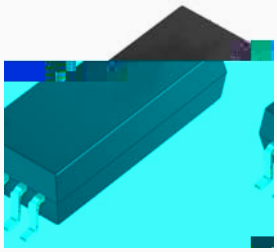
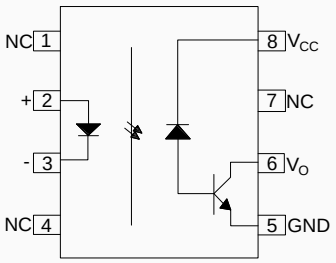
JOCHA21B-W8

Rev.A.1.0

The products are 1MBd high-speed opto-couplers. The device is a small-outline coupler suitable for surface-mount assembly. It consists of a high-output-power infrared LED optically coupled to a high-speed photodiode-transistor chip. It is housed in a plastic WSOP8 and guarantees a creepage distance of ≥5 mm, a clearance of ≥5 mm and an insulation thickness of ≥0.4 mm. Therefore, it meets the reinforced insulation class requirements of international safety standards. The products are widely used in programmable controllers, industrial inverters and switching power supplies.





High isolation 7500 VRMS
CTI>175V
Operating temperature range -55°C to 110°C
REACH & RoHS compliance
HBM: H3A; MM: M4 CDM: C3
CQC approved
VDE approved
UL approved

LED	Output
ON	L
OFF	H

(Temperature=25°C)

Parameter		Symbol	Value	Unit
Input	Forward Current	I_F	50	mA
	Peak Forward Current	I_{FP}	1	A
	Reverse Voltage	V_R	6	V
	Input Power Dissipation	P_D	100	mW
Output	Supply Voltage	V_{CC}	35	V
	Output Voltage	V_O	20	V

	Output Current	I_O	8	mA
	Output Power Dissipation	P_O	100	mW
Total Power Dissipation		P_{tot}	200	mW
Isolation Voltage		V_{iso}	7500	Vrms
Operating Temperature		T_{opr}	-55~110	
Junction Temperature		T_j	125	
Storage Temperature		T_{stg}	-55~125	
Soldering Temperature		T_{sol}	260	

: 100μs pulse, 100Hz frequency
: AC for 1minute, R.H.=40~60%

(Temperature=25°C)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	I_F=10mA	-	1.35	1.6	V
	Reverse Current	I_R	V_R=6V	-	-	1	μA
	Input Capacitance	C_{in}	V=0, f=1MHz	-	60	-	pF
Output	Current transfer ratio	CTR	I_F=16mA, V_{CC}=4.5V, V_O=0.4V	20	-	60	%
	High Level Output Current	I_{OH}	I_F=0mA, V_{CC}=5.5V, V_O=5.5V	-	3	500	nA
			I_F=0mA, V_{CC}=15V, V_O=15V	-	-	50	μA
	Low Level Supply Current	I_{CCL}	V_O=Open, V_{CC}=15V, I_F=16mA	-	0.5	0.8	mA
	High Level Supply Current	I_{CCH}	V_O=Open, V_{CC}=15V, I_F=0mA	-	0.01	2	μA
	Logic Low Output Voltage	V_{OL}	I_F=16mA, I_O=2.4mA, V_{CC}=4.5V	-	-	0.4	V
	Isolation Resistance	R_{ISO}	DC500V 40~60%R.H.	10^{12}	10^{14}	-	Ω
	Floating Capacitance	C_{IO}	V=0, f=1MHz	-	0.8	-	pF
Switching Characteristics	Propagation Delay Time to Logic Low	TPHL	I_F=0→16mA, R_L=1.9kΩ, V_{CC}=5V	-	-	0.8	μs
	Propagation Delay Time to Logic High	TPLH	I_F=16→0mA, R_L=1.9kΩ,	-	-	0.8	μs

			V_{CC}=5V				
	Common Mode Transient Immunity at Logic High	CM_H	I_F=0mA, V_{CM}=400Vpp, R_L=4.1				

