ORIENT

Photo coupler

Product Data Sheet

Part Number: OR-341

Customer: _____

Date: _____

SHENZHEN ORIENT COMPONENTS CO ., LTD

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

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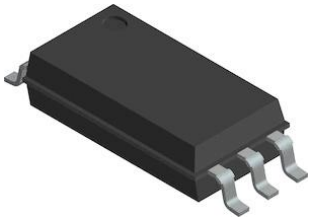
1. Features



(1) 3.0 A maximum peak output current
(2) 2.5 A minimum peak output current
(3) Rail-to-rail output voltage
(4) 200 ns maximum propagation delay
(5) 70 ns maximum propagation delay difference
(6) LED current input with hysteresis
(7) 20 kV/μs minimum Common Mode Rejection (CMR) at VCM = 1500 V
(8) ICC = 3.0 mA maximum supply current
(9) Under Voltage Lock-Out protection (UVLO) with hysteresis
(10) Wide operating VCC Range: 15 to 30 V
(11) Industrial temperature range: -40° C to 105° C
(12) Safety approval
UL approved(No.E323844)
VDE approved(No.40029733)
CQC approved (No.CQC19001231480)
(13) In compliance with RoHS, REACH standards
(14) MSL Level 1

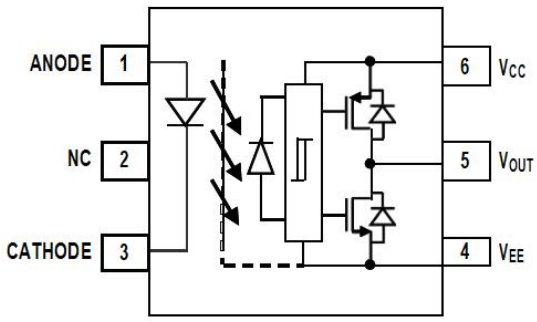
2. Description

The OR-341 contains an AlGaAs LED, which is optically coupled to an integrated circuit with a power output stage. This optocoupler is ideally suited for driving power IGBTs and MOSFETs used in motor control inverter applications. The high operating voltage range of the output stage provides the drive voltages required by gate controlled devices. The voltage and high peak output current supplied by this optocoupler make it ideally suited for direct driving IGBT with ratings up to 1200 V/ 100 A. For IGBTs with higher ratings, this optocoupler can be used to drive a discrete power stage which drives the IGBT gate.

3. Application Range

(1)IGBT/MOSFET gate drive (2)AC and Brushless DC motor drives
(3)Renewable energy inverters (4)Industrial inverters (5)Switching power supplies

4. Functional Diagram



Note: A 1 F bypass capacitor must be connected between pins VCC and VEE.

Truth Table			
LED	VCC – VEE "POSITIVE GOING" (i.e., TURN-ON)	VCC – VEE "NEGATIVE GOING" (i.e., TURN-OFF)	VO
OFF	0 – 30 V	0 – 30 V	LOW
ON	0 – 12.1 V	0 – 11.1 V	LOW
ON	12.1 – 13.5 V	11.1 – 12.4 V	TRANSITION
ON	13.5 – 30 V	12.4 – 30 V	HIGH

5. Absolute Maximum Ratings (Ta=25℃)

Parameter		Symbol	Rated Value	Unit
Input	Average Forward Input Current	I_F	25	mA
	Reverse Input Voltage	V_R	5	V
Output	"High" Peak Output Current	$I_{OH(PEAK)}$	3	A
	"Low" Peak Output Current	$I_{OL(PEAK)}$	3	A
	Output Collector Power Dissipation	P_O	700	mW
Total Power Dissipation		P_T	745	mW
Total Output Supply Voltage		V_{CC} - V_{EE}	35	V
Input Current (Rise/Fall Time)		$t_{r(IN)}$ / $t_{f(IN)}$	500	ns
Insulation Voltage		Viso	5000	Vrms
Working Temperature		T_{opr}	-40 ～+ 105	℃
Storage Temperature		T_{stg}	-55～ + 125	
*2 Soldering Temperature		T_{sol}	260	

*1. Room temperature = 25 ℃. Exceeding the maximum absolute rating can permanently damage the device. Working long hours at the maximum absolute rating can affect reliability.

