NEC Replacements for High Speed Optocouplers

Part Number Cross Reference for NEC and Avago (Agilent)

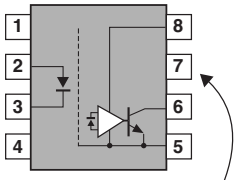
25 Mbps DIP-8 Package CMOS Output Single Channel

NEC Part Number	PWD - Pulse Width Distortion (ns)	Pulse Width (ns) min	AVAGO Part Number	Note
PS9661	8	40	HCPL-7710	Drop-in, pin-for-pin replacement, HCPL PW = 80ns.
			HCPL-7720	Drop-in, pin-for-pin replacement.
			HCPL-7721	Drop-in, pin-for-pin replacement, HCPL PWD = 6ns

15 Mbps SO-8 Package Open Collector Output Single and Dual Channel

NEC Part Number	AVAGO Part Number	Note
PS9851-1	HCPL-0708	Drop-in, pin-for-pin replacement
PS9851-2	HCPL-0738	Drop-in, pin-for-pin replacement

NEC Part Number	PWD (ns)	t_{PHL} (ns)	t_{PLH} (ns)	AVAGO Part Number	Note
PS9821-1	35	100	100	HCPL-060L	HCPL has enable pin, specs differ: PWD = 25ns, t_{PHL} = 75ns, t_{PLH} = 90ns
PS9821-2	35	100	100	HCPL-063L	HCPL specs differ: PWD = 25ns, t_{PHL} = 75ns, t_{PLH} = 90ns



In NEC optocouplers, the enable pin is not connected.

Enable Pins:

Digital single channel optocouplers traditionally provided an enable function to allow implementation of "wired OR" bus structures — usually on Pin 7 of an 8 pin device. This pin/function is a source of noise. To achieve optimum CMRR, it's typically disabled and discrete bus buffer/drivers are used.

Other Uniform Spec Differences:

Spec (units)	NEC	Avago
Output PD (mW/ch)	40	60–85
Io (mA/ch)	25	50
V_R (V)	3–5	5
C_{I-O} (pF)	30	60

10 Mbps DIP-8 Package Open Collector Output Single Channel

NEC Part Number	I_{FHL} (mA)	PWD (ns)	t_{PSK} (ns)	CMRR (kV/μs)	AVAGO Part Number	Note
PS9617	5	35	40	10	6N137	6N137 has enable pin, specs differ, CMRR not speced
					HCPL-2601	HCPL has enable pin, specs differ, CMRR = 5kV/μs
					HCPL-2611	HCPL has enable pin, specs differ
					HCPL-261A	HCPL has enable pin, specs differ: I_{FHL} = 3mA, PWD = 45ns, CMRR = 1kV/μs
					HCPL-261N	HCPL has enable pin, specs differ: I_{FHL} = 3mA, PWD = 45ns, CMRR = 1kV/μs

10 Mbps SOP5 Package Open Collector Output Single Channel

NEC Part Number	I_{FHL} (mA)	PWD (ns)	t_{PSK} (ns)	CMRR (kV/μs)	AVAGO Part Number	Note
PS9117	5	35	40	10	HCPL-M600	HCPL specs differ, CMRR not speced
					HCPL-M601	HCPL specs differ, CMRR = 5kV/μs
					HCPL-M611	Drop-in, pin-for-pin replacement

10 Mbps SO-8 Package Open Collector Output Single and Dual Channel

NEC Part Number	I_{FHL} (mA)	PWD (ns)	t_{PSK} (ns)	CMRR (kV/μs)	AVAGO Part Number	Note
PS9817-1	5	35	40	15	HCPL-0600	HCPL has enable pin, specs differ: CMRR not speced
					HCPL-0601	HCPL has enable pin, specs differ: CMRR = 5kV/μs
					HCPL-0611	HCPL has enable pin, specs differ: CMRR = 10kV/μs
					HCPL-061A	HCPL has enable pin, I_{FHL} = 3mA, PWD = 45ns, t_{PSK} = 60ns, CMRR = 1kV/μs
					HCPL-061N	HCPL has enable pin, I_{FHL} = 3mA, PWD = 45ns, t_{PSK} = 60ns, CMRR = 1kV/μs
PS9817-2	5	35	40	15	HCPL-0630	HCPL specs differ: CMRR not speced
					HCPL-0631	HCPL specs differ: CMRR = 5kV/μs
					HCPL-0661	HCPL specs differ: CMRR = 10kV/μs
					HCPL-063A	HCPL specs differ: I_{FHL} = 3mA, PWD = 45ns, t_{PSK} = 60ns, CMRR = 1kV/μs
					HCPL-063N	HCPL specs differ: I_{FHL} = 3mA, PWD = 45ns, t_{PSK} = 60ns, CMRR = 1kV/μs

