ORIENT

Photocoupler

Product Data Sheet

P/N: Photocoupler

Customer:

Mfg P/N: OR-354

Date:

SHENZHEN ORIENT COMPONENTS CO.,LTD.

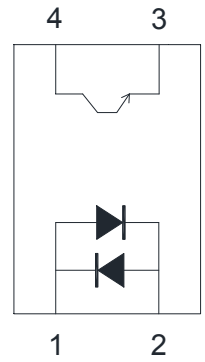
Block A 3rd Floor No.4 Building,Tian'an Cyber Park,Huangge Rd,LongGang Dist,Shenzhen,GD

TEL：0755-29681816
FAX：0755-29681200
www.orient-opto.com

Copyright© 2019 Orient Tech Corporation.All rights Reserved

1. Features

- Current transfer ratio(CTR : MIN. 20% at I_F = ±1mA, V_{CE} = 5V, Ta=25 ℃)
- High input -output isolation voltage （V_{ISO}=3,750Vrms）
- High collector-emitter voltage （V_{CEO} = 35V）
- SOP-4 package
- -55 ℃ to 115 ℃
- RoHS Compliance



1 Anode 2 Cathode
3 Emitter 4 Collector

2. Instructions

- The OR-354 series device consists of two infrared emitting diode,connected in inverse parallel, optically coupled to a phototransistor detector.
  They are encapsulated in a 4 pin SOP encapsulation.
- Pin pitch of OR-354 is 2.54mm

3. Application Range

- Hybrid substrates that require high density mounting.
- Programmable controllers
- System appliance, measuring instruments

4. Max Absolute rated Value (Normal Temperature=25℃)

Parameter		Symbol	Rated Value	Unit
Input	Forward Current	I_F	±50	mA
	Junction Temperature	T_J	125	℃
	Consume Power	P	70	mW
Output	Collector and emitter Voltage	V_{CEO}	35	V
	Emitter and collector Voltage	V_{ECO}	6	
	Collector Current	I_C	50	mA
	Consume Power	P_C	150	mW
	Junction Voltage	T_J	125	℃
Total Consume Power		P_{tot}	170	mW
*1 Insulation Voltage		V_{iso}	3750	Vrms

Copyright© 2018 Orient Tech Corporation.All rights Reserved

Working Temperature	Topr	-55 to + 115	℃
Deposit Temperature	T_{stg}	-55 to + 150	
*2 Soldering Temperature	T_{sol}	260	

*1. AC Test, 1 minute, humidity = 40~60%
Insulation test method as below:
(1) Short circuit both terminals of photocoupler.
(2) No Current when testing insulation voltage.
(3) Adding sine wave voltage when testing.

*2. soldering time is 10 seconds.

5. Opto-electronic Characteristics

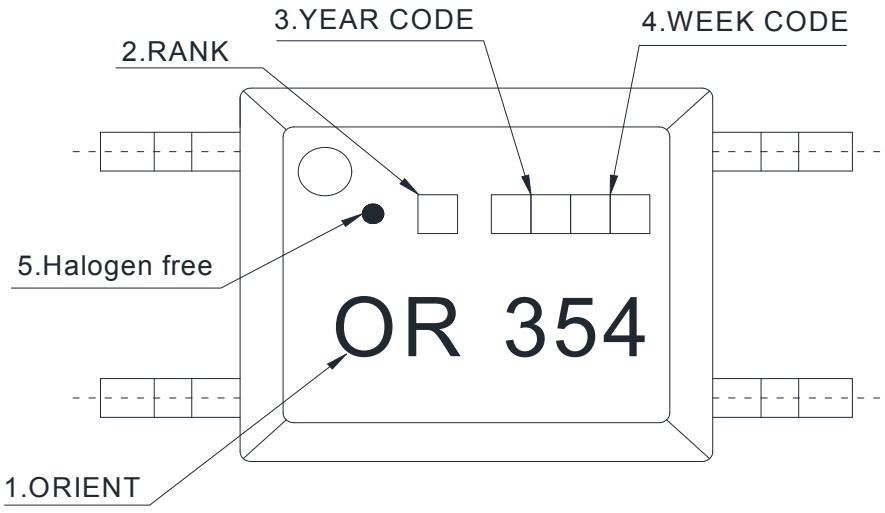
Parameter		Symbol	Condition	Min	Typ.*	Max	Unit
Input	Forward Current	V_F	I_F=±20mA	---	1.2	1.4	V
	Collector capacitance	C_t	V=0, f=1KHz	---	30	250	pF
Output	Collector to emitter Current	I_{CEO}	V_{CE}=20V, I_F=0mA	---	---	100	nA
	Collector and Emitter attenuation Voltage	BV_{CEO}	I_C=0.1mA I_F=0mA	35	---	---	V
	Emitter and Collector attenuation Voltage	BV_{ECO}	I_E=10μA I_F=0mA	6	---	---	V
	Collector and Emitter Saturation Voltage	$V_{CE(sat)}$	I_F=±20mA I_C= 1mA	---	---	0.2	V
	Insulation Impedance	R_{iso}	DC500V 40~60%R.H.	5×10^{10}	1×10^{11}	---	Ω
	Floating Capacitance	C_f	V=0, f=1MHz	---	0.6	1	pF
	Response Time	t_r	V_{CC}=2V, I_C=2mA R_L=100Ω	---	4	18	μs
	Descend Time	t_f		---	3	18	μs