*2. soldering time is 10 seconds.

6. Electrical Optical Characteristics

Unless otherwise noted, all typical values are at TA = 25° C, VCC - VEE = 30 V, VEE = Ground; all minimum and maximum specifi cations are at recommended operating conditions (TA = -40 to 105° C, IF(ON) = 7 to 16 mA, VF(OFF) = -3.6 to 0.8 V, VEE = Ground, VCC = 15 to 30 V).

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
High Level Output Current	I_{OH}	-1.0	-2.3	—	A	$V_O = (V_{CC} – 4V)$
		-2.5	—	—		$V_{CC}– V_O ≤15V$
Low Level Output Current	I_{OL}	1.0	3.0	—	A	$V_O = (V_{EE} + 2.5V)$
		2.5	—	—		$V_{CC}– V_O ≤15V$
High Output Transistor RDS(ON)	$R_{DS,OH}$	—	1.7	3.0		I_{OH} = -2.5 A
Low Output Transistor RDS(ON)	$R_{DS,OL}$	—	0.8	1.8		I_{OH} = 2.5 A
High Level Output Voltage	V_{OH}	(V_{CC} – 0.3)	(V_{CC} – 0.2)	—	V	I_O = –100 mA
		—	V_{CC}	—	V	I_O = 0 mA, I_F = 10 mA
Low Level Output Voltage	V_{OL}	—	0.1	0.2	V	I_O = 100 mA
High Level Supply Current	I_{CCH}	—	1.48	3.0	mA	R_g=10,C_g = 25 nF, I_F=10 mA
Low Level Supply Current	I_{CCL}	—	1.58	3.0	mA	R_g =10 ,C_g=25nF, V_F=0 V
Threshold Input Current Low to High	I_{FLH}	—	1.79	4.0	mA	R_g=10 ,C_g=25nF, V_O>5 V
Threshold Input Voltage High to Low	V_{FHL}	0.8	—	—	V	
Input Forward Voltage	V_F	1.2	1.55	1.95	V	I_F = 10 mA
Temperature Coefficient of Forward Voltage	$\Delta V_F/\Delta T_A$	—	–1.7	—	mV/°C	I_F = 10 mA
Input Reverse Breakdown Voltage	B_{VR}	5	—	—	V	I_R = 100 µA
Input Capacitance	C_{IN}	—	70	—	pF	f = 1 MHz, V_F = 0V
UVLO Threshold	V_{UVLO+}	12.1	12.5	13.5	V	V_O > 5 V I_F = 10 mA
	V_{UVLO-}	10.0	11.0	12.0		
UVLO Hysteresis	U_{VLOHYS}	—	1.5	—		

7. Switching Characteristics

Unless otherwise noted, all typical values are at TA = 25° C, VCC - VEE = 30 V, VEE = Ground; all minimum and maximum specifi cations are at recommended operating conditions (TA = -40 to 105° C, IF(ON) = 7 to 16 mA, VF(OFF) = -3.6 to 0.8 V, VEE = Ground, VCC = 15 to 30 V).

Parameter	Symbol	Min.	Typ	Max.	Units	Test Conditions
Propagation Delay Time to High Output Level	t_{PLH}	50	140	200	ns	R_g = 10 C_g = 25 nF f = 20 kHz Duty Cycle = 50% I_F = 7 mA to 16 mA V_{CC} = 15 V to 30 V
Propagation Delay Time to Low Output Level	t_{PHL}	50	140	200	μs	
Pulse Width Distortion	PWD	—	25	70	ns	
Propagation Delay Difference Between Any Two Parts	P_{DD} ($t_{PHL} - t_{PLH}$)	–100	—	100	ns	
Rise Time	t_r	—	46	—	ns	V_{CC} = 30 V
Fall Time	t_f	—	43	—	ns	
Output High Level Common Mode Transient Immunity	$\|CM_H\|$	20	30	—	kV/ s	T_A= 25°C, I_F =10mA V_{CC}=30V, V_{CM} =1500V with split resistors
Output Low Level Common Mode Transient Immunity	$\|CM_L\|$	20	30	—		T_A=25°C, V_F=0V, V_{CC}=30V, V_{CM}=1500V with split resistors

