Optocoupler—DIP Package
OPIA800 through OPID804

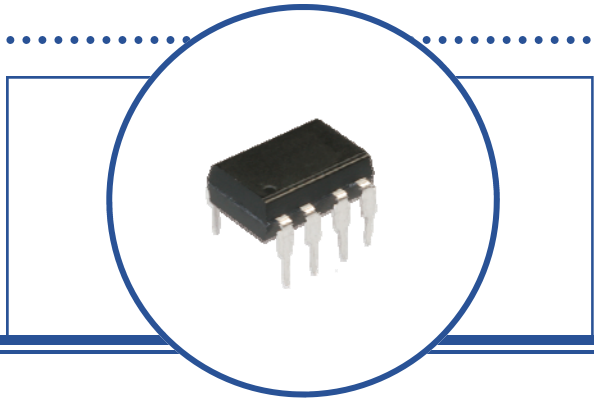
TT electronics
OPTEK Technology

Features:

- 5,000 Vrms electrical isolation
- Choice of a Single and Dual LED
- Choice of Phototransistor or Photologic® Sensor
- Low-cost plastic Dual-In-Line (DIP) package

Agency Approvals:

- ML Certification No: E58730
- VDE pending



Description:

The OPIA800D through OPID804D optocouplers are designed for applications that utilize a digital output (Phototlogic®) in a dual-in-line package. Isolation voltage from 2,500 to 5,000 Volts RMS product are designed for some of the most stringent power system isolation requirements.

Theory of operation: The LED transmitter is used to illuminate the Photosensor providing electrical isolation between two power systems while maintaining the ability to transmit information from one power system to the other. In many applications, analog or digital signals may be required to be transmitted between two power systems while maintaining isolation between the power systems up to 5,000 volts RMS. A variety of LED and photosensor configurations are available depending on the system requirements

$$CTR = \frac{Photosenso\ r - Current}{LED - Current} = \frac{20\ mA}{10\ mA} * 100 = 200$$

All DIP product is shipped in a shipping tube with “TU” identified on the end of the part number.
Example: OPI800DTU is a 8-Pin DIP shipped in a tube (TU).

Applications:

- High voltage isolation
- PCBoard power system isolation
- Industrial equipment power isolation
- Medical equipment power isolation
- Office equipment

Pb
RoHS

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

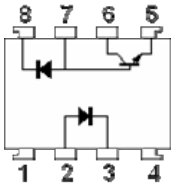
Optocoupler—DIP Package
OPIA800 through OPID804

Analog Output Devices Ordering Information					
Part Number	**Isolation Voltage Max. (Vrms)**	**CTR Min/Typ/Max**	**Typ. Tplh / Tphl (ns) [R_L = ohms]**	**Package**	**Configuration**
OPIA800	2,500	300 / 1,600 / -	7 / 2 [2.2 K]	8 Pin DIP	A K—K A B C E (Dar)
OPIA801	2,500	500 / 1,600 / -	10 / 5 [4.7 K]	8 Pin DIP	A K—K A B C E (Dar)
OPIA802	2,500	15 / 43 / -	0.3 / 0.3 [1.9 K]	8 Pin DIP	A K—K A C E
OPIA803	5,000	5 / 43 / -	0.4 / 0.3 [4.1 K]	8 Pin DIP	A K—K A C E

Digital Output Devices Ordering Information					
Part Number	**Isolation Voltage Max. (Vrms)**	**Typ. Tr / Tf (ns) [R_L = 350 ohms]**	**Typ. Tplh / Tphl (ns) [R_L = ohms]**	**Package**	**Configuration**
OPID804	5,000	30 / 30	45 / 45 [350]	8 Pin DIP	A K—NAND
Configuration: Definition of Terms LED Identification—Sensor Identification					
LED	A = Anode	K = Cathode			
Sensor	10K Logic	10K Inverted Logic	NAND Gate	NAND Gate	
	K = Cathode	A = Anode	B = Base	C = Collector	E = Emitter
Packaging	Part Number Suffix: **TU** = Ship in Tubes, **TR** = Ship on Tape and Reel				Example: OPID606DTR

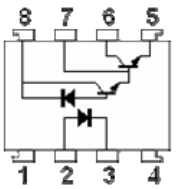
Part Number	Pin #							
	1	2	3	4	5	6	7	8
OPIA800		A	K		E	C	C-B	K-C
OPIA801		A	K		E	C	C-B	K-C
OPIA802		A	K		E	C	A-B	K
OPIA803		A	K		E	C	A-B	K
OPID804		A	K		GND	Output	Enable	Vcc

Package Outline Dimensions and Schematics: Top-View

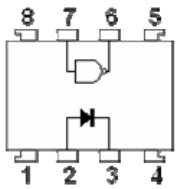


OPIA802
OPIA803

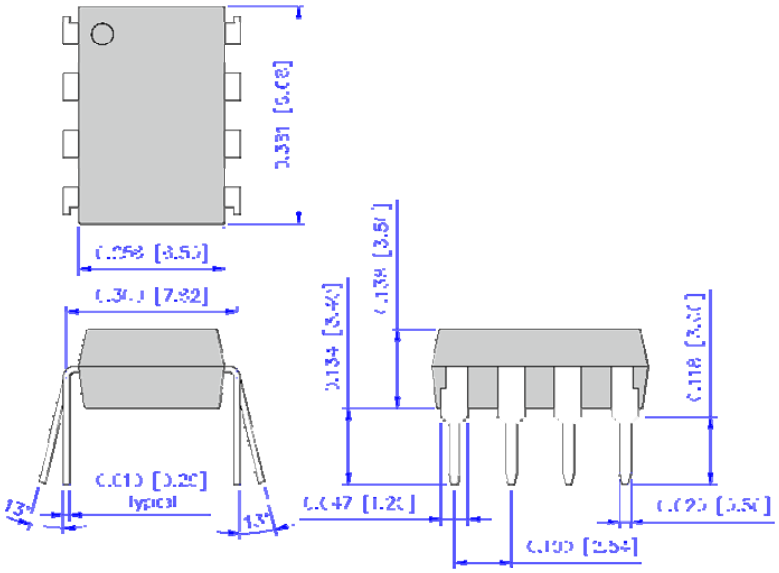
Symbol	Definition
A	Anode
B	Base
C	Collector
E	Emitter
K	Cathode



