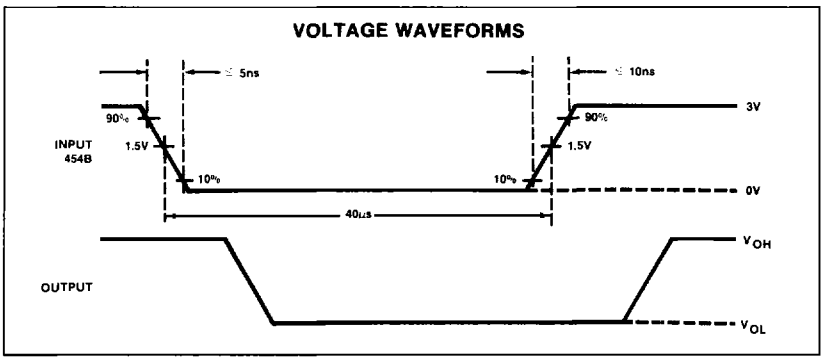


NOTES

1. The pulse generator has the following characteristics. PRR = 1MHz, Z_{OUT} = 50Ω.
2. When testing 55454B or 75454B, connect output Y to transistor base and ground the substrate terminal.
3. C_L includes probe and jig capacitance

LATCH-UP TEST OF COMPLETE DRIVERS



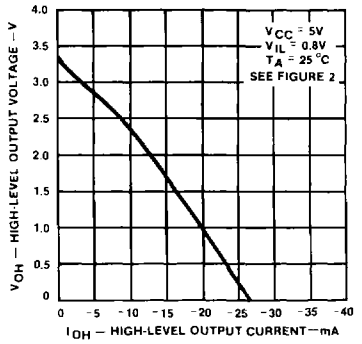


NOTES

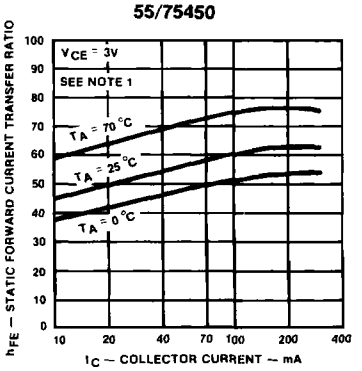
1. The pulse generator has the following characteristics: PRR = 12.5kHz, Z_{OUT} = 50Ω
2. When testing 55454B or 75454B, connect output Y to transistor base with a 500-Ω resistor from there to ground, and ground the substrate terminal.
3. C_L includes probe and jig capacitance.

TYPICAL PERFORMANCE CHARACTERISTICS

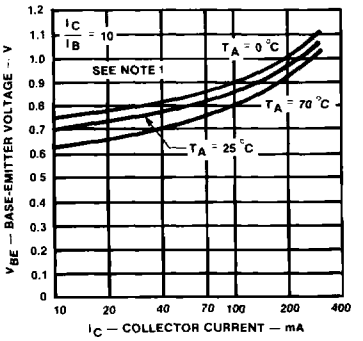
TTL GATE HIGH-LEVEL OUTPUT VOLTAGE vs HIGH-LEVEL OUTPUT CURRENT
55/75450



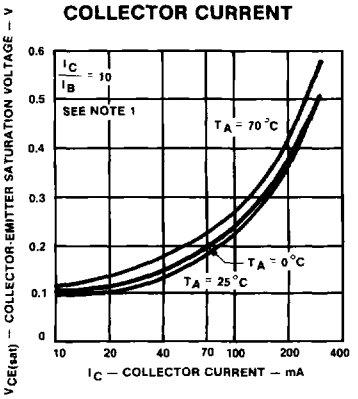
TRANSISTOR STATIC FORWARD CURRENT TRANSFER RATIO vs COLLECTOR CURRENT
55/75450



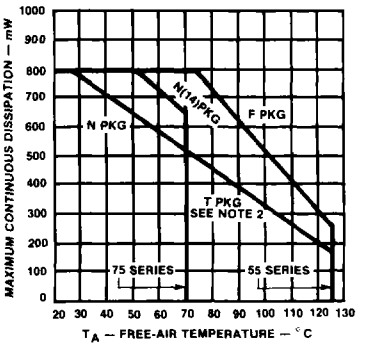
TRANSISTOR BASE-EMITTER VOLTAGE vs COLLECTOR CURRENT
55/75450



TRANSISTOR COLLECTOR-EMITTER SATURATION VOLTAGE vs COLLECTOR CURRENT



DISSIPATION DERATING CURVE



NOTE

1. These parameters must be measured using pulse techniques, tw = 300μs, duty cycle ≤ 2%.
2. This rating for the T Package requires a heat sink that provides a thermal resistance from case to free-air, $R_{\theta CA}$, of not more than 95°C/W

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