JOCHB14B-S8

Rev.A.1.0

DESCRIPTION:

The products are 10MBd high-speed opto-couplers in a plastic SOP8 package. The device consists of a high efficient AlGaAs Light Emitting Diode and a high speed optical detector. This design provides excellent AC and DC isolation between the input and output sides of the optocoupler. The output of the optical detector features an w ! high

	Reverse Voltage	V_R	6	V
	Input Power Dissipation	P_D	100	mW
Output	Supply Voltage	V_{CC}	7	V
	Output Voltage	V_O	7	V
	Output Current	I_O	50	mA
	Output Power Dissipation	P_O	60	mW
Total Power Dissipation		P_{tot}	160	mW
Isolation Voltage		V_{iso}	3750	Vrms
Operating Temperature		T_{opr}	-40~110	
Junction Temperature		T_j	125	
Storage Temperature		T_{stg}	-55~125	
Soldering Temperature		T_{sol}	260	

NOTE1: 100μs pulse, 100Hz frequency

NOTE2: AC for 1minute, R.H.=40~60%

ELECTRICAL CHARACTERISTICS (Temperature=25°C)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
	Forward Voltage	V_F	I_F=10mA	-	1.35	1.6	V
[redacted]	Reverse Current	[redacted]	V_R=6V	-	-	1	μA
	Input Capacitanc	[redacted]	V=0, f=1MHz	-	60	-	pF
	High Level Output Current	I_{OH}	I_F=250μA, V_{CC}=5.5V, V_O=5.5V	-	5.5	100	μA
	High Level Supply Current	I_{CCH}	V_{CC}=5.5V, I_F=0mA	-	-	15	mA

Output

Switching Characteristics	Trigger LED Current	I_{FT}	V_{CC}=5.5V V_O=V_{OL}	-	-	5	mA
	Propagation Delay Time to Logic Low	t_{PHL}	C_L=15pF, R_L=350Ω, I_F=7.5mA	-	-	75	ns
	Propagation Delay Time to Logic High	t_{PLH}		-	-	75	ns
	Pulse width distortion	$\|t_{PHL}-t_{PLH}\|$		-	-	35	ns
	Common Mode Transient Immunity at Logic High	CM_H	$V_{O(min.)}$=2V, I_F=0mA, V_{CM}=10V_{p-p}, R_L=350Ω	15	-	-	kV/μs
	Common Mode Transient Immunity at Logic Low	CM_L	$V_{O(max.)}$=0.8V, I_F=7.5mA, V_{CM}=10V_{p-p}, R_L=350Ω	15	-	-	kV/μs
	Rise Time	tr	C_L=15pF, R_L=350Ω, I_F=7.5mA	-	24	35	ns
	Fall Time	tf		-	10	25	ns

Recommended Operating Conditions

Characteristics	Symbol	Min.	Typ.	Max.	Unit
Low Level Input Voltage	V_{FL}	0	-	0.8	V
Supply Voltage	V_{CC}	2.7	-	3.6	V
		4.5	-	5.5	
Low Level Input Current	I_{FL}	0	-	250	μA
High Level Input Current	I_{FH}	7	-	20	mA
Output Pull-up Resistor	R_L	330	-	4k	Ω
Fan Out (at R_L=1kΩ per channel)	N	-	-	5	TTL Loads