OPIA800
OPIA801



OPIA804



OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

OPTEK Technology Inc. — 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 sensors@optekinc.com www.optekinc.com

Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

Storage Temperature	-55° C to +125° C
Operating Temperature	
OPIA800	-40° C to +115° C
OPIA801	0° C to +125 ° C
OPIA802	-55° C to +115° C
OPIA803	-55° C to +100° C
OPID804	0° C to +85° C
Isolation voltage (1 minute)	
OPID804	5,000 Vrms
OPIA800, OPIA801, OPIA802, OPIA803	2,500 Vrms
Lead Soldering Temperature (1/16” (1.6 mm) from case for 5 seconds with soldering iron)	260° C

Input Diode

Continuous Forward Current	
OPIA802, OPIA803, OPID804	25 mA
OPIA800, OPIA801	20 mA
Peak Forward current (1 µs pulse width, 300 pps)	
OPIA800, OPIA801, OPIA802, OPIA803	1 A
OPID804	40 mA
Reverse Voltage	
OPIA800D, OPIA801D, OPIA802D, OPIA803D, OPID804D	5 V
Power Dissipation	
OPIA802D, OPIA803D, OPID804D	45 mW
OPIA800D, OPIA801D	35 mW

Absolute Maximum Ratings (T_A = 0° C to 70° C unless otherwise specified)

Output IC

Vcc—Collector-Emitter Voltage	
OPIA800D	-0.5 V to +7 V
OPIA801D	-0.5 V to +18 V
OPIA802D, OPIA803D	-0.5 V to +15 V
Collector Current	
OPIA802D, OPIA803D	8 mA
OPIA800D, OPIA801D	60 mA
Power Dissipation	
OPIA800D, OPIA801D, OPIA802D, OPIA803D	100 mW

Output NAND Gate—OPID804D

Vcc—Supply voltage	7 V
Enable voltage	5.5 V
High Level Output voltage	7 V
Low Level Output current	50 mA
Output Collector Power Dissipation	85 mW

Electrical Characteristics OPIA800

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*6 Current transfer ratio	CTR	I_F=1.6mA Vo=0.4V,Vcc=4.5V	300	1600	-	%
Logic (0) output volage	V_{OL}	I_F=1.6mA Io=4.8mA,Vcc=4.5V	-	0.1	0.4	V
Logic (1) output current	I_{OH}	I_F=0,Vo=Vcc=7V	-	0.1	250	uA
Logic (0) supply current	I_{CCL}	I_F=1.6mA,Vo=open,Vcc=5V	-	0.5	-	mA
Logic (1) supply current	I_{CCH}	I_F=0,V_O=open,Vcc=5V	-	10	-	nA
Input forward voltage	V_F	Ta=25℃,I_F=1.6mA	-	1.5	1.7	V
Input forward voltage temperature coefficient	△V_F/△Ta	IF=1.6mA	-	-1.9	-	mV/℃
Input reverse voltage	BV_R	Ta=25℃,I_R=10uA	5.0	-	-	V
Input capacitance	C_{IN}	V_F=0,f=1MHz	-	60	-	pF
*7 Leak current(input-output)	I_{I-O}	Ta=25℃,45% RH V_{I-O}=3kVDC,t=5s	-	-	1.0	uA
*7 Isolation resistance(input-output)	R_{I-O}	V_{I-O}=500VDC	-	10^{12}	-	Ω
*7 Capacitance(input-output)	C_{I-O}	f=1MHz	-	0.6	-	pF

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*8 Propagation delay time Output (1)-->(0)	t_{PHL}	R_L=2.2kΩ,I_F=1.6mA	-	2	10	uS
*8 Propagation delay time Output (0)-->(1)	t_{PLH}	R_L=2.2kΩ,I_F=1.6mA	-	7	35	uS
*9 Instantaneous common *10 mode rejection voltage "Output (1)"	CM_H	I_F=0,V_{CM}=10Vp-p,R_L=2.2kΩ	-	500	-	V/uS
*9 Instantaneous common *10 mode rejection voltage "Output (0)"	CM_L	I_F=1.6mA,V_{CM}=10Vp-p,R_L=2.2kΩ	-	-500	-	V/uS

OPTEK Technology Inc. — 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 sensors@optekinc.com www.optekinc.com

Electrical Characteristic OPIA801

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*6 Current transfer ratio	CTR(1)	I_F=0.5mA, V_O=0.4V, V_{CC}=4.5V	400	1800	-	%
	CTR(2)	I_F=1.6mA, V_O=0.4V, V_{CC}=4.5V	500	1600	-	%
Logic (0) output voltage	V_{OL}(1)	I_F=6.4mA, I_O=1.6mA, V_{CC}=4.5V	-	0.1	0.4	V
	V_{OL}(2)	I_F=5mA, I_O=15mA, V_{CC}=4.5V	-	0.1	0.4	V
	V_{OL}(3)	I_F=12mA, I_O=24mA, V_{CC}=4.5V	-	0.1	0.4	V
Logic (1) output current	I_{OH}	I_F=0, V_O=V_{CC}=18V	-	0.05	100	uA
Logic (0) supply current	I_{CCL}	I_F=1.6mA, V_O=open, V_{CC}=5V	-	0.5	-	mA
Logic (1) supply current	I_{CCH}	I_F=0, V_F=open, V_{CC}=5V	-	10	-	nA
Input forward voltage	V_F	Ta=25℃, I_F=1.6mA	-	1.5	1.7	V
Input forward voltage temperature coefficient	$\triangle V_F/\triangle Ta$	I_F=1.6mA	-	-1.9	-	mV/℃
Input reverse voltage	BV_R	Ta=25℃, I_R=10uA	5.0	-	-	V
Input capacitance	C_{IN}	V_F=0, f=1MHz	-	60	-	pF
*7 Leak current (input-output)	I_{I-O}	Ta=25℃, 45%RH V_{I-O}=3KVDC, t=5s	-	-	1.0	uA
*7 Isolation resistance (input-output)	R_{I-O}	V_{I-O}=500VDC	-	10^{12}	-	Ω
*7 Capacitance (input-output)	C_{I-O}	f=1MHz	-	0.6	-	pF