8. Order Information

Part Number

OR-341Y-Z

Note

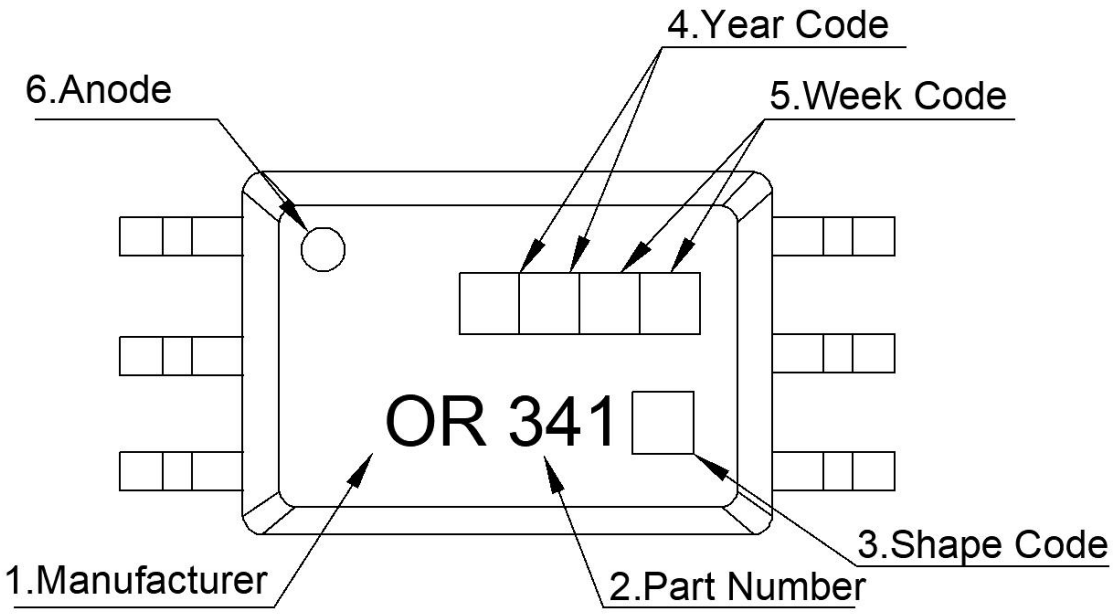
341= Part Number

Y = Lead form option, W or W1

Z = Tape and reel option (TA,TA1 or none).

Option	Description	Packing quantity
S(TA)	Surface mount lead form (low profile) + TA tape & reel option	1000 units per reel
S(TA1)	Surface mount lead form (low profile) + TA1 tape & reel option	1000 units per reel

