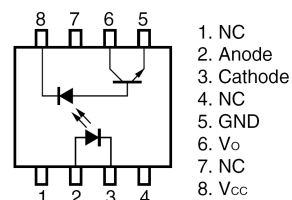
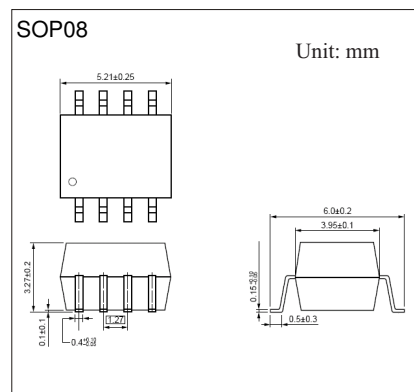


1 Mbps Analog Output Type 8-Pin SOP High-Speed Photocoupler

PS8821-1

Features

- Low power consumption
- High isolation voltage
- High-speed response



Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter		Symbol	Rating	Unit
Diode	Forward Current (DC)	I_F	25	mA
	Reverse Voltage	V_R	5	V
	Power Dissipation	P_D	45	mW
Detector	Supply Voltage	V_{CC}	7	V
	Output Voltage	V_o	7	V
	Output Current	I_o	8	mA
	Power Dissipation	P_c	100	mW
Isolation voltage (Note 1)		BV	2500	V _{rms}
Operating Ambient temperature		T_{opr}	-55 to +100	$^\circ\text{C}$
Storage temperature		T_{stg}	-55 to +150	$^\circ\text{C}$

Note 1: Reduced to 1.00 mW/ $^\circ\text{C}$ at $T_a = 25^\circ\text{C}$ or more.

Recommended Operating Conditions

Characteristics	Symbol	Min	Typ	Max	Unit
Supply voltage	V_{CC}	3	3.3	3.6	V
Forward Current (ON)	I_F (ON)	16		20	mA
Input Voltage (OFF)	V_F (OFF)	0		0.8	V

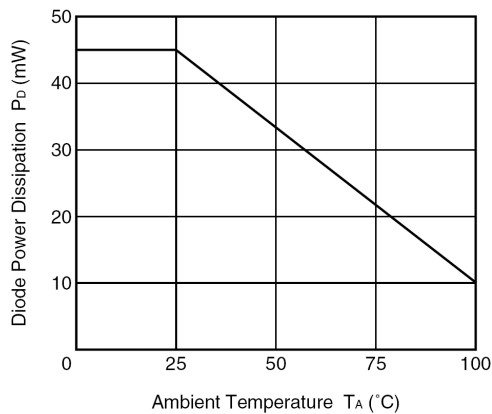
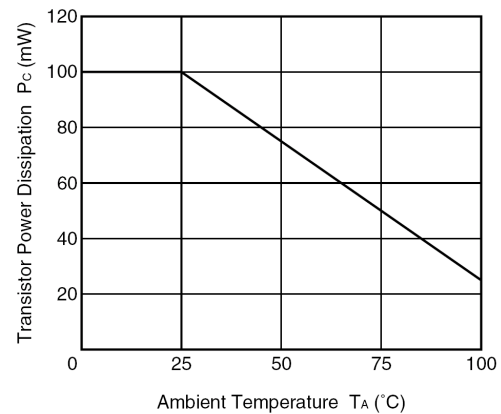
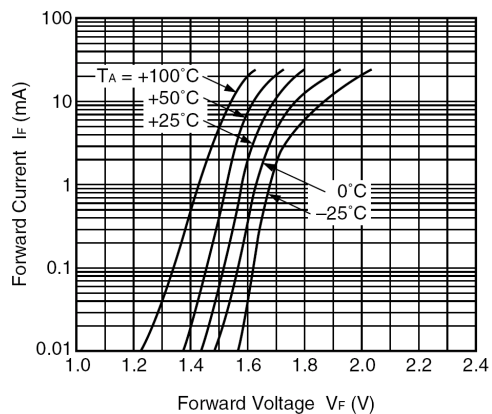
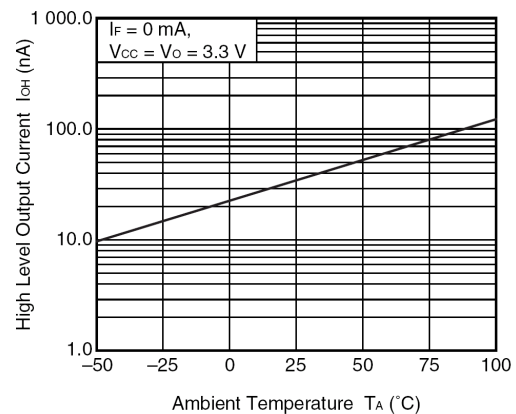
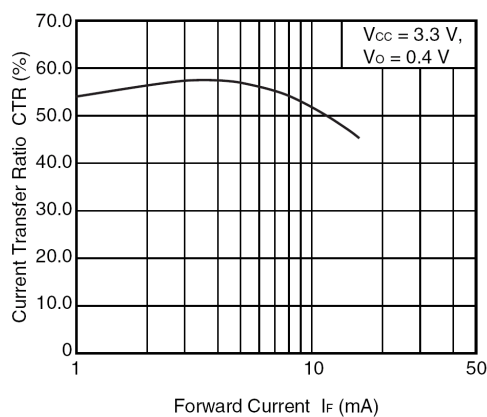
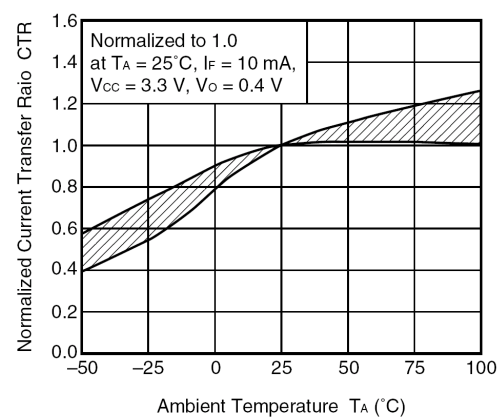
PS8821-1