Characteristics Curves

FIG.1: High Level Output Current vs. Ambient Temperature

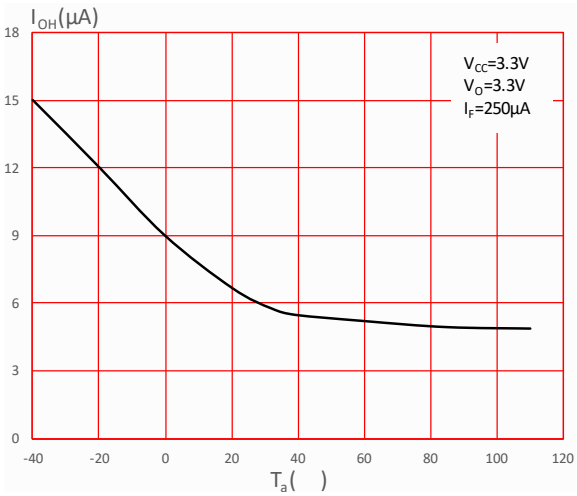


FIG.2: High Level Output Current vs. Ambient Temperature

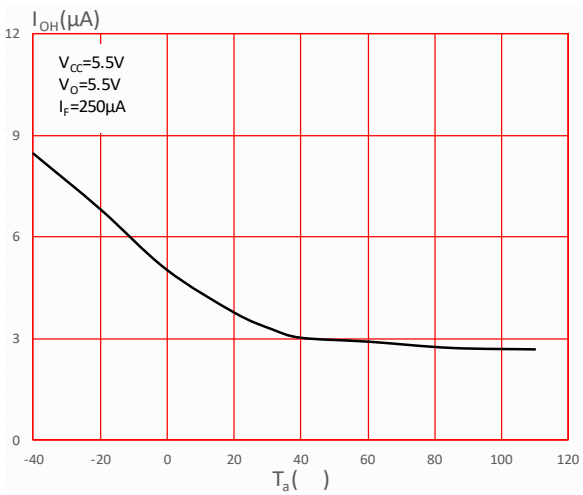


FIG.3: Input Threshold Current vs. Ambient Temperature

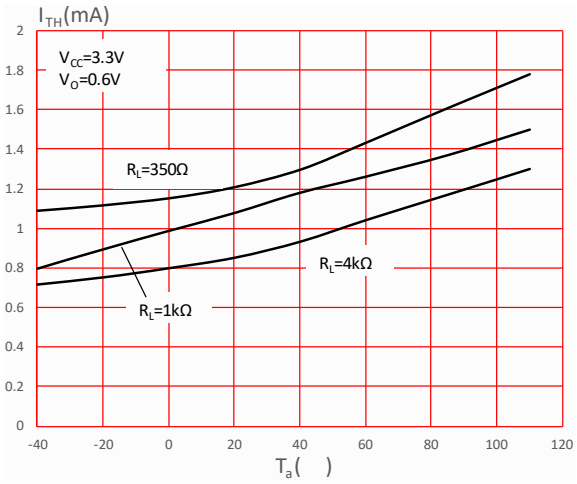


FIG.4: Input Threshold Current vs. Ambient Temperature

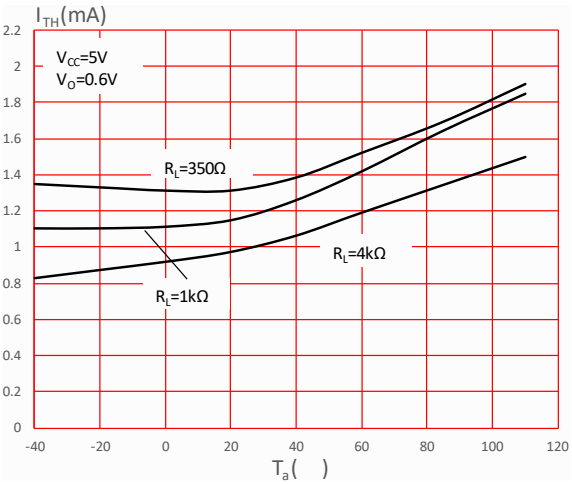