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*8 Propagation delay time Output (1) → (0)	t_{PHL}	R_L=4.7KΩ, I_F=0.5mA	-	5	25	uS
		R_L=270Ω, I_F=12mA	-	0.3	1	uS
*8 Propagation delay time Output (0) → (1)	t_{PLH}	R_L=4.7KΩ, I_F=0.5mA	-	10	60	uS
		R_L=270Ω, I_F=12mA	-	1.5	7	uS
*9 *10 Instantaneous common mode rejection voltage " Output (1) "	CM_H	I_F=0, V_{CM}=10V_{P-P}, R_L=2.2KΩ	-	500	-	V/uS
*9 *10 Instantaneous common mode rejection voltage " Output (0) "	CM_L	I_F=1.6mA, V_{CM}=10V_{P-P}, R_L=2.2KΩ	-	-500	-	V/uS

Electrical Characteristice OPIA802

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*5 Current transfer ratio	CTR(1)	Ta=25℃, I_F=16mA V_O=0.4V, V_{CC}=4.5V	19	40	-	%
	CTR(2)	I_F=16mA V_O=0.5V, V_{CC}=4.5V	15	43	-	%
Logic (0) output voltage	V_{OL}	*6 V_{CC}=4.5V, I_F=16mA	-	0.1	0.4	V
Logic (1) output current	I_{OH}(1)	Ta=25℃, I_F=0 V_O=V_{CC}=5.5V	-	3.0	500	nA
	I_{OH}(2)	Ta=25℃, I_F=0 V_O=V_{CC}=15V	-	0.01	1.0	uA
	I_{OH}(3)	V_{CC}=V_O=15V, I_F=0	-	-	50	uA
Logic (0) supply current	I_{CCL}	I_F=16mA V_O=open, V_{CC}=15V	-	200	-	uA
Logic (1) supply current	I_{CCH}(1)	Ta=25℃, I_O=0 V_F=open, V_{CC}=15V	-	0.02	1.0	uA
	I_{CCH}(2)	I_O=0 V_O=open, V_{CC}=15V	-	-	2.0	uA
Input forward voltage	V_F	Ta=25℃, I_F=16mA	-	1.7	1.95	V
Input forward voltage temperature coefficient	$\triangle V_F/\triangle Ta$	I_F=16mA	-	-1.9	-	mV/℃
Input reverse voltage	BV_R	Ta=25℃, I_R=10uA	5.0	-	-	V
Input capacitance	C_{IN}	V_F=0, f=1MHz	-	60	-	pF
*7 Leak current (input-output)	I_{I-O}	Ta=25℃, 45%RH V_{I-O}=3KVDC, t=5s	-	-	1.0	uA
*7 Isolation resistance (input-output)	R_{I-O}	V_{I-O}=500VDC	-	10^{12}	-	Ω
*7 Capacitance (input-output)	C_{I-O}	f=1MHz	-	0.6	-	pF
Transistor current amplification factor	h_{FE}	V_O=5V, I_O=3mA	-	70	-	

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*8 Propagation delay time *9 Output (1) → (0)	t_{PHL}	R_L=1.9KΩ	-	0.3	0.8	uS
*8 Propagation delay time *9 Output (0) → (1)	t_{PLH}	R_L=1.9KΩ	-	0.3	0.8	uS
*10 *11 Instantaneous common mode rejection voltage " Output (1) "	CM_H	I_F=0, V_{CM}=10V_{P-P}	-	1000	-	V/uS
*10 *11 Instantaneous common mode rejection voltage " Output (0) "	CM_L	I_F=16mA, V_{CM}=10V_{P-P}	-	-1000	-	V/uS
*12 Bandwidth	BW	R_L=100Ω	-	2.0	-	MHz

OPTEK Technology Inc. — 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 sensors@optekinc.com www.optekinc.com

Electrical Characteristice OPIA803

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*5 Current transfer ratio	CTR(1)	Ta=25℃, I_F=16mA V_O=0.4V, V_{CC}=4.5V	7	40	-	%
	CTR(2)	I_F=16mA V_O=0.5V, V_{CC}=4.5V	5	43	-	%
Logic (0) output voltage	V_{OL}	*6 V_{CC}=4.5V, I_F=16mA	-	0.1	0.4	V
Logic (1) output current	I_{OH}(1)	Ta=25℃, I_F=0 V_O=V_{CC}=5.5V	-	3.0	500	nA
	I_{OH}(2)	Ta=25℃, I_F=0 V_O=V_{CC}=15V	-	0.01	1.0	uA
	I_{OH}(3)	V_{CC}=V_O=15V, I_F=0	-	-	50	uA
Logic (0) supply current	I_{CCL}	I_F=16mA V_O=open, V_{CC}=15V	-	200	-	uA
Logic (1) supply current	I_{CCH}(1)	Ta=25℃, I_O=0 V_F=open, V_{CC}=15V	-	0.02	1.0	uA
	I_{CCH}(2)	I_O=0 V_O=open, V_{CC}=15V	-	-	2.0	uA
Input forward voltage	V_F	Ta=25℃, I_F=16mA	-	1.7	1.95	V
Input forward voltage temperature coefficient	$\triangle V_F/\triangle Ta$	I_F=16mA	-	-1.9	-	mV/℃
Input reverse voltage	BV_R	Ta=25℃, I_R=10uA	5.0	-	-	V
Input capacitance	C_{IN}	V_F=0, f=1MHz	-	60	-	pF
*7 Leak current (input-output)	I_{I-O}	Ta=25℃, 45%RH V_{I-O}=3KVDC, t=5s	-	-	1.0	uA
*7 Isolation resistance (input-output)	R_{I-O}	V_{I-O}=500VDC	-	10^{12}	-	Ω
*7 Capacitance (input-output)	C_{I-O}	f=1MHz	-	0.6	-	pF
Transistor current amplification factor	h_{FE}	V_O=5V, I_O=3mA	-	70	-	

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*8 Propagation delay time *9 Output (1) → (0)	t_{PHL}	R_L=4.1KΩ	-	0.3	1.5	uS
*8 Propagation delay time *9 Output (0) → (1)	t_{PLH}	R_L=4.1KΩ	-	0.4	1.5	uS
*10 *11 Instantaneous common mode rejection voltage " Output (1) "	CM_H	I_F=0, V_{CM}=10V_{P-P}	-	1000	-	V/uS
*10 *11 Instantaneous common mode rejection voltage " Output (0) "	CM_L	I_F=16mA, V_{CM}=10V_{P-P}	-	-1000	-	V/uS
*12 Bandwidth	BW	R_L=100Ω	-	2.0	-	MHz