Copyright© 2018 Orient Tech Corporation.All rights Reserved

6. Rank table of current transfer ratio CTR

CTR Rank	Min.	Max.	Condition
A	50	150	I_F=±1mA, V_{CE}=5V, Ta=25℃
B	80	400	
B2	100	400	
C	200	400	
No mark	20	400	

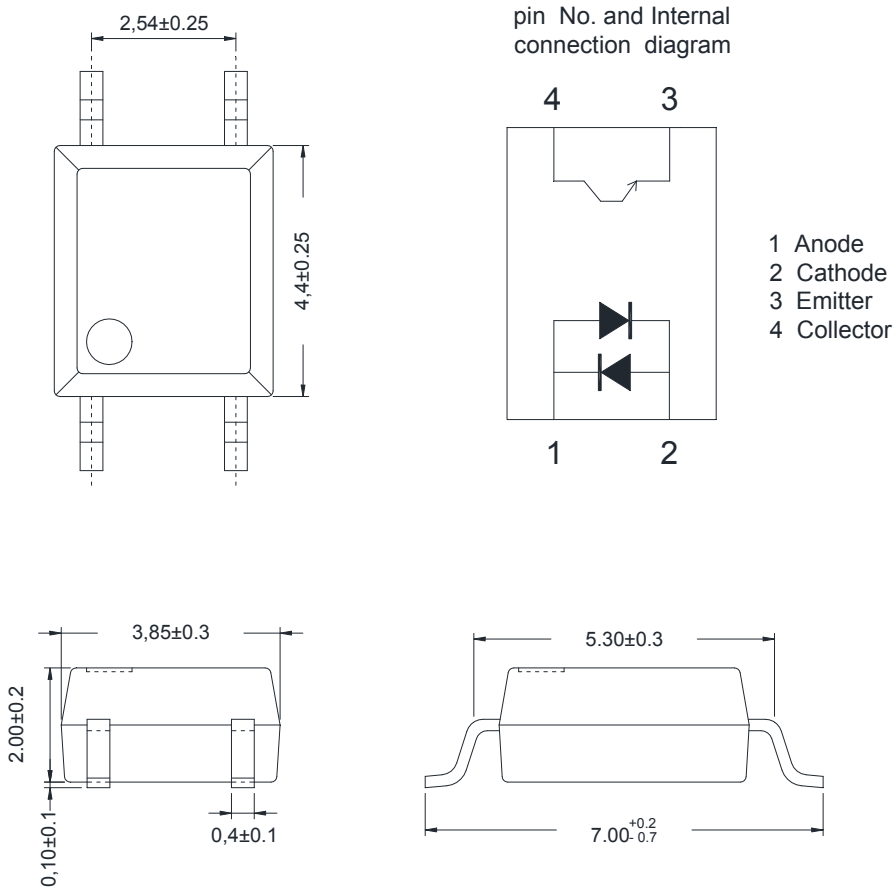
7. Naming Rule



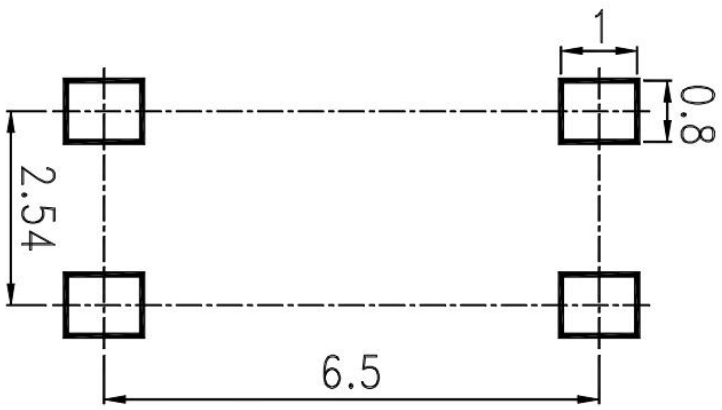
1. ORIENT
2. Rank shall be or shall not be marked.
3. Year Code, Example : 2010 = 10
4. Work Week Ranging from ‘01’ to ‘53’
5. “●” indicates halogen free option.

Copyright© 2018 Orient Tech Corporation.All rights Reserved