FIG.5: Low Level Output Voltage vs. Ambient Temperature

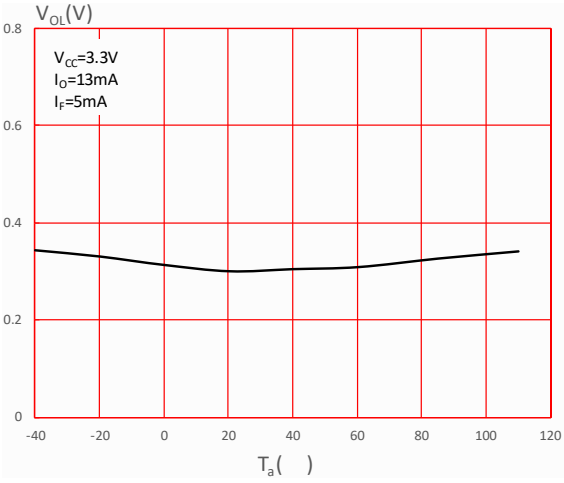


FIG.6: Low Level Output Voltage vs. Ambient Temperature

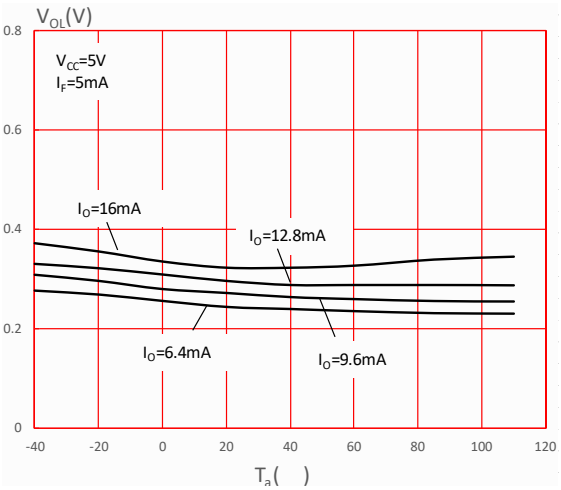


FIG.7: Low Level Output Current vs. Ambient Temperature

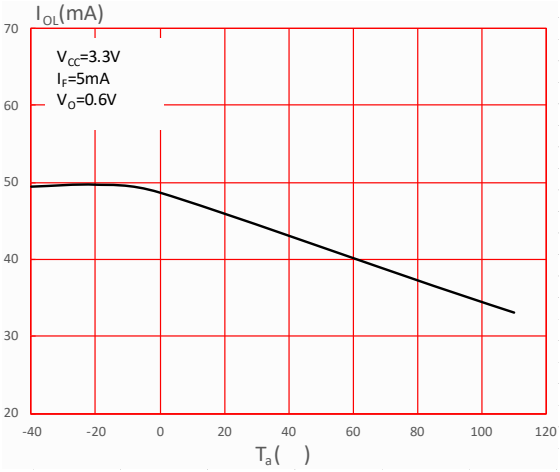
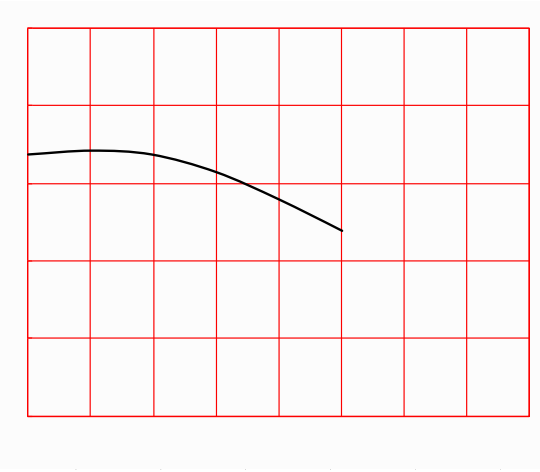
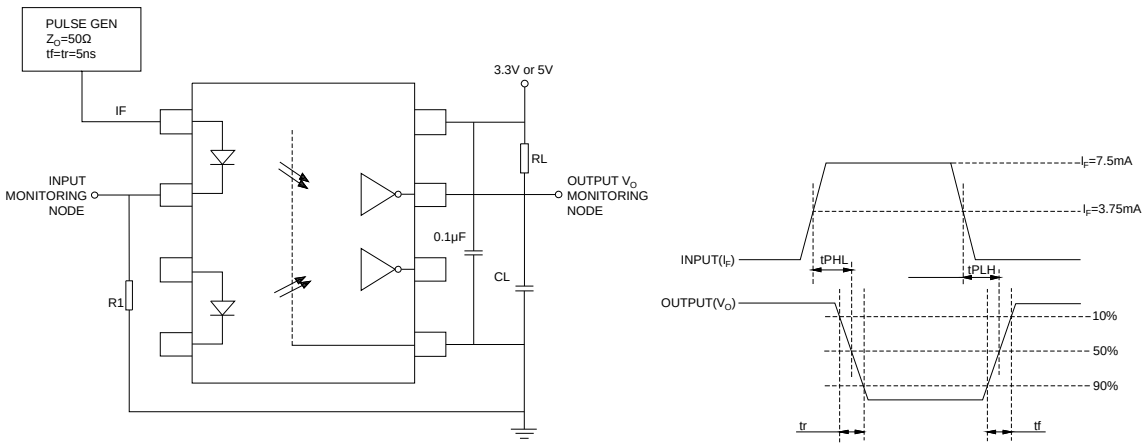