FIG.1: Forward Current vs. Forward Voltage

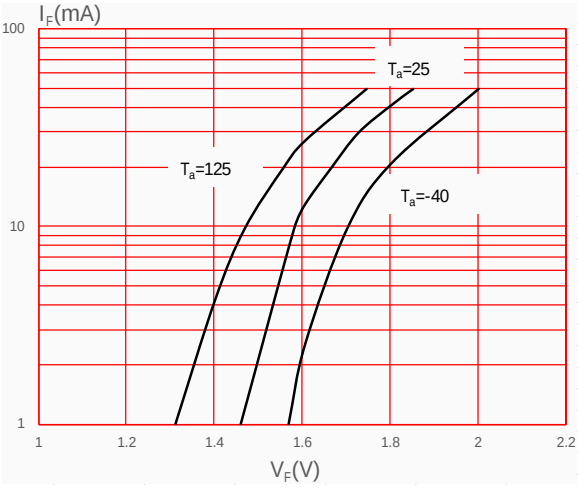


FIG.2: High Level Output Current vs. Ambient Temperature

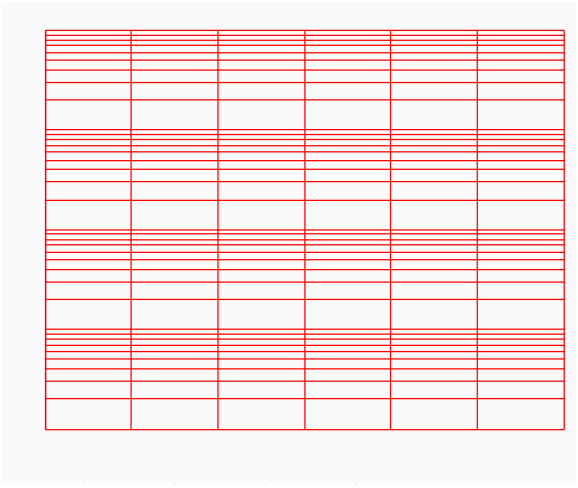


FIG.7: Low Level Output Voltage vs. Ambient Temperature

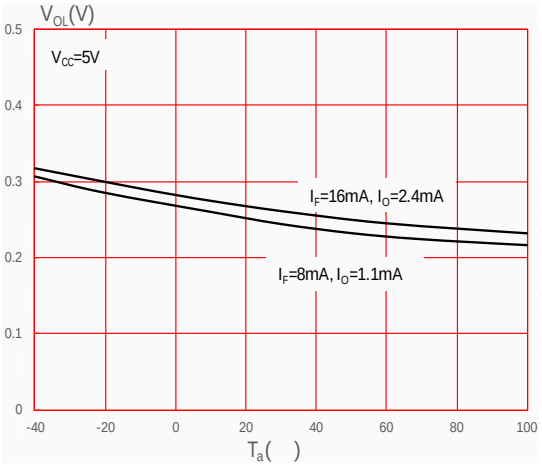


FIG.8: Propagation Delay vs. Load Resistance

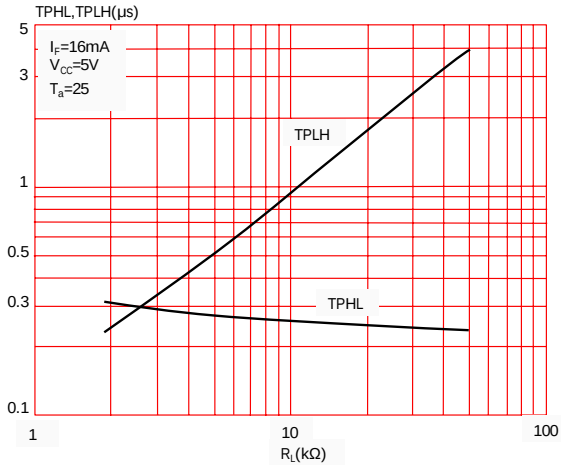


