



JOC601

Rev.A.1.0

DESCRIPTION:

The products are 10MBd high-speed opto-couplers in the SOP5 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 open collector Schottky clamped transistor. The enable function allows the optical detector to be strobed. A guaranteed common mode transient immunity is up to 10kV/ μ s at 3.3V. The optocoupler operational parameters are guaranteed over the temperature range from -40 . The products are widely used in isolation in line receivers, digital isolation for A/D,D/A conversion, ground loop elimination, feedback element in switching mode power supplier, pulse

ABSOLUTE MAXIMUM RATINGS (Temperature=25°C)

Parameter		Symbol	Value	Unit
Input	Forward Current	I _F	50	mA
	Peak Forward Current	I _{FP}	1	50

	Isolation Resistance	R_{ISO}	DC500V 40~60%R.H.	-	10^{12}	-	Ω
	Floating Capacitance	C_{IO}	$V=0, f=1\text{MHz}$	-	1	-	pF
Switching Characteristics	Trigger LED Current	I_{FT}	$V_{CC}=5\text{V},$ $V_O=V_{OL}$	-	-	5	mA
	Propagation Delay Time to Logic Low	t_{PHL}	$C_L=15\text{pF},$ $R_L=350\Omega,$ $I_F=7.5\text{mA}$	-	-	60	ns
	Propagation Delay Time to Logic High	t_{PLH}		-	-	60	ns
	Pulse width distortion	$ t_{PHL}-t_{PLH} $		-	-	35	ns
	Common Mode Transient Immunity at Logic High	CM_H	$V_{CC}=3.3\text{V},$ $I_F=0\text{mA},$ $V_{CM}=1000\text{V},$ $R_L=350\Omega$	10	15	-	kV/ μs
	Common Mode Transient Immunity at Logic Low	CM_L	$V_{CC}=3.3\text{V},$ $I_F=10\text{mA},$ $V_{CM}=1000\text{V},$ $R_L=350\Omega$	10	15	-	kV/ μs
	Rise Time	t_r	$C_L=15\text{pF},$ $R_L=350\Omega,$ $I_F=7.5\text{mA}$	-	30	-	ns
	Fall Time	t_f		-	30	-	ns

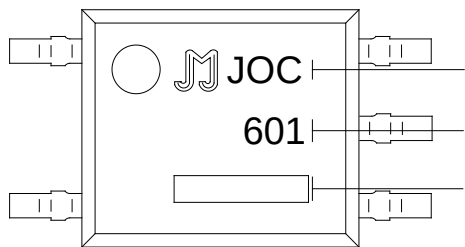
Recommended Operating Conditions

Characteristics	Symbol	Min.	Typ.	Max.	Unit
Operating Temperature	T_a	-40	-	85	
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	-	15	mA

Output Pull-up Resistor	R_L	330	-	4k	Ω
Fan Out (at $R_L=1k\Omega$ per channel)	N	-	-	5	TTL Loads