8. Outer Dimension



9. Recommended Foot Print Patterns (Mount Pad)

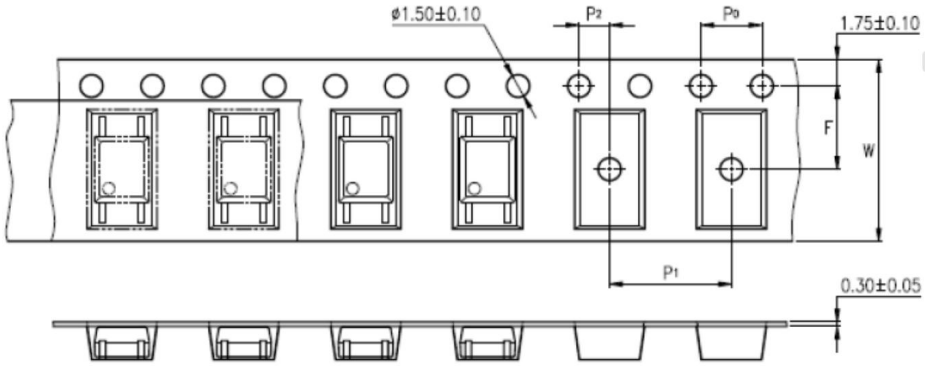


unit：mm

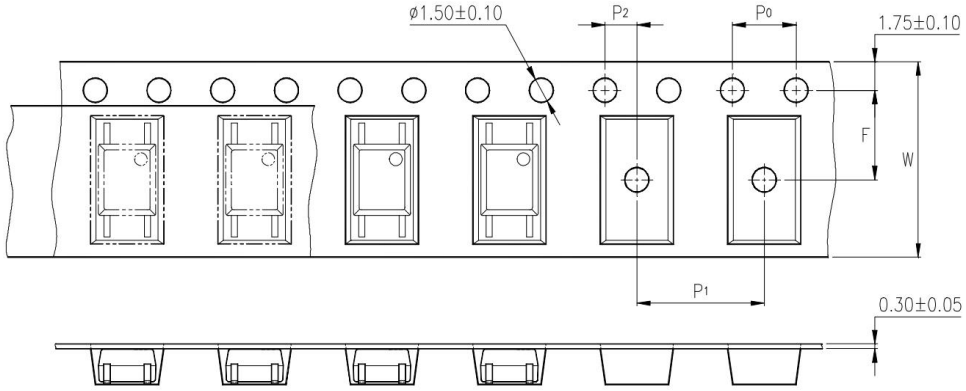
Copyright© 2018 Orient Tech Corporation.All rights Reserved

10. Taping Dimensions

(1) OR-354-TP



(2) OR-354-TP1



Description	Symbol	Dimension in mm(inch)
Tape wide	W	12±0.3（0.472）
Pitch of sprocket holes	P0	4±0.1（0.157）
Distance of compartment	F	5.5±0.1（0.217）
	P2	2±0.1（0.079）
Distance of compartment to compartment	P1	8±0.1（0.315）