Electrical Characteristics (OPID804D)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage	-	1.6	1.8	V	I_F = 10 mA, T_A = 25° C
BV_R	Reverse Breakdown Voltage	5	-	-	V	I_R = 10 µA, T_A = 25° C
C_{IN}	Input Capacitance	-	60	-	pf	V_F = 0.0 V, f = 1M Hz
Output Photologic						
V_{OL}	Low Level Output Voltage	-	0.4	0.6	V	I_{OL} = 13 mA, V_{CC} = 5.5 V, I_F = 5 mA, V_{EH}=2V
I_{OH}	High Level Output Current	-	2	250	µA	V_{CC}=5.5 V, V_O=5.5 V, V_E=2.0 V, I_F=250 µA
I_{EH}	High Level Enable Current	-	-0.8	-	mA	V_{CC} = 5.5 V, V_E = 2.0 V
I_{EL}	Low Level Enable Current	-2.0	-1.2	-	mA	V_{CC} = 5.5 V, V_E = 2.0 V
I_{CCL}	Low Level Output Current	-	13	18	mA	V_{CC} = 5.5 V, V_E = 0.5 V, I_F = 10 mA
I_{CCH}	High Level Output Current	-	7	15	mA	V_{CC} = 5.5 V, V_E = 0.5 V, I_F = 0 mA
I_{I-O}	Leakage Current	-	-	1.0	mA	V_{I-O} = 3,000 V, T_A = 25° C, t = 5 s, RH = 45%
t_{EHL}	Enable Propagation delay “High to Low”	-	15	-	ns	V_{EH} = 3.0 V, V_{EL} = 0.5 V, R_L = 350 Ω , I_F = 7.5 mA, C_{LOAD} = 15 pf
t_{ELH}	Enable Propagation delay “Low to High”	-	40	-		
I_{FHL} / I_{FLH}	Hysteresis	-	0.8	-	Ratio	V_{CC} = 5 V, R_L = 280 Ω
R_{I-O}	Input-Output Isolation resistance	-	10^{12}	-	ohm	V_{I-O} = 500 V, T_A = 25° C
C_{I-O}	Input-Output Capacitance	-	0.6	-	pf	f = 1M Hz, T_A = 25° C
t_{PHL} & t_{PLH}	Propagation delay “High to Low” and “Low to High”	-	45	75	ns	V_{CC} = 5 V, R_L = 350 Ω , I_F = 7.5 mA, C_{LOAD} = 15 pf, T_A = 25°C
t_R & t_F	Rise and Fall Time	-	30	-		
CM_H	Instantaneous common mode rejection voltage “High Output”	-	500	-	V/us	V_{CM} = 10 V, R_L = 350 Ω , I_F = 0 mA, V_O = 2.0 V
CM_L	Instantaneous common mode rejection voltage “Low Output”	-	-500	-		V_{CM} = 10 V, R_L = 350 Ω , I_F = 5 mA, V_O = 0.8 V

OPTEK Technology Inc. — 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 sensors@optekinc.com www.optekinc.com

OPIA800

Fig.1 **LED Forward Current vs. Forward Voltage**

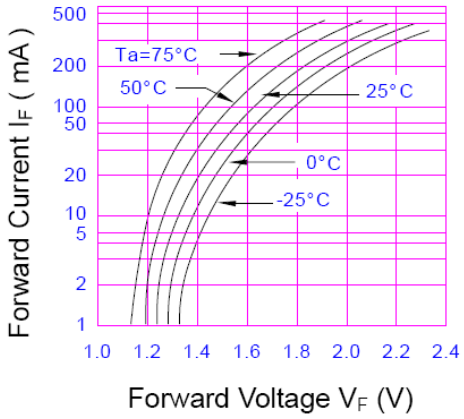


Fig.2 **LED Forward Current vs. Ambient Temperature**

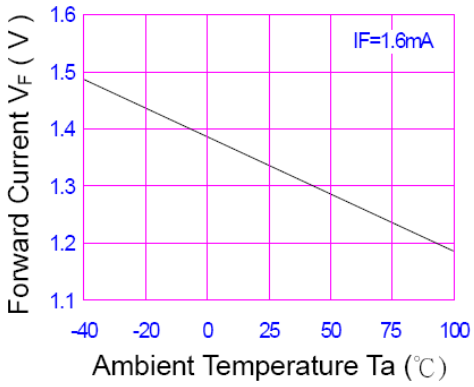


Fig.3 **Response and Fall Time vs. Load Resistance**

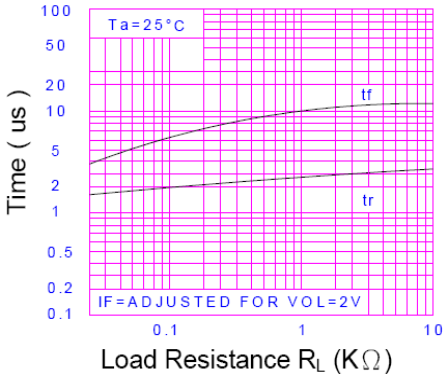


Fig.4 **Current Transfer Ratio vs. Forward Current**

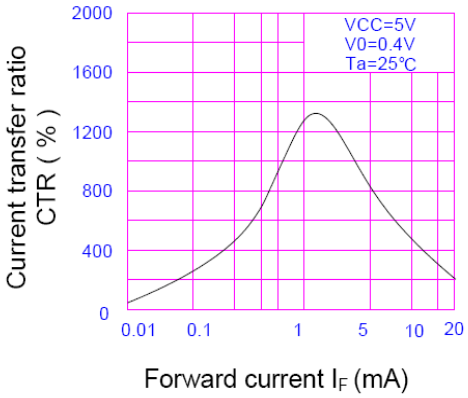


Fig.5 **Current Transter Ratio vs. Base-Emitter Resistance**

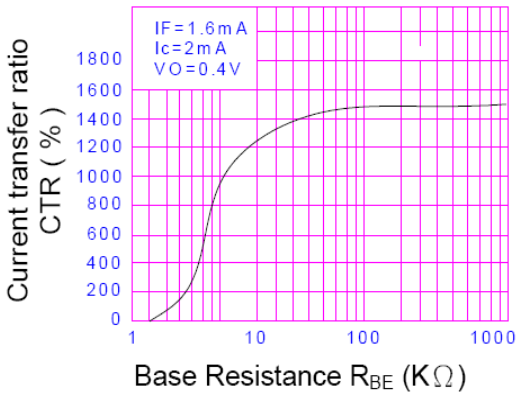
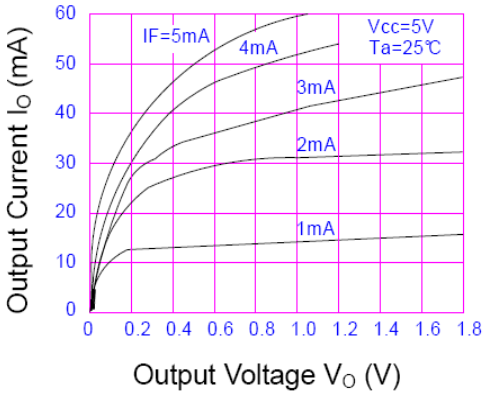