ORDERING AND MARKING INFORMATION

MARKING INFORMATION



: Company Abbr.
: Part Number & Rank
Production Information Code

Characteristics Curves

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

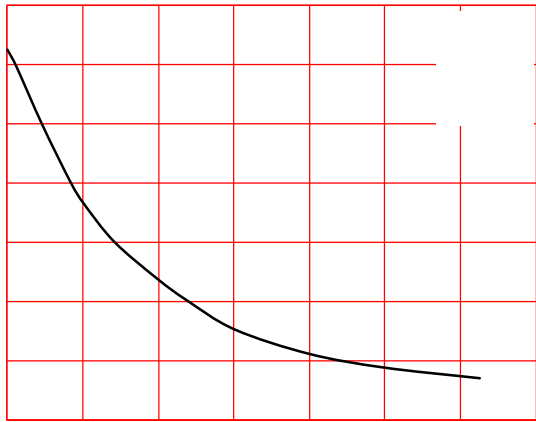


FIG.2: High Level Output Current vs. Ambient Temperature

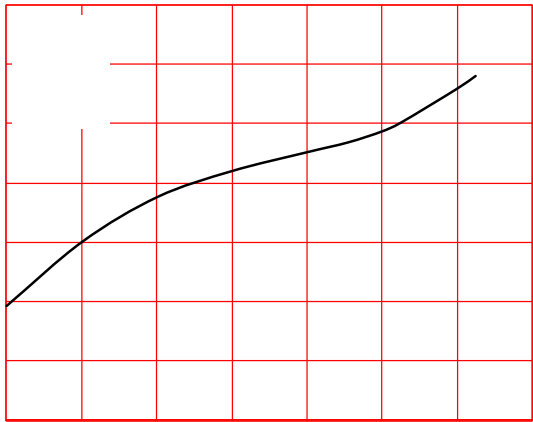


FIG.3: Input Threshold Current vs. Ambient Temperature

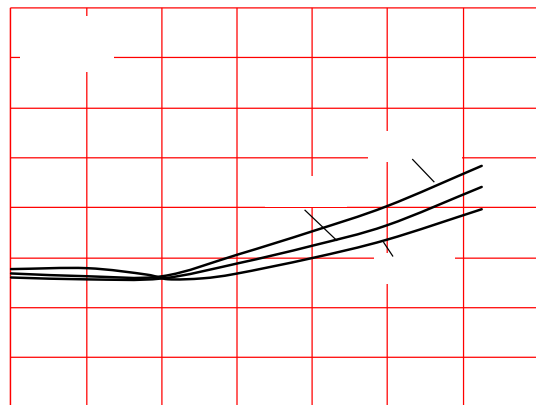


FIG.4: Input Threshold Current vs. Ambient Temperature