Package Type	OR-354 series
Quantities(pcs)	3000

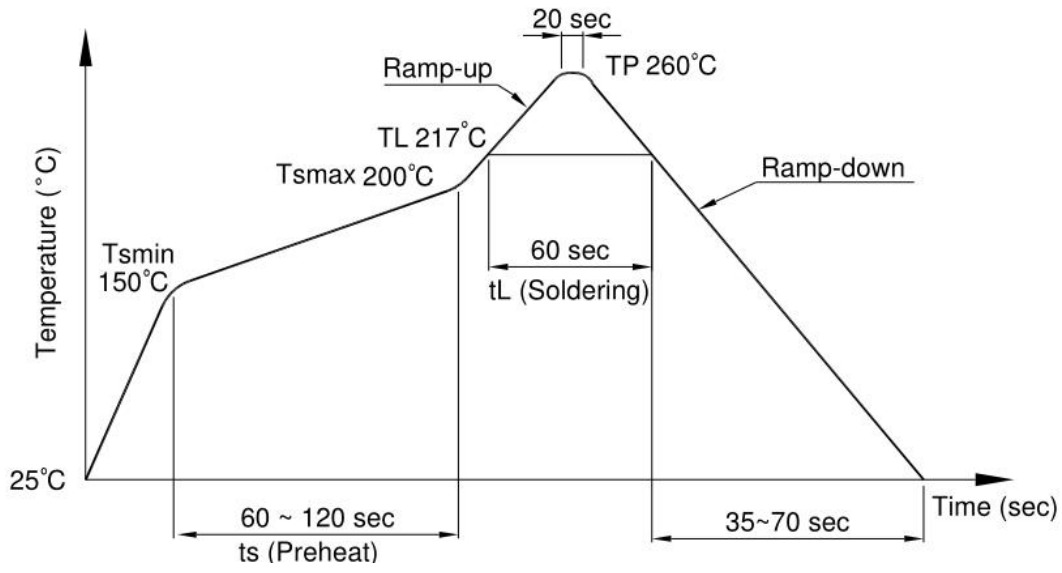
Copyright© 2018 Orient Tech Corporation.All rights Reserved

11. Temperature Profile Of Soldering

（1）IR Reflow soldering (JEDEC-STD-020C compliant)

One time soldering reflow is recommended within the condition of temperature and time profile shown below. Do not solder more than three times.

Profile item	Conditions
Preheat - Temperature Min (T Smin) - Temperature Max (T Smax) - Time (min to max) (ts)	 150˚C 200˚C 90±30 sec
Soldering zone - Temperature (TL) - Time (t L)	 217˚C 60 sec
Peak Temperature	260˚C
Ramp-up rate	3˚C / sec max.
3˚C / sec max.	3~6˚C / sec