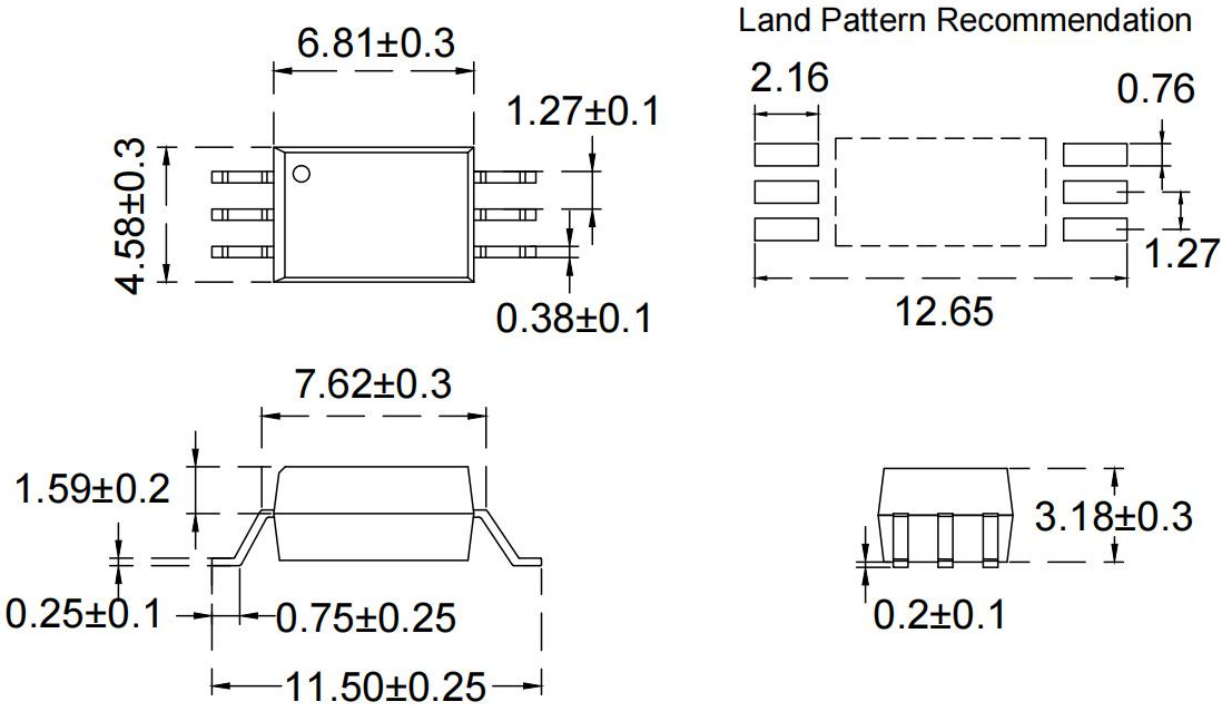
9. Naming Rule



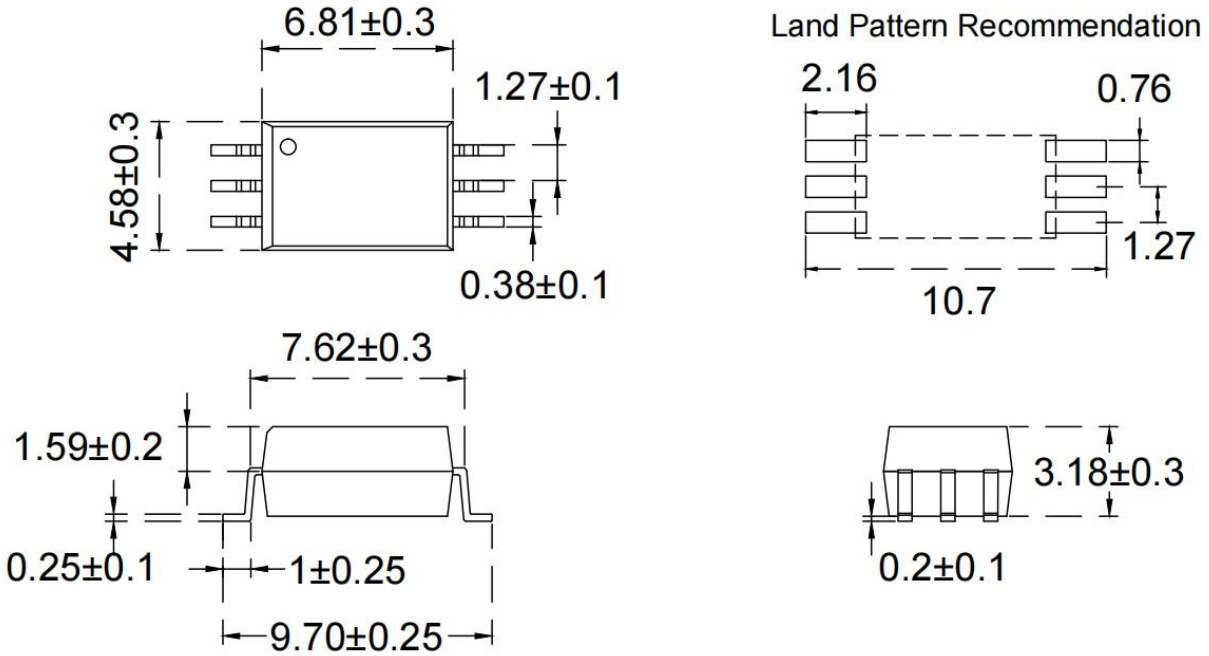
1. Manufacturer ： ORIENT.
2. Part Number ： 341 .
3. Shape Code □ ： Lead form option ,W or W1 .
4. Year Code □□ ： '21' means '2021' and so on.
5. Week Code □□ ： 01 means the first week, 02 means the second week and so on.
6. Anode.