FIG.9: Propagation Delay vs. Ambient Temperature

Fig.10: Test Circuit of tPHL, tPLH

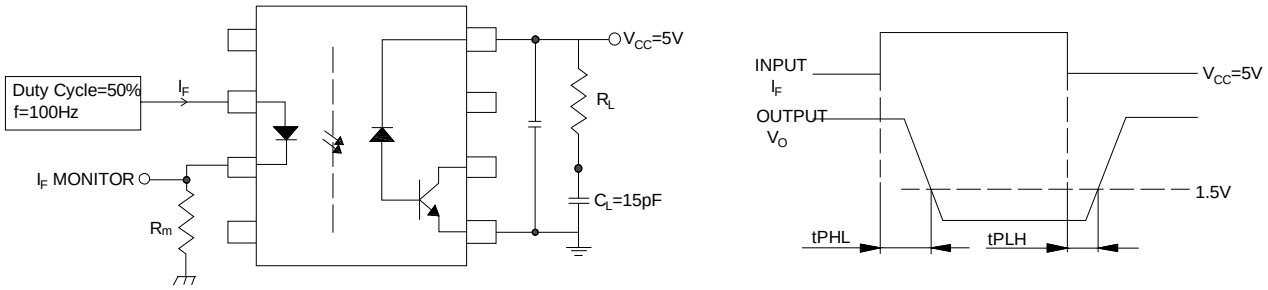
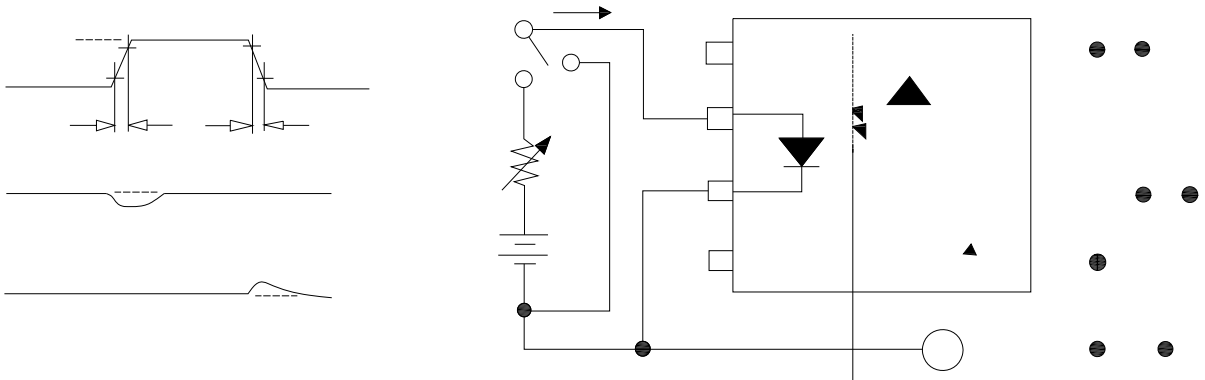
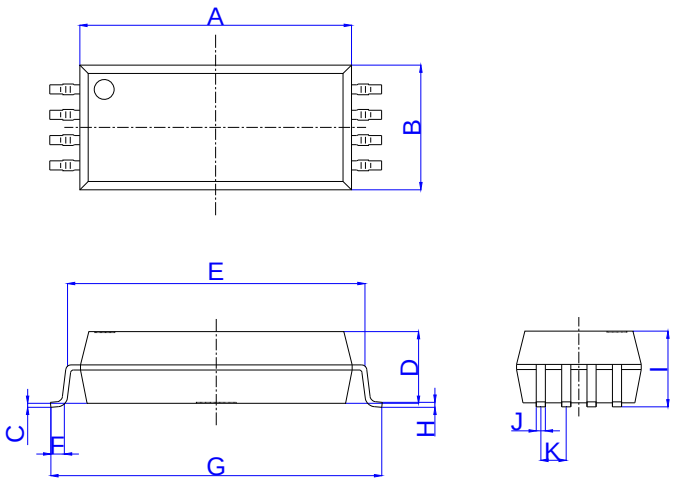
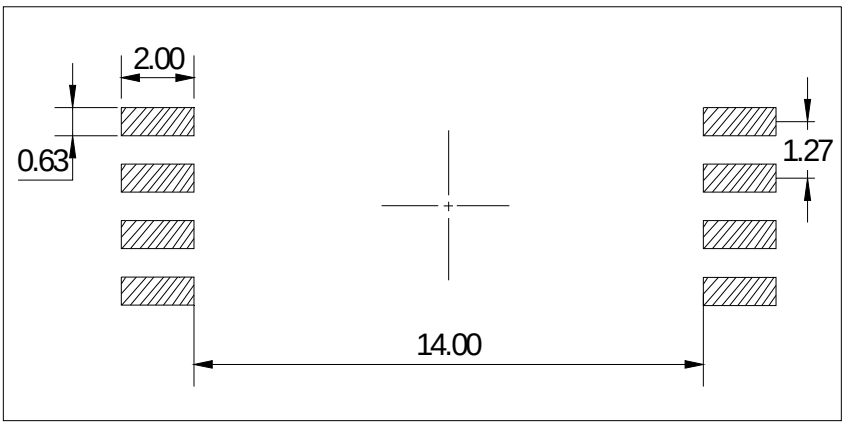


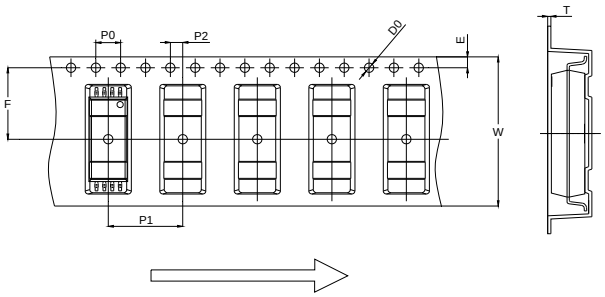
Fig.11: Test Circuit for Transient Immunity and Typical Waveforms