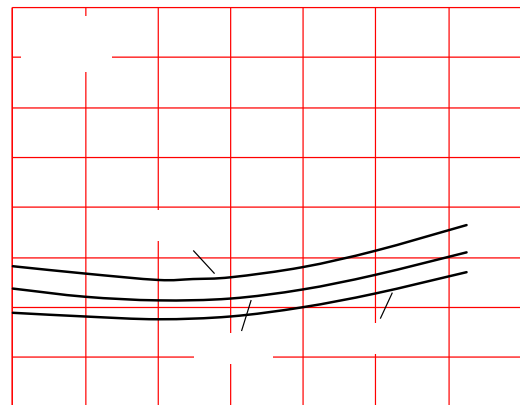


FIG.5: Low Level Output Voltage vs. Ambient Temperature

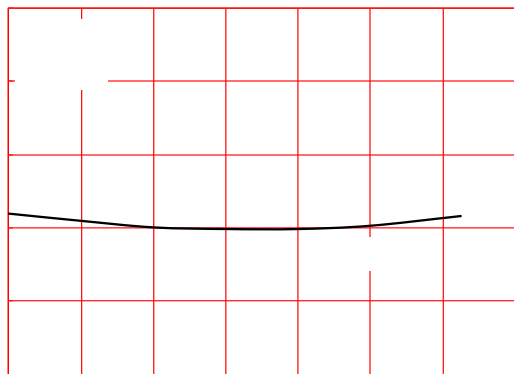


FIG.6: Low Level Output Voltage vs. Ambient Temperature

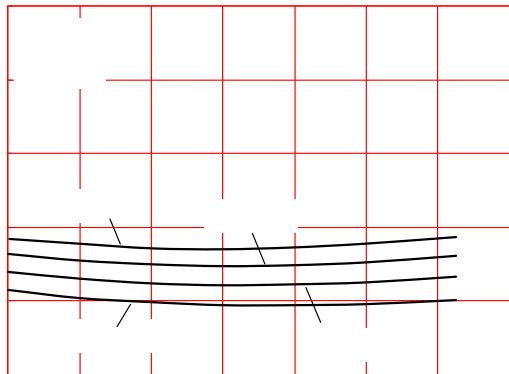


FIG.13: Pulse Width Distortion vs. Ambient Temperature

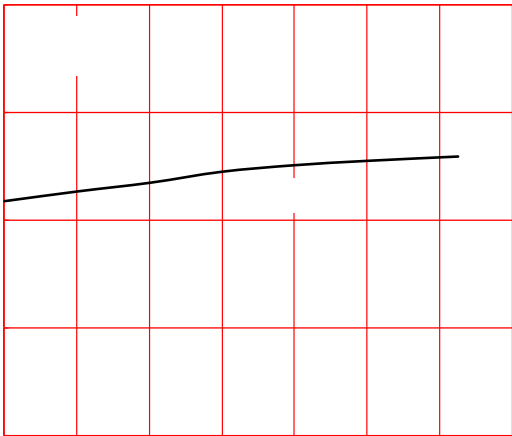
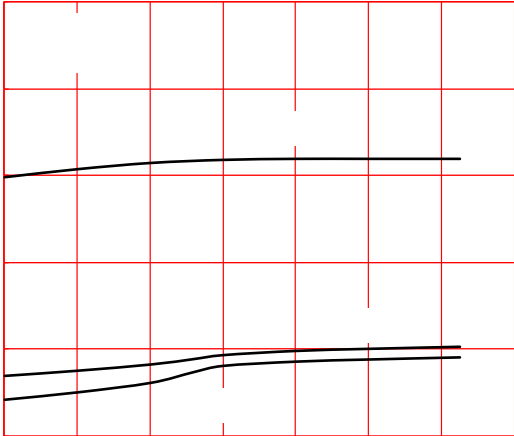
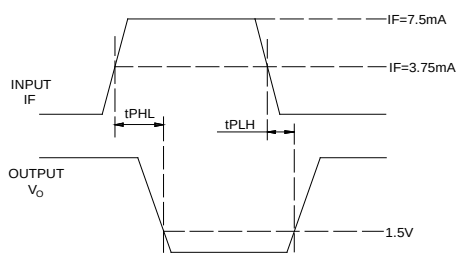
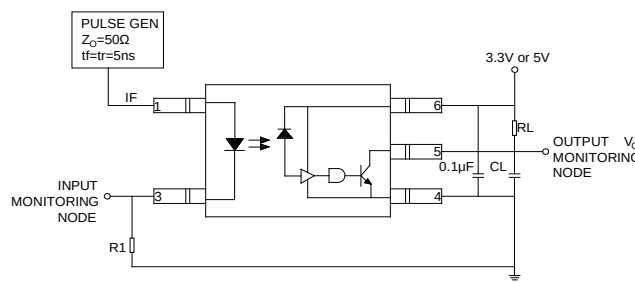