Fig.6 **Output Current vs. Output Voltage**



OPIA800

Fig.7 Output Current vs. Input Diode Forward Current

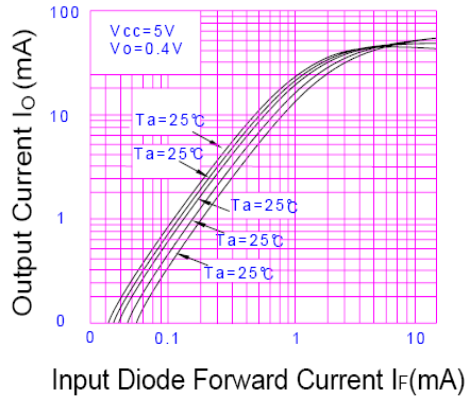


Fig.8 Logic Low Supply Current vs. Input Diode Forward Current

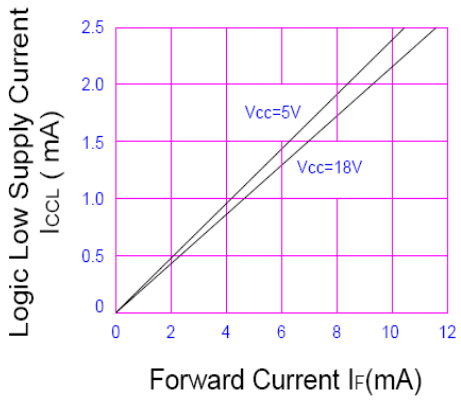


Fig.9 Propagation Delay vs. Input Diode Forward Current

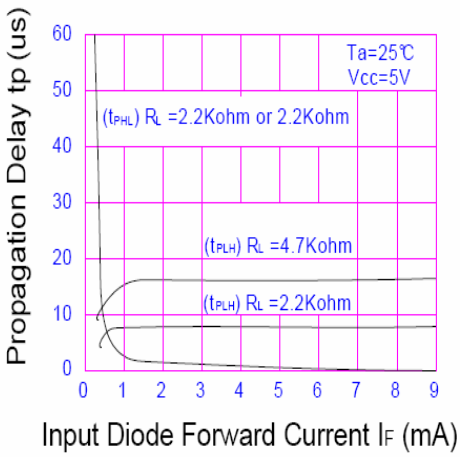
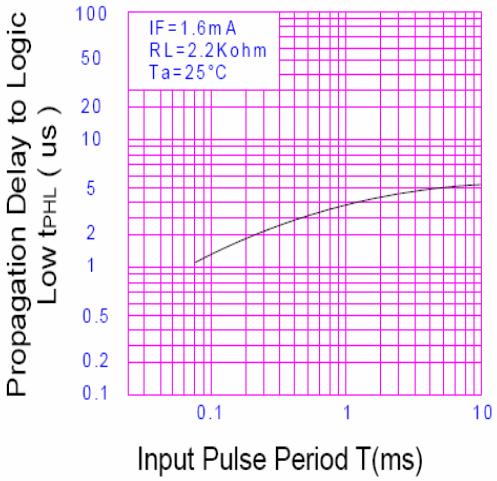


Fig.10 Propagation Delay to Logic Low vs. Pulse Period



OPTEK Technology Inc. — 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 sensors@optekinc.com www.optekinc.com