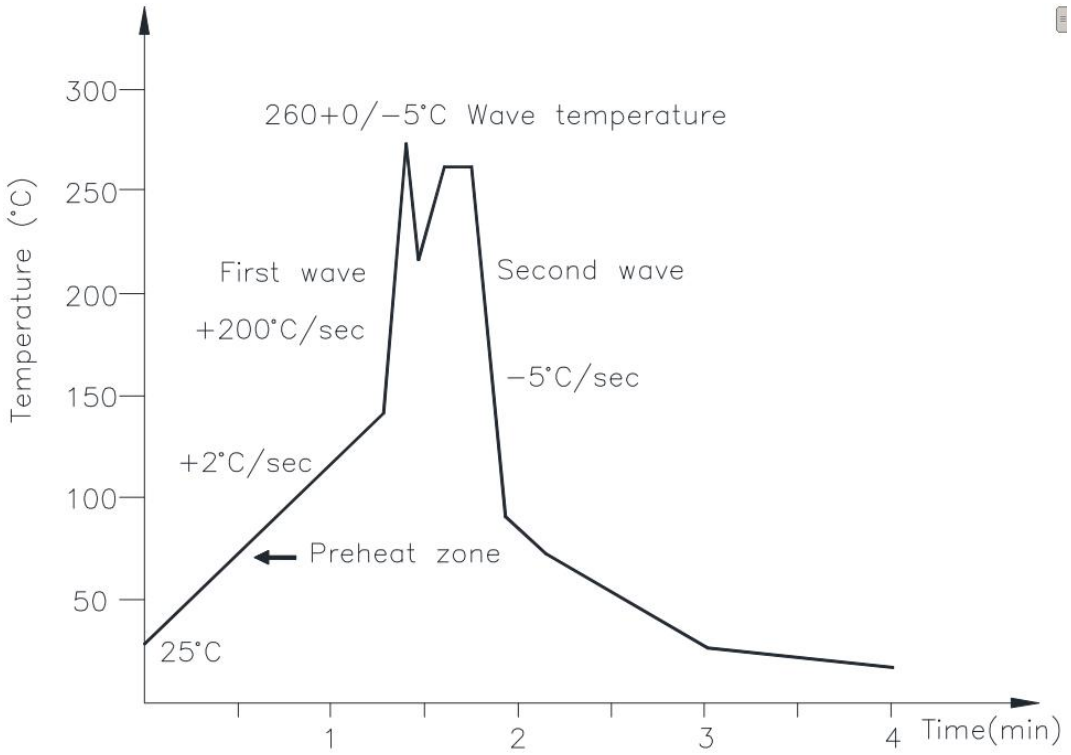


Copyright© 2018 Orient Tech Corporation.All rights Reserved

（2）Wave soldering (JEDEC22A111 compliant)

One time soldering is recommended within the condition of temperature.

Temperature Time	260+0/-5˚C 10 sec
Preheat temperature Preheat time	5 to 140˚C 30 to 80 sec



（3）Hand soldering by soldering iron

Allow single lead soldering in every single process. One time soldering is recommended.