FIG.14: Pulse Width Distortion vs. Ambient Temperature

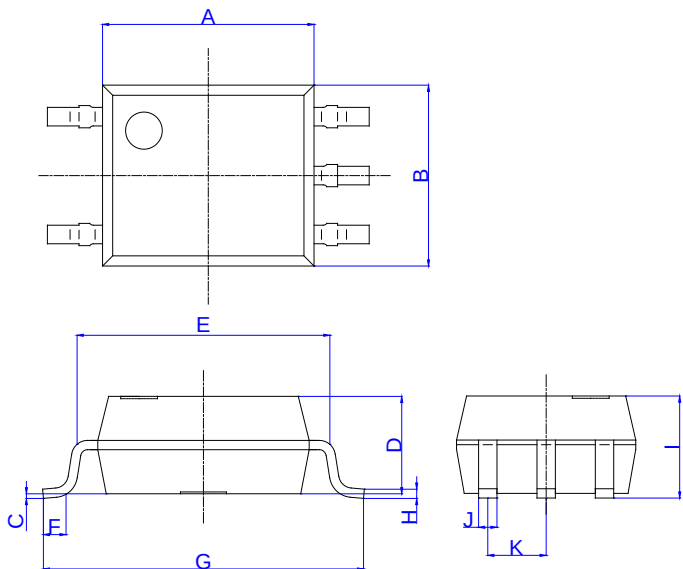


TEST CIRCUITS

Fig.15: Test Circuit and Waveform of t_{PHL} , t_{PLH}

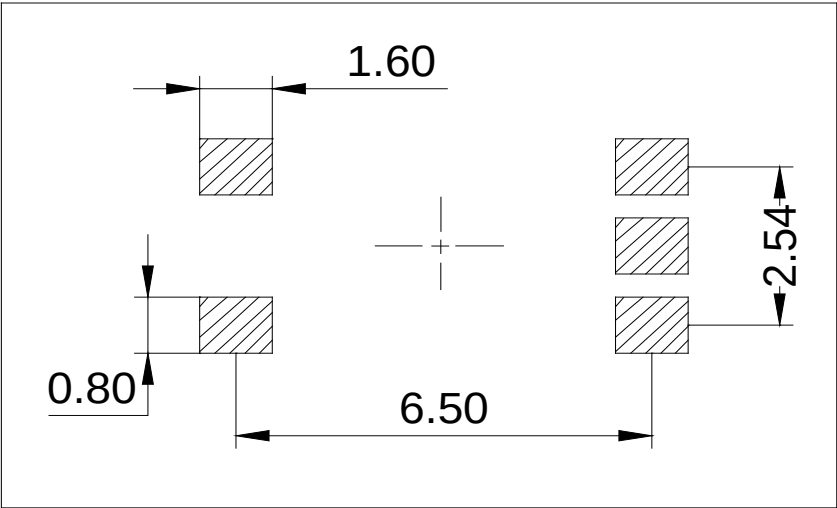


Package Dimension (Unit: mm)



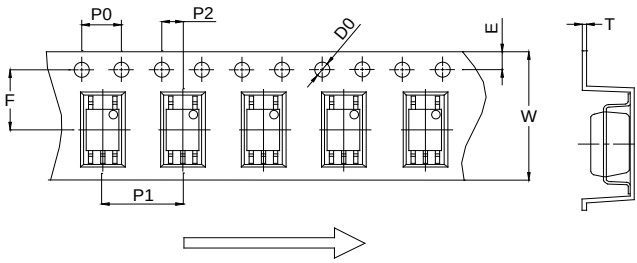
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.80	0.173		0.189
B	3.60		4.20	0.142		0.165
C	0.00		0.20	0.000		0.008
D	1.90		2.30	0.075		0.091
E	5.00		5.60	0.197		0.220
F	0.34		0.94	0.013		0.037
G	6.70		7.30	0.264		0.287
H	0.10		0.30	0.004		0.012
I	2.00		2.40	0.079		0.094
J	0.25		0.55	0.010		0.022
K	1.02		1.52	0.040		0.060

RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)



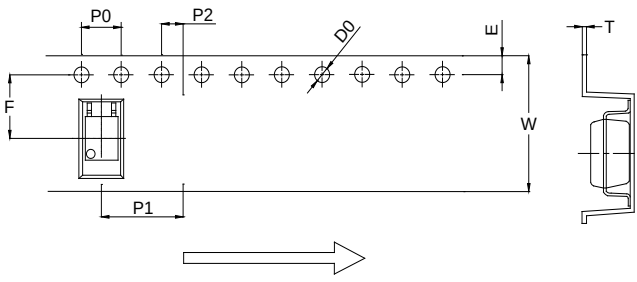
CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Option T1