OPID804

Fig.1 Low Level Output Voltage vs. Ambient Temperature

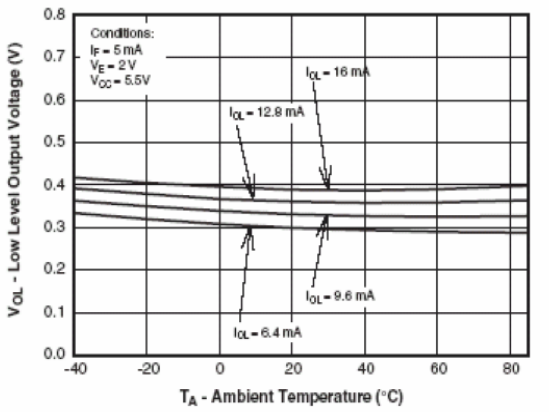


Fig.2 Input Diode Forward Voltage vs. Forward Current

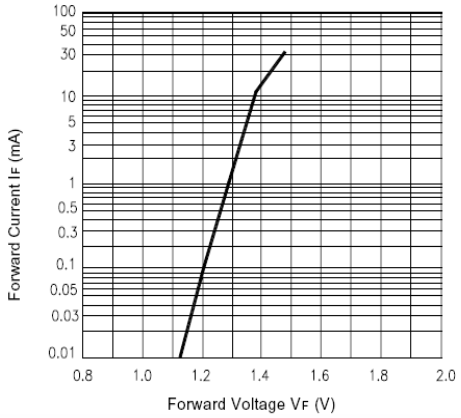


Fig.3 Switching Time vs. Forward Current

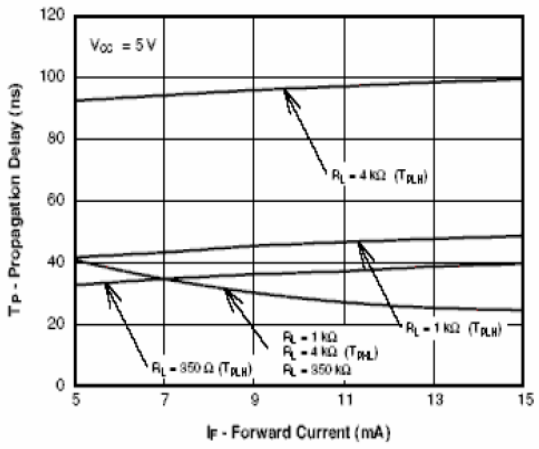


Fig. 4 Low Level Output Current vs. Ambient Temperature

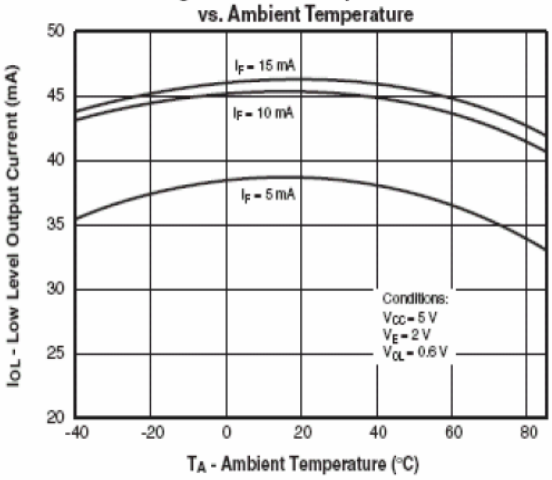


Fig. 5 Input Threshold Current vs. Ambient Temperature

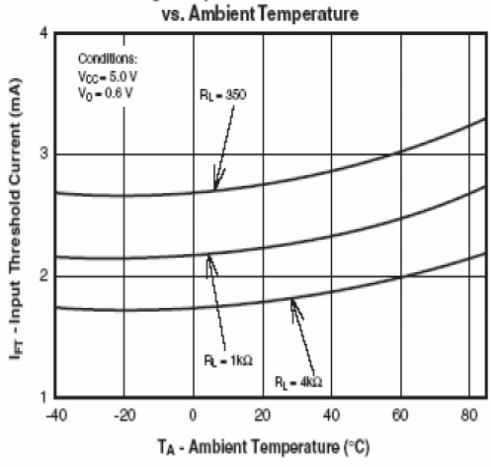
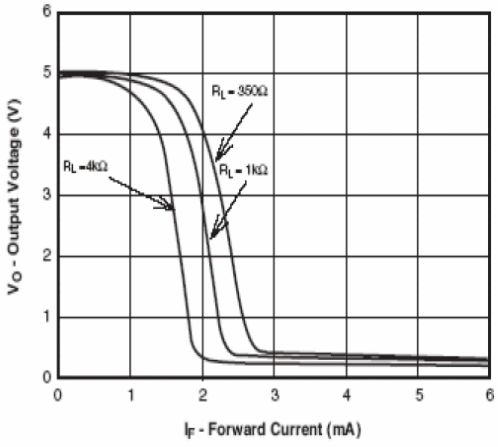


