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FAIRCHILD
SEMICONDUCTOR®

Absolute Maximum Ratings (No derating required up to 70°C)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.

Symbol	Parameter		Value	Units
T_{STG}	Storage Temperature		-55 to +125	°C
T_{OPR}	Operating Temperature		-40 to +85	°C
T_{SOL}	Lead Solder Temperature		260 for 10 sec	°C
EMITTER				
I_{IN}	Input Current	Average	50 (Max.)	mA
		Surge, 3ms, 120Hz Pulse Rate	140 (Max.)	
		Transient, 10µs, 120Hz Pulse Rate	500 (Max.)	
V_{IN}	Input Voltage (Pins 2-3)		-0.5 (Max.)	V
P_{IN}	Input Power Dissipation[1]		230 (Max.)	mW
P_T	Total Package Power Dissipation[2]		305 (Max.)	mW
DETECTOR				
I_O	Output Current (Average)[3]		30 (Max.)	mA
V_{CC}	Supply Voltage (Pins 8-5)		-0.5 to 20	V
V_O	Output Voltage (Pins 6-5)		-0.5 to 20	V
P_O	Output Power Dissipation[4]		210 (Max.)	mW

Notes:

1. Derate linearly above 70°C free-air temperature at a rate of 1.8 mW/°C.
2. Derate linearly above 70°C free-air temperature at a rate of 2.5 mW/°C.
3. Derate linearly above 70°C free-air temperature at a rate of 0.6 mA/°C.
4. Derate linearly above 70°C free-air temperature at a rate of 1.9 mW/°C.

Recommended Operating Conditions

The Recommended Operating Conditions table defines the conditions for actual device operation. Recommended operating conditions are specified to ensure optimal performance to the datasheet specifications. Fairchild does not recommend exceeding them or designing to absolute maximum ratings.

Symbol	Parameter	Min.	Max.	Units
V_{CC}	Supply Voltage	2	18	V
T_A	Operating Temperature	0	70	°C
f	Operating Frequency	0	4	kHz

Electrical Characteristics (T_A = 0°C to 70°C Unless otherwise specified)

Note:

5. Logic LOW output level at pin 6 occurs when $V_{IN} \geq V_{TH+}$ and when $V_{IN} > V_{TH-}$ once V_{IN} exceeds V_{TH+}.
   Logic HIGH output level at pin 6 occurs when $V_{IN} \leq V_{TH-}$ and when $V_{IN} < V_{TH+}$ once V

Switching Characteristics (T_A = 25°C, V_{CC} = 5 V Unless otherwise specified)

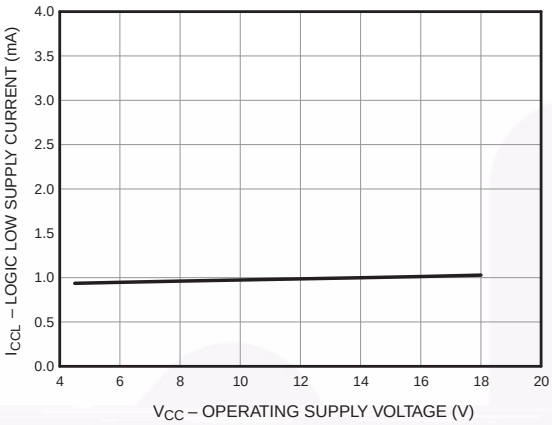
Package Characteristics (T_A = 0°C to 70°C Unless otherwise specified)

Notes:

6. T_{PHL} propagation delay is measured from the 2.5V level of the leading edge of a 5.0V input pulse (1µs rise time) to

Typical Performance Curves

Fig. 1 Logic Low Supply Current vs. Operating Supply Voltage



Typical Performance Curves (Continued)

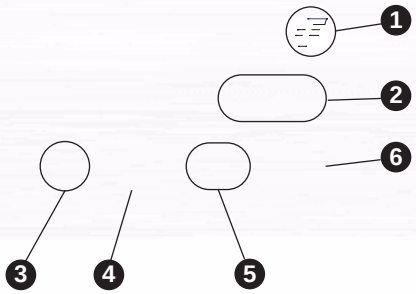
Fig. 8 External Threshold Characteristics V+/V- vs. Rx

Test Circuits

Ordering Information

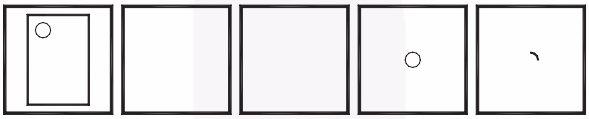
Option	Example Part Number	Description
No Suffix	HCPL3700	Shipped in Tubes
S	HCPL3700S	Surface Mount Lead Bend
SD	HCPL3700SD	Surface Mount; Tape and Reel
W	HCPL3700W	0.4" Lead Spacing
V	HCPL3700V	VDE0884
WV	HCPL3700WV	VDE0884; 0.4” Lead Spacing
SV	HCPL3700SV	VDE0884; Surface Mount
SDV	HCPL3700SDV	VDE0884; Surface Mount; Tape and Reel

Marking Information



Definitions	
1	Fairchild logo
2	Device number
3	VDE mark (Note: Only appears on parts ordered with VDE option – See order entry table)
4	Two digit year code, e.g., ‘07’
5	Two digit work week ranging from ‘01’ to ‘53’
6	Assembly package code

Carrier Tape Specifications



Note:
All dimensions are in inches (millimeters)

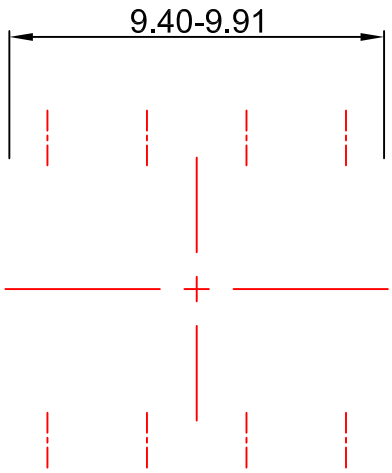
Reflow Profile

NOTES:

A) NO STANDARD APPLIES TO THIS PACKAGE

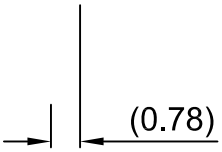
B) ALL DIMENSIONS ARE IN MILLIMETERS.

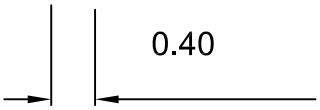
C) DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FL



LAND PATTERN RECOMMENDATION

MIN)





NOTES:

A) NO STANDARD APPLIES TO THIS PA E

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