Temperature Time	380+0/-5˚C 3 sec max

Copyright© 2018 Orient Tech Corporation.All rights Reserved

12. Characteristics Curve

Fig.1 Forward Current vs. Ambient Temperature

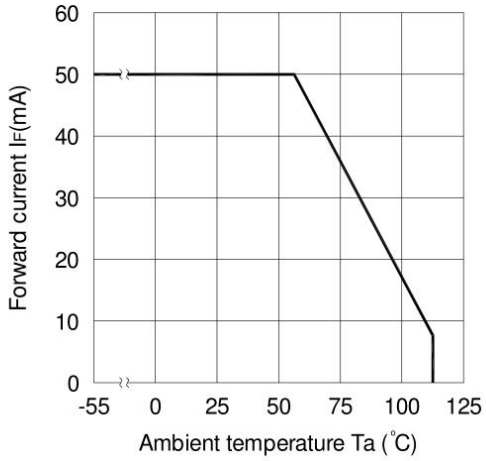


Fig.2 Collector Power Dissipation vs. Ambient Temperature

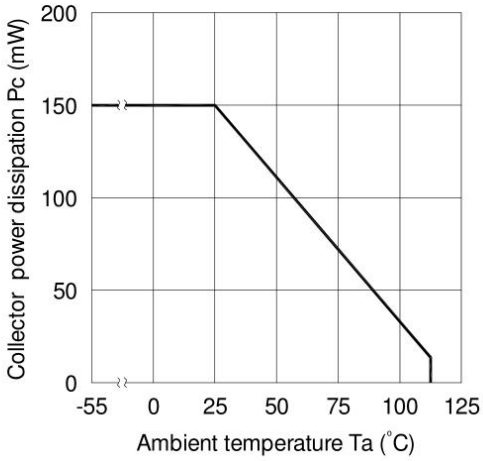


Fig.3 Collector-emitter Saturation Voltage vs. Forward Current

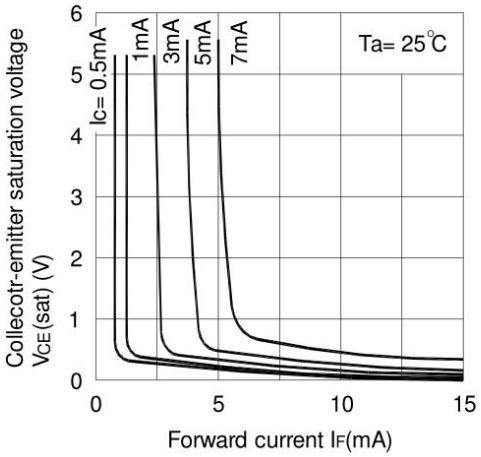


Fig.4 Forward Current vs. Forward Voltage

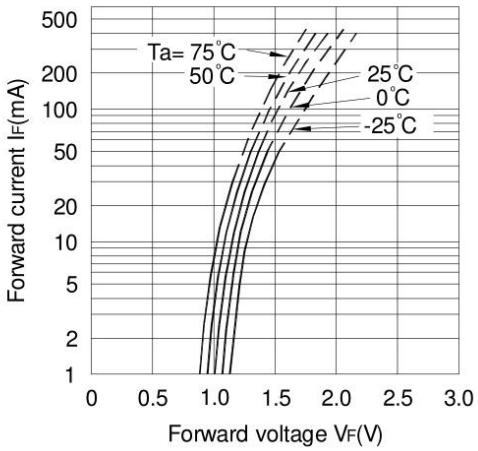


Fig.5 Current Transfer Ratio vs. Forward Current

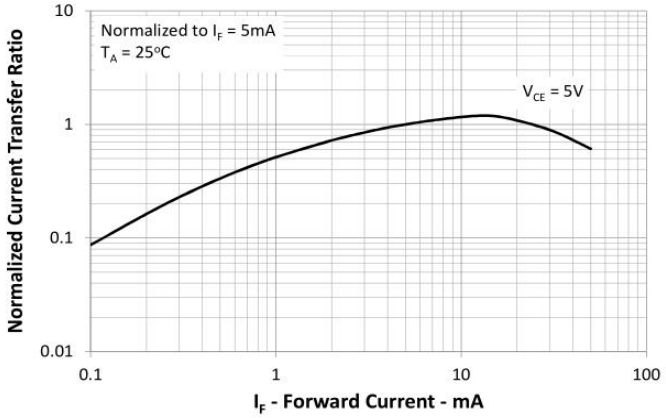
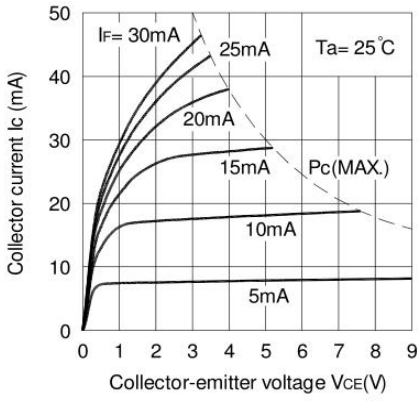