Fig. 6 Output Voltage vs. Input Forward Current



OPID804

Fig. 11 High Level Output Current vs. Temperature

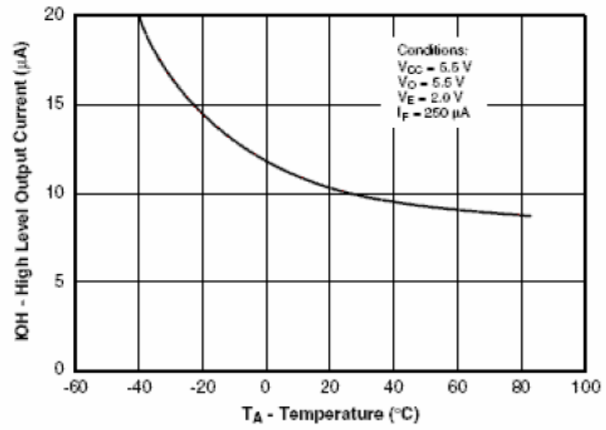


Fig. 9 Enable Propagation Delay vs. Temperature

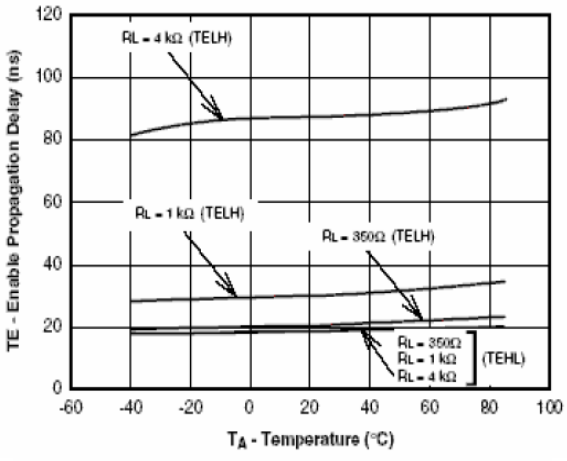


Fig. 10 Switching Time vs. Temperature

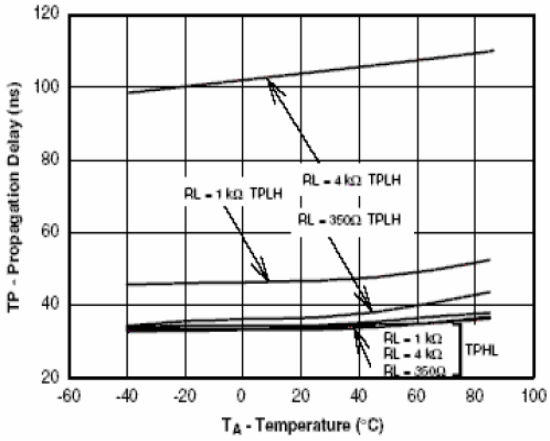


Fig. 7 Pulse Width Distortion vs. Temperature

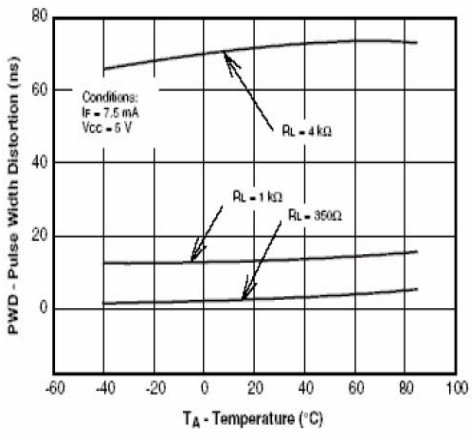
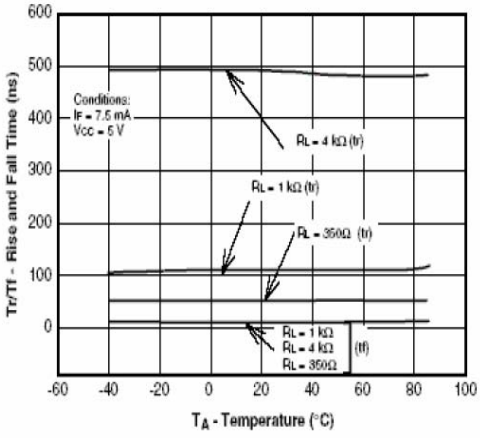
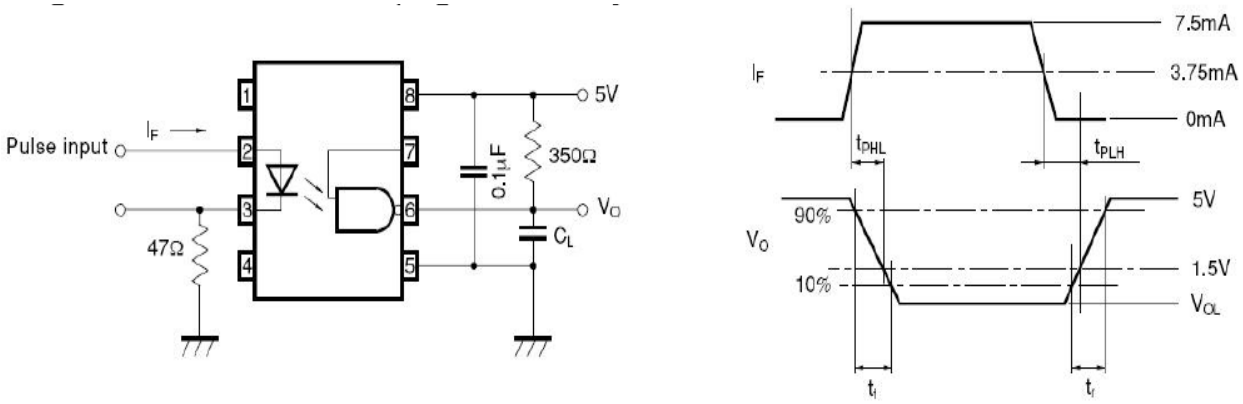


Fig. 8 Rise and Fall Time vs. Temperature

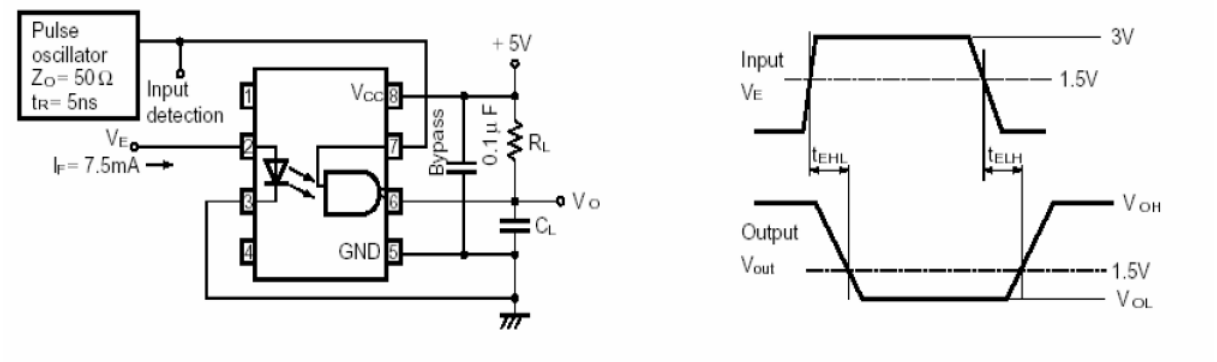


OPTEK Technology Inc. — 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 sensors@optekinc.com www.optekinc.com

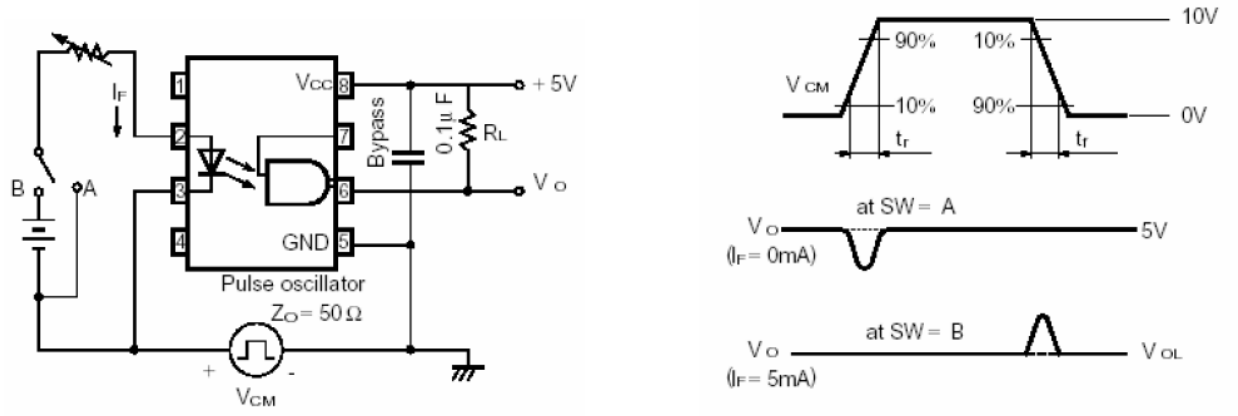
Test Circuit Propagation Delay Time



Test Circuit for Enable Propagation Delay Time



Test Circuit for Instantaneous Common Mode Rejection Voltage



Quality / Reliability Requirements

Parameter	Failure Criteria	Conditions
HTRB D $I_{C(OFF)}$	± 10%	11 samples after 500Hrs
	0 Fail	@ VCE = 5.0VDC, Ta = 70°C
HTFB D $I_{C(ON)}$	± 10%	50 samples after 96Hrs
	0 Fail	@ Max P_D, Ta = 25°C
MTTF @ 90% confidence	150,000 Min.	@ 25°C, 25mADC
Moisture Sensitivity Level	MSL 1	per JDEC stnd J-STD-020B
Lead Solderability	0 Fail	per Method 208 of MIL-STD-202.
Glass Transition of body	125°C Min.	DSC test method
Temperature Humidity-Bias	± 20%	85°C, 85%RH, 500Hrs, 80% min Iceo
Temperature Cycle	± 20%	per Method 1010.7 of MIL-STD-883E
High Temperature Storage	± 20%	85°C, 500Hrs
Autoclave	0 Fail	T_A = 121°C, Pressure = 15psi, Humidity = 100%, Time = 96Hrs

Note: This is to be performed when a change occurs to form, fit or function.