10. Package Dimension

(1).OR-341W

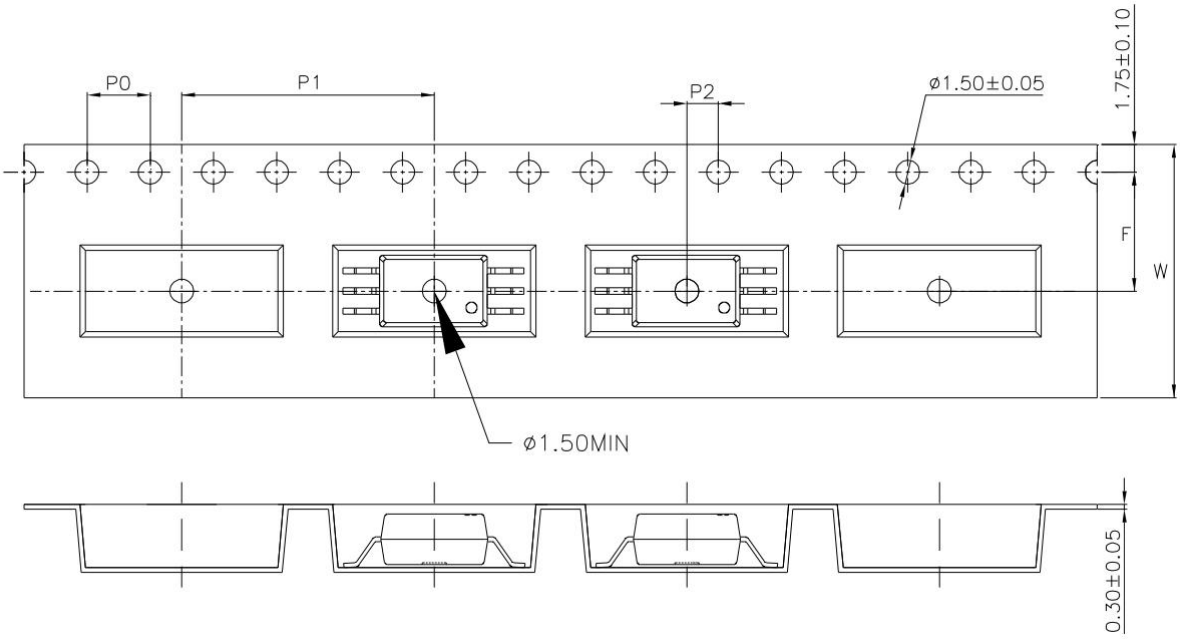


(2).OR-341W1