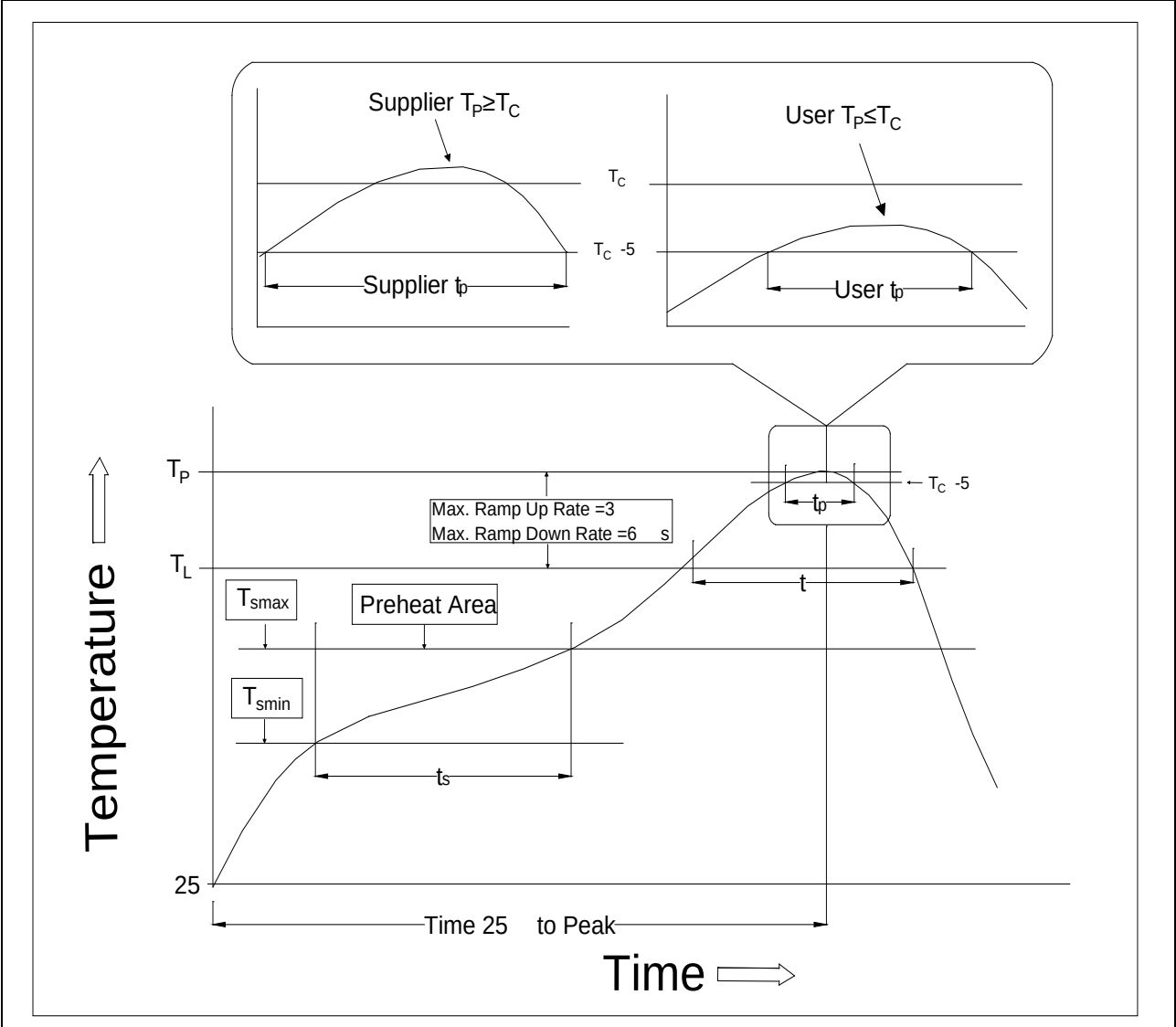
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
D0		1.50	1.60		0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.90	2.00	2.10	0.075	0.079	0.083
E	1.65	1.75	1.85	0.065	0.069	0.073
F	4.40	4.50	4.60	0.173	0.177	0.181
T	0.25	0.30	0.35	0.010	0.012	0.014
W	11.90	12.00	12.30	0.469	0.472	0.484

Option T2



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
D0						
P0						
P1						
P2						
E						
F						
T						
W						

REFLOW INFORMATION



Profile Feature	Sn-Pb Assembly Profile	Pb-Free Assembly Profile
Temperature Min. (T _{smin})	100	150
Temperature Max. (T _{smax})	150	200
Time (t _s) from (T _{smin} to T _{smax})	60-120 seconds	60-120 seconds
Ramp-up Rate (t _L to t _P)	3 °C/second max.	3 °C/second max.
Liquidus Temperature (T _L)	183	217
Time (t _L) Maintained Above (T _L)	60-150 seconds	60-150 seconds
Peak Body Package Temperature	235 +0 /-5	260 +0 /-5
Time (t _P) within 5 °C of 260	10 seconds	10 seconds
Ramp-down Rate (T _P to T _L)	3-6 °C/second	3-6 °C/second
Time 25 °C to Peak Temperature	6 minutes max.	8 minutes max.

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

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