Fig.6 Collector Current vs. Collector-emitter Voltage



Copyright© 2018 Orient Tech Corporation.All rights Reserved

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

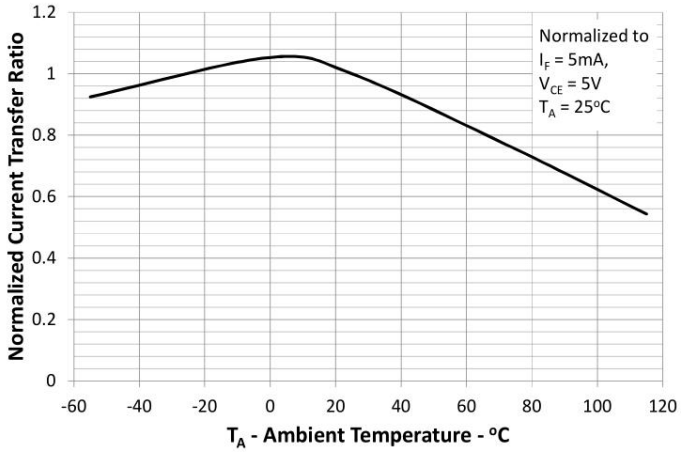


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

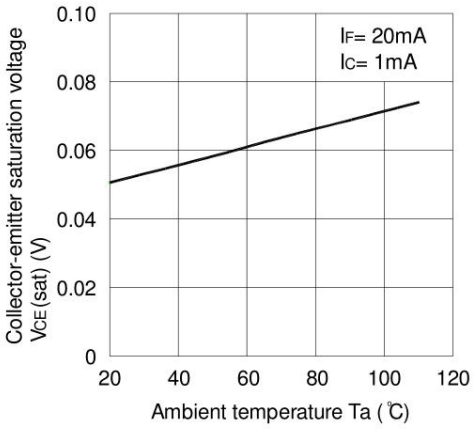


Fig.9 Collector Dark Current vs. Ambient Temperature

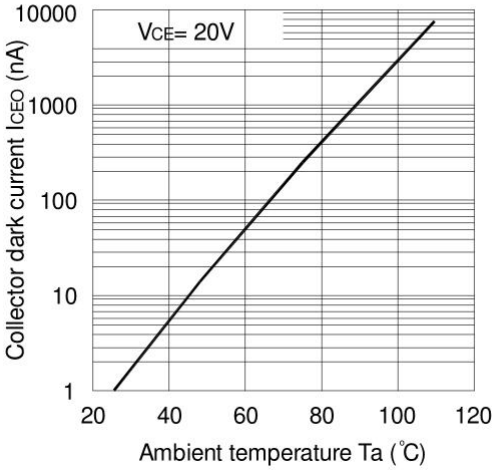


Fig.10 Response Time vs. Load Resistance

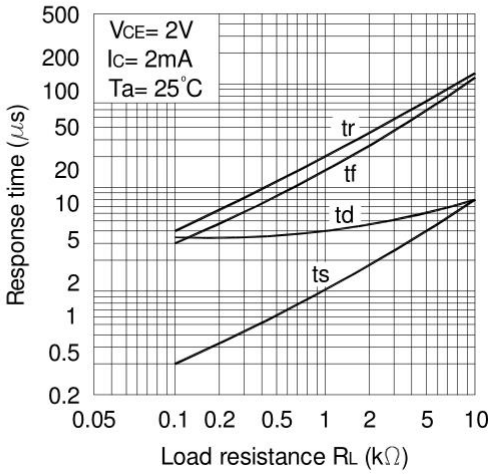
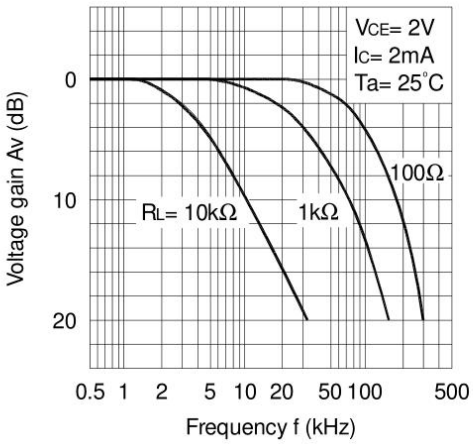
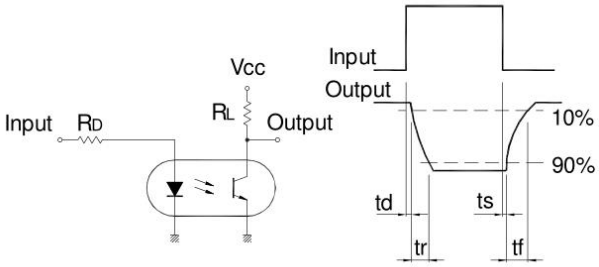


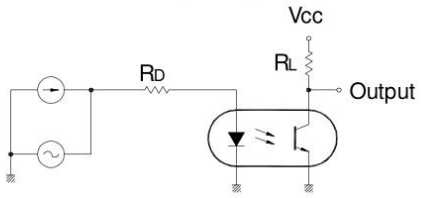
Fig.11 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response



Copyright© 2018 Orient Tech Corporation.All rights Reserved

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for High Speed Optocouplers ***category:***

Click to view products by Orient ***manufacturer:***

Other Similar products are found below :

6N136F PS8502L2-AX ACNW261L-000E ACPL-344JT-000E ACPL-K49T-500E ACPL-K75T-000E ACPL-W21L-560E ACPL-K44T-500E TLP187(TPL,E(T TLP2601(TP1,F) 610737H 6N137A-X001 6N137A-X017T 6N139-X007T HCPL2630M HCPL2731SM TLP555(F) HCPL2630SM PS2841-4A-F3-AX PS9817A-1-F3-AX PS9821-2-F3-AX ORPC-817D ORPC-817M/C ORPC-817M/B PT17-51C/L129(BIN2) TLP521-4GBSM UMW817C 6N137S1(TA) TLP521GB TLP521GB-S PS2501 PS2501-S TLP785GB TLP785GB-S LTV-214-G TLP2766A(E TLP2766A(LF4,E LCR-0202 EL814S1(TA)-V PC817X4NSZ2B CYPC817 OR-MOC3023 TLP267J(TPL,E(T TLP109(TPL,E(O EL2514S1(TU)(CLW)-G EL816S2(C)(TU)-F TLP281-4 MOC3023M ACPL-K49T-060E ACPL-K75T-500E