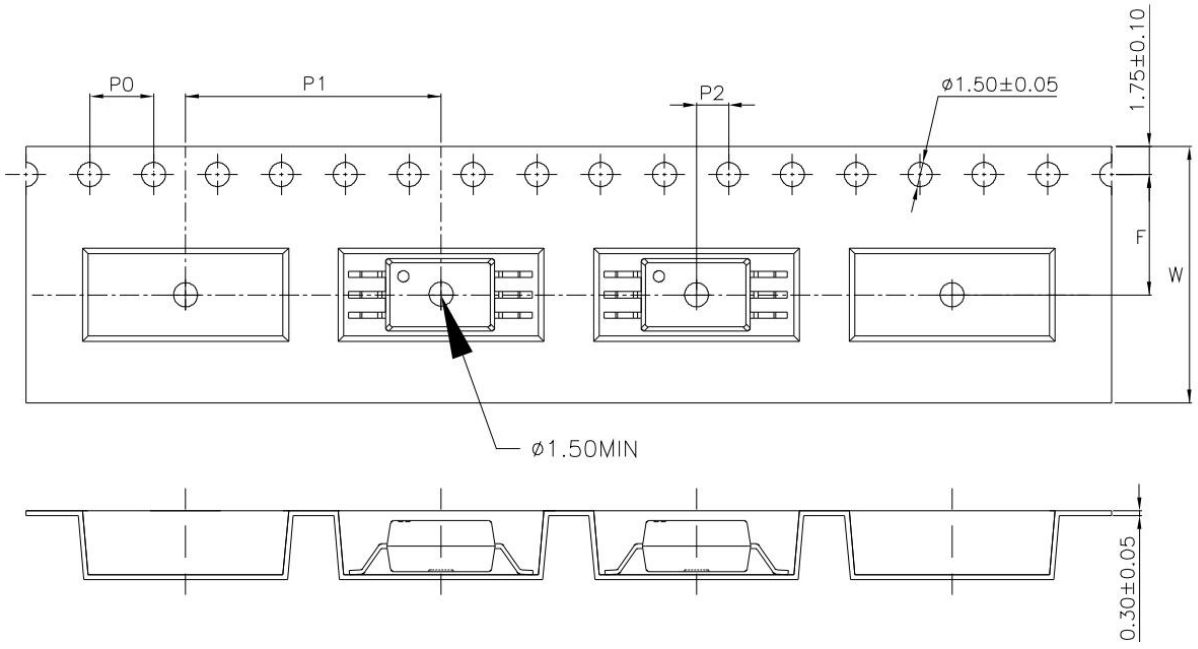


11. Taping Dimensions

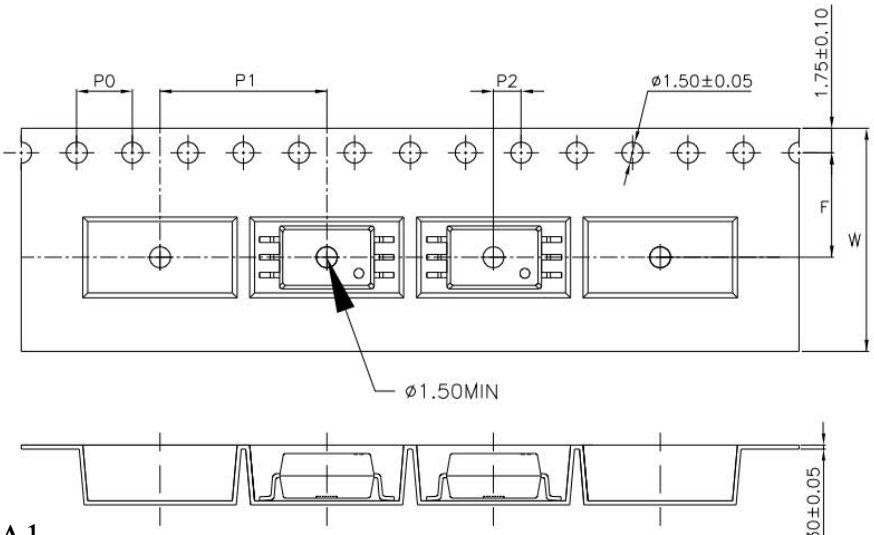
(1)OR-341W-TA