FIG.8: Low Level Output Current vs. Ambient Temperature

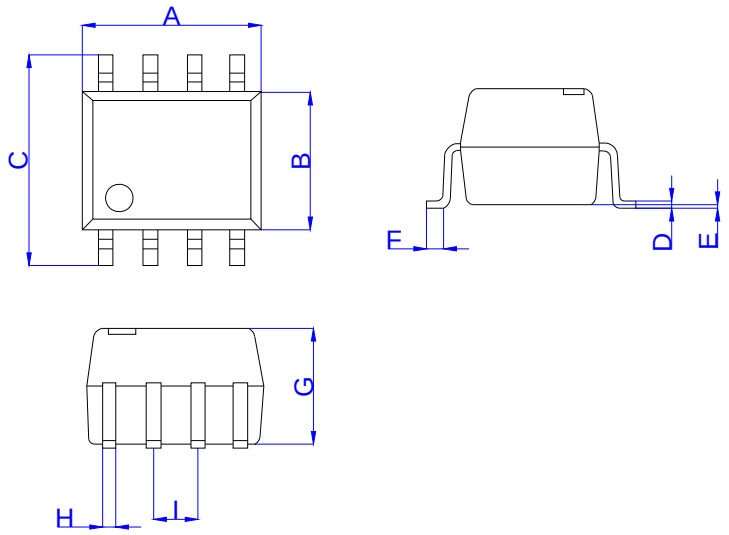


TEST CIRCUITS

Fig.13: Test Circuit for TPHL and TPLH



Package Dimension (Unit: mm)

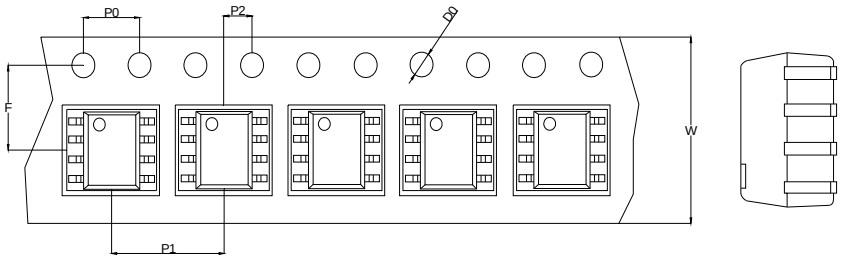


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.93		5.33	0.194		0.210
B	3.80		4.10	0.150		0.161
C	5.70		6.30	0.224		0.248
D	0.15		0.25	0.006		0.010
E	0.00		0.20	0.000		0.008
F	0.305		0.50	0.012		0.020
G	3.20		3.40	0.126		0.134
H	0.30		0.50	0.012		0.020
I	1.17		1.37	0.046		0.054

REG

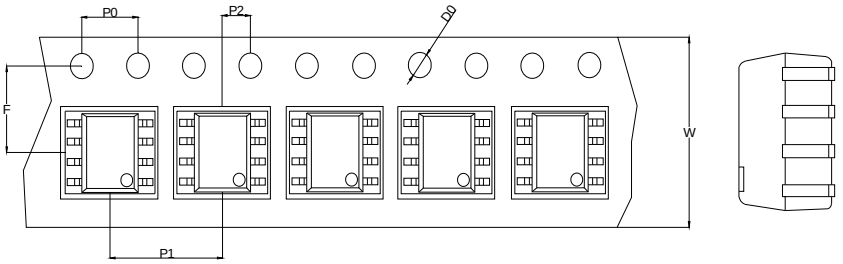
CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Option None