Electrical Characteristics (Ta = 25°C, unless otherwise specified)

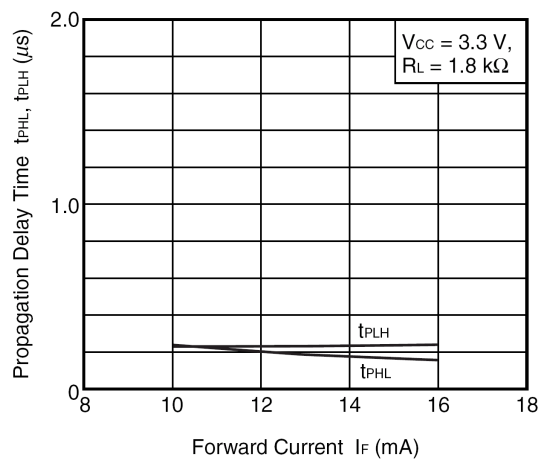
Characteristics	Symbol	Test conditons	Min	Typ	Max	Unit
Forward voltage	V _F	I _F = 16mA		1.7	2.2	V
Temperature coefficient of forward voltage	ΔV _F /ΔTa	I _F = 16 mA		-2.1		mV/°C
Reverse current	I _R	V _R = 3V			10	μA
Input capacitance	C _t	V = 0, f = 1MHz		30		pF
High Level Output Current	I _{OH}	I _F = 0 mA, V _{CC} = V _O = 3.3 V		0.01	1	μA
Low Level Output Voltage	V _{OL}	V _{CC} = 3.3 V, I _O = 1.2 mA, I _F = 16 mA		0.1	0.4	V
Low Level Supply Current	I _{CC} L	I _F = 16 mA, V _O = open, V _{CC} = 3.3 V		100		μA
High Level Supply Current	I _{CC} H	I _F = 0 mA, V _O = open, V _{CC} = 3.3 V		0.1	10	μA
Current Transfer Ratio (I _C /I _F)	CTR	I _F = 16 mA, V _{CC} = 3.3 V, V _O = 0.4 V	20	40		%
Isolation Resistance	R _{I-O}	V _{I-O} = 1 kV _{DC} , RH = 40 to 60 %	10 ¹¹			Ω
Isolation Capacitance	C _{I-O}	V = 0, f = 1 MHz		0.6		pF
Propagation Delay Time, (High → Low)	t _{PHL}	I _F = 10 mA, V _{CC} = 3.3 V, R _L = 1.8 kΩ, C _L = 15 Pf, V _{THHL} = V _{THLH} = 1.5 V, T _A = 0 to 100°C		0.3	0.6	μs
Propagation Delay Time, (Low → High)	t _{PLH}	I _F = 10 mA, V _{CC} = 3.3 V, R _L = 1.8 kΩ, C _L = 15 Pf, V _{THHL} = V _{THLH} = 1.5 V, T _A = 0 to 100°C		0.5	0.9	μs
Common mode transient immunity at HIGH level output	C _{MH}	I _F = 0 mA, V _{CC} = 3.3 V, R _L = 4.1 kΩ, V _{CM} = 1 kV		1		KV/μs
Common mode transient immunity Common mode transient immunity	C _{ML}	I _F = 10 mA, V _{CC} = 3.3 V, R _L = 4.1 kΩ, V _{CM} = 1 kV		-1		

PS8821-1

Typical Characteristics

DIODE POWER DISSIPATION vs.
AMBIENT TEMPERATURETRANSISTOR POWER DISSIPATION vs.
AMBIENT TEMPERATUREFORWARD CURRENT vs.
FORWARD VOLTAGEHIGH LEVEL OUTPUT CURRENT vs.
AMBIENT TEMPERATURECURRENT TRANSFER RATIO vs.
FORWARD CURRENTNORMALIZED CURRENT TRANSFER
RATIO vs. AMBIENT TEMPERATURE

PS8821-1

PROPAGATION DELAY TIME vs.
FORWARD CURRENTNORMALIZED PROPAGATION DELAY TIME
vs. AMBIENT TEMPERATURE