Government and Industry Standard Compliance Requirements

European Union's Reduction of Hazardous Substances (RoHS) Directive 2002/95/EC

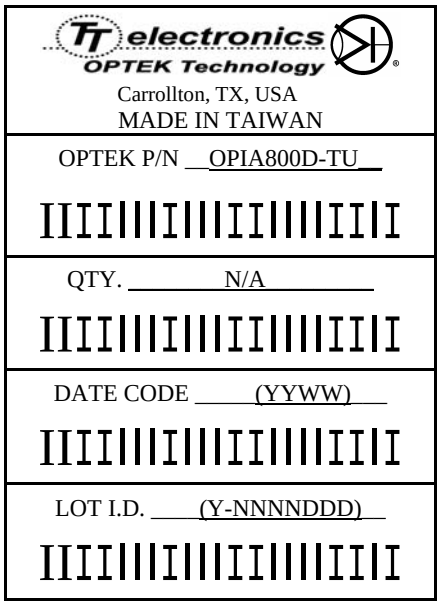
Label Identification

DESCRIPTION:

Size: 3" (7.4 cm) X 2.2" (5.5 cm)
Lettering shall be black on white background.
Format shall be as:

Notes:

1. The DATE CODE is a 4-digit code for date of manufacture where YY is the last two digits of the year, and WW is week number of manufacture.
2. The LOT I.D. is the manufacturing location lot identification where Y is the year of manufacture, NNNN is a sequential lot identifier, and DDD is the day of the year of manufacture. – or use equivalent label format.



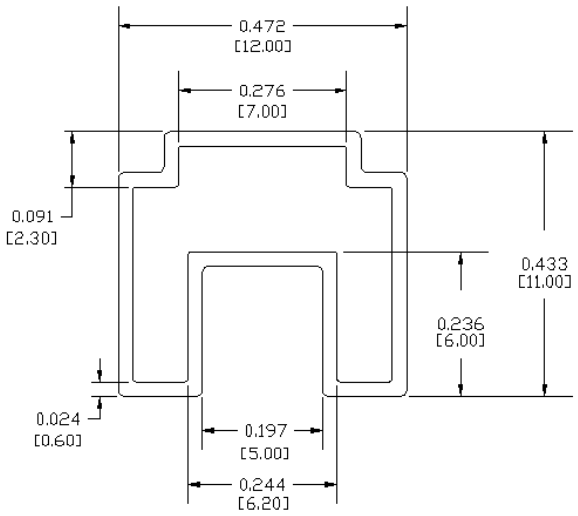
OPTEK Technology Inc. — 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 sensors@optekinc.com www.optekinc.com

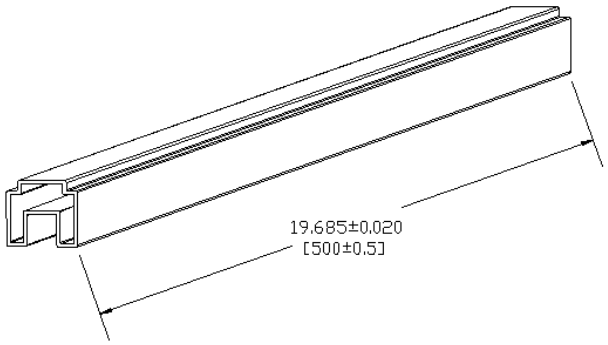
Packaging Information:

Optek's Optocoupler Part Numbers	Packaging Quantities	Tube		Inner		Small Carton			Medium Carton			Large Carton		
				52 x 7 x 7.5 cm		53.5 x 16 x 17.5 cm			53.5 x 30.7 x 17.5 cm			53.5 x 30.7 x 35 cm		
		Qty	Weight	Qty	Weight	Qty	Weight	Gross Weight	Qty	Weight	Gross Weight	Qty	Weight	Gross Weight
P/H and SMD	4-PIN OPIA400D/A, OPIA410D/A - OPIA413D/A	100	44	3,000	1.40	12000	6.0	6.5	24000	12.0	12.5	36,000	18.0	18.5
	6-PIN OPIA6XXD/A Series	65	44	1,950	1.50	7,800	6.5	7.0	15600	12.0	12.5	23,400	18.5	19.0
	8-PIN OPIA80XD Series and OPID804D	48	44	1,440	1.44	5,760	6.0	6.5	11,520	12.0	12.5	17,280	18.0	18.5
M/F	OPIA500B, OPIA401B - OPIA404B, OPIA414B	100	24	6,000	1.60	24,000	6.5	7.0	48,000	13.0	13.5	72,000	19.5	20.0
SSOP	OPIA405C - OPIA409C	170	--	10,200	--									

P/H = Pin-Hole Packages (Referred as D = Dual-In-Line Package)
SMD = Standard Surface Mount Packages (Referred as A = 6.5mil SMD)
M/F or SOP = Mini-Flat Packages or Small Outside Packages (Referred as B=4.40mil SMD w/ 2.54 Lead-Spacing)
SSOP = Slim SOP Packages (Referred as C = 4.40mil SMD with 1.27 Lead-Spacing)

Tube Packaging Specifications (TU):





DIMENSIONS ARE IN: INCHES [MILLIMETERS]

TOLERANCE: ± 0.008 INCHES
[± 0.2 MILLIMETERS]

Quantity: 8-pin: 48pcs/tube

Issue	Change Description	Approval	Date
A	-Initial Release	Chima Ehiem	9/7/2008
A.1	Added ML certification no. and VDE pending (pg 1) Added title for Package dimensions and schematics (pg. 2) Updated label specification from 7.5” to 7.4” (pg. 14) Updated label specification adding Optek Logo (pg. 14) Updated MSL for Quality/Reliability to MSL 1 (pg 14) Unified fonts on some subheaders in the parametric charts. Updated 8-Pin Tube Packaging Drawing with double dimensions. (pg. 17)	Chima Ehiem	10/13/2008

OPTEK Technology Inc. — 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 sensors@optekinc.com www.optekinc.com