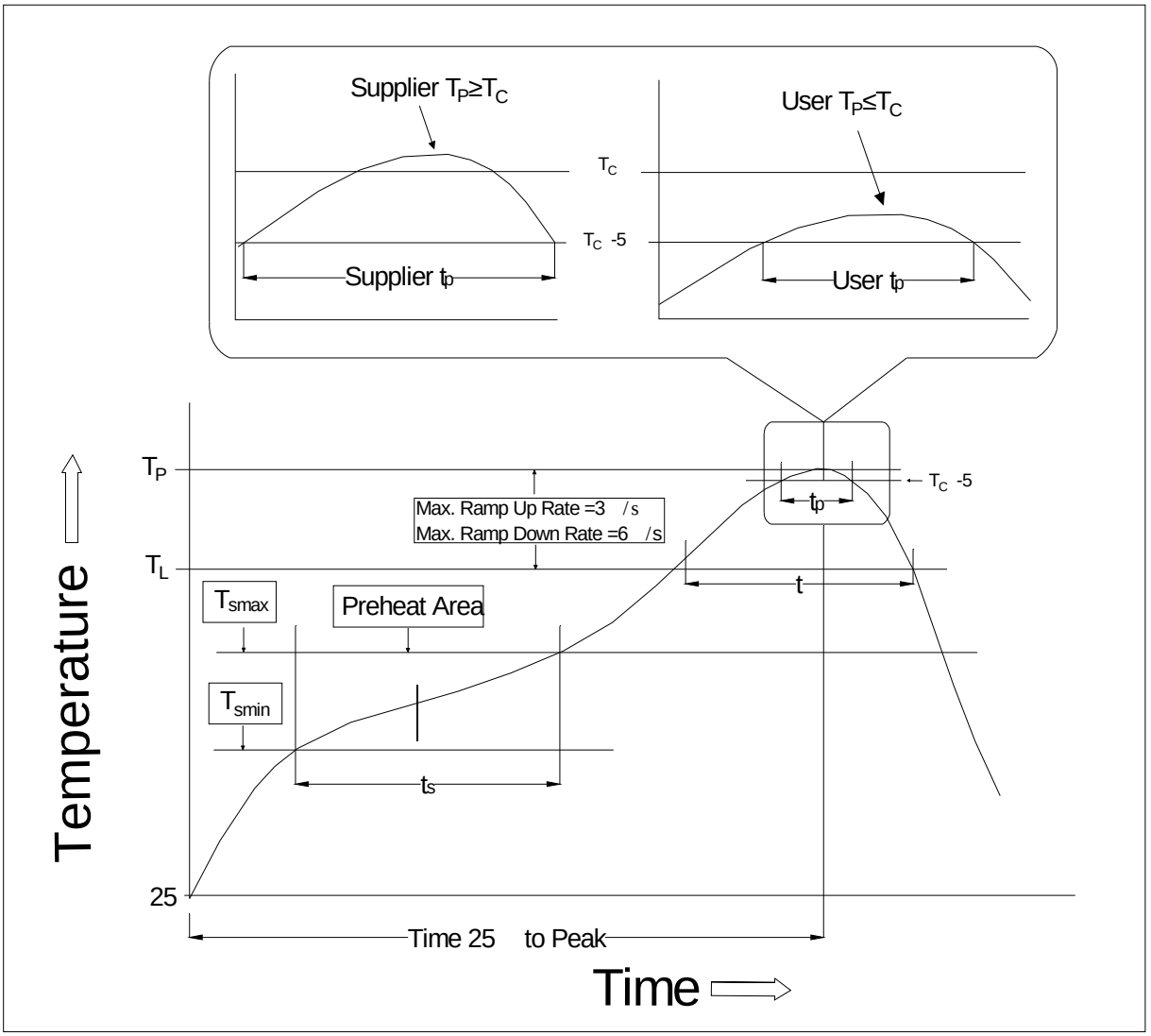
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
D0	1.40	1.50	1.60	0.055	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.90	2.00	2.10	0.075	0.079	0.083
F	5.40	5.50	5.60	0.213	0.217	0.220
W	11.70	12.00	12.30	0.461	0.472	0.484

Option R



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
D0	1.40	1.50	1.60	0.055	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.90	2.00	2.10	0.075	0.079	0.083
F	5.40	5.50	5.60	0.213	0.217	0.220
W	11.70	12.00	12.30	0.461	0.472	0.484

REFLOW INFORMATION



Profile Feature	Sn-Pb Assembly Profile	Pb-Free Assembly Profile
Temperature Min. (Tsmin)	100	150
Temperature Max. (Tsmax)	150	200
Time (ts) from (Tsmin to Tsmax)	60-120 seconds	60-120 seconds
Ramp-up Rate (tL to tP)	3 /second max.	3 /second max.
Liquidus Temperature (TL)	183	217
Time (t 8- ³ ! e 183 nds		

Note:

1. Reflow soldering is recommended at the temperatures and times shown, no more than three times.

2. Avoid direct contact between the epoxy body and any tools or surfaces exceeding its maximum storage temperature.

3. Application of pressure on the epoxy body is prohibited at elevated temperatures. In specific scenarios, any applied force must not exceed 2.5N.

4. Ensure the component has cooled to ambient temperature before proceeding with any subsequent manufacturing steps.

5. The component has a shelf life of one year when stored under standard conditions.

6. Recommend storage Temp.: 0~40°C;

Recommend storage humidity: <60%;

MSL level: MSL 1