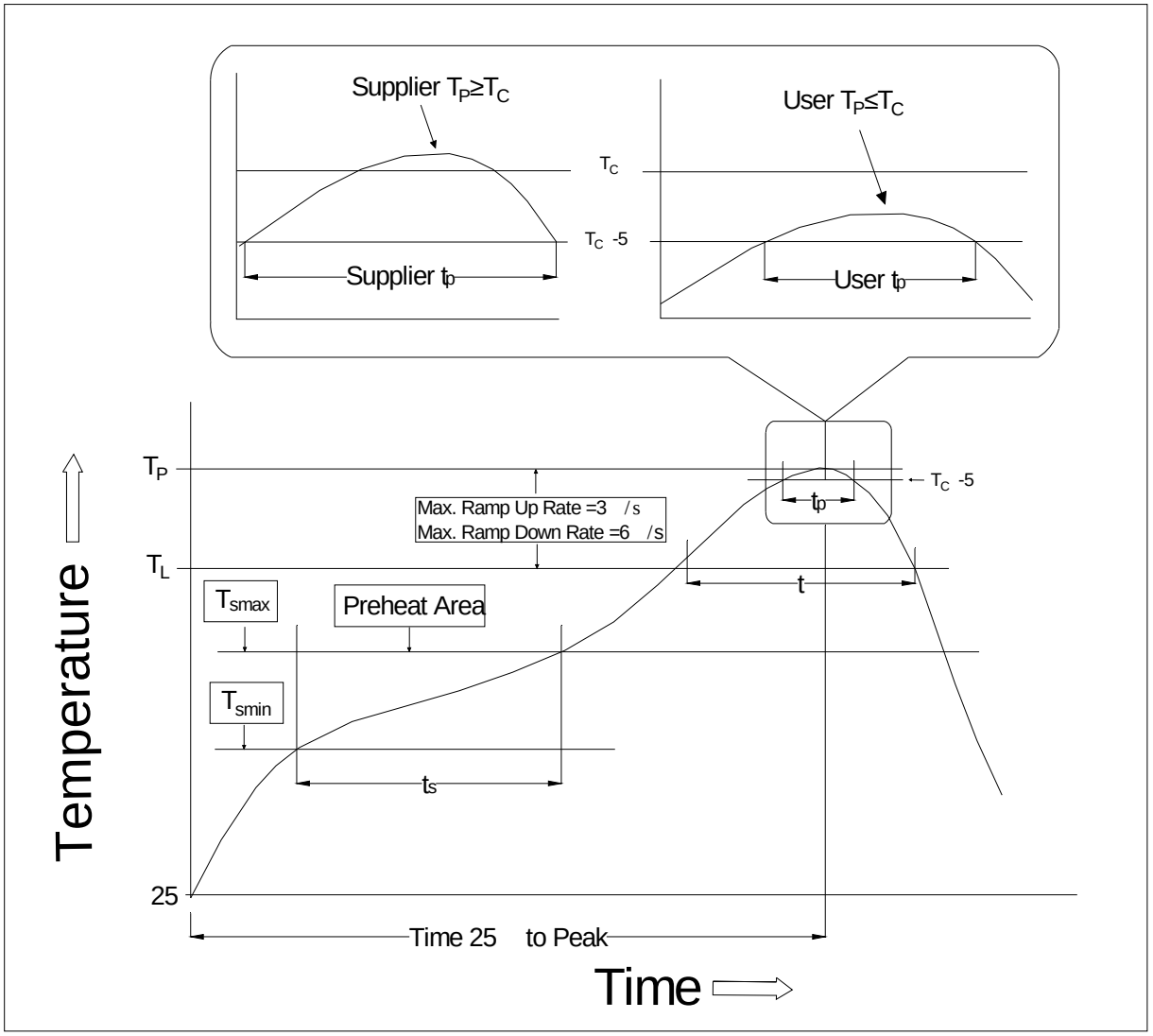


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	13.50		13.70	0.531		0.539
B	6.15		6.35	0.242		0.250
C	0.10		0.30	0.004		0.012
D	3.50		3.70	0.138		0.146
E	14.71		15.31	0.579		0.603
F	0.52		1.02	0.020		0.040
G	16.36		16.86	0.644		0.664
H	0.10		0.40	0.004		0.016
I	3.65		3.95	0.144		0.156
J	0.307		0.607	0.012		0.024
K	1.02		1.52	0.040		0.060





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	11.90	12.00	12.10	0.469	0.472	0.476
P2	1.90	2.00	2.10	0.075	0.079	0.083
E	1.65	1.75	1.85	0.065	0.069	0.073
F	11.40	11.50	11.60	0.449	0.453	0.457
T	0.35	0.40	0.45	0.014	0.016	0.018
W	23.70	24.00	24.30	0.933	0.945	0.957



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 (tL) Maintained Above (TL)	60-150 seconds	60-150 seconds
Peak Body Package Temperature	235 +0 /-5	260 +0 /-5
Time (tP) within 5 of 260	20 seconds	30 seconds
Ramp-down Rate (TP to TL)	6 /second max.	6 /second max.
Time 25 to Peak Temperature	6 minutes max.	8 minutes max.

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