1 Mbps DIP-8 Package Open Collector Output Single and Dual Channel

NEC Part Number	CTR (%) min	CMRR (kV/μs min)	t_{PHL}/t_{PLH} (μs)	AVAGO Part Number	Note
PS8601	15	not speced	0.8/0.8	6N135	6N135 specs differ: CTR = 7% min, t_{PHL}/t_{PHL} = 1.5/1.5μs, CMRR = 1kV/μs
				6N136	6N136 specs differ: CTR = 19% min, CMRR = 1kV/μs
				HCPL-2502	HCPL spec differs: CMRR = 1kV/μs
PS8602	15	2	0.8/0.8	HCPL-4502	HCPL specs differ: CTR = 19% min, CMRR = 1kV/μs
				HCPL-4503	HCPL specs differ: CTR = 19% min, CMRR = 15kV/μs

1 Mbps SOP5 Package Open Collector Output Single Channel

NEC Part Number	PWD (ns)	t_{PHL} (ns)	t_{PLH} (ns)	AVAGO Part Number	Note
PS9113	650	500	750	HCPL-M456	HCPL specs differ: PWD = 450ns; t_{PHL} = 400 ns, t_{PLH} = 550 ns

1 Mbps SOP5 Package Analog Operation Single Channel

NEC Part Number	t_{PLH} (μs)	CMRR (kV/μs)	AVAGO Part Number	Note
PS8101-K	1.2	10	HCPL-M452	HCPL specs differ: t_{PLH} = 0.8μs, CMRR not speced
			HCPL-M453	HCPL specs differ: t_{PLH} = 0.8μs, CMRR = 15kV/μs

1 Mbps SO-8 Package Analog Operation Single and Dual Channel

NEC Part Number	CTR (%) min	CMRR (kV/μs)	t_{PHL}/t_{PLH} (μs)	AVAGO Part Number	Note
PS8802-1	15	10	0.8/1.2	HCPL-0452	HCPL specs differ: CTR = 19% min, t_{PLH} = 0.8μs, CMRR = 1kV/μs
				HCPL-0453	HCPL specs differ: CTR = 19% min, t_{PLH} = 1.5μs, CMRR = 15kV/μs
				HCPL-0454	HCPL specs differ: CTR = 25% min, t_{PHL}/t_{PLH} = 0.3/0.7μs, CMRR = 15kV/μs
				HCPL-0500	HCPL has base pin, CTR = 7% min, t_{PHL}/t_{PLH} = 1.5μs, CMRR = 1kV/μs
				HCPL-0501	HCPL has base pin, CTR = 19% min, t_{PLH} = 0.8μs, CMRR = 1kV/μs
PS8802-2	15	10	0.8/1.2	HCPL-0530	HCPL specs differ: CTR = 7% min, t_{PHL}/t_{PLH} = 1.5μs, CMRR = 1 kV/μs
				HCPL-0531	HCPL specs differ: CTR = 19% min, t_{PLH} = 0.8μs, CMRR = 1kV/μs
				HCPL-0534	HCPL specs differ: t_{PLH} = 0.8μs, CMRR = 15kV/μs

CEL California Eastern Laboratories, Your source for NEC RF, Microwave, Optoelectronic, and Fiber Optic Semiconductor Devices.
4590 Patrick Henry Drive • Santa Clara, CA 95054-1817 • (408) 919-2500 • FAX (408) 988-0279 • Telex 34/6393 • **www.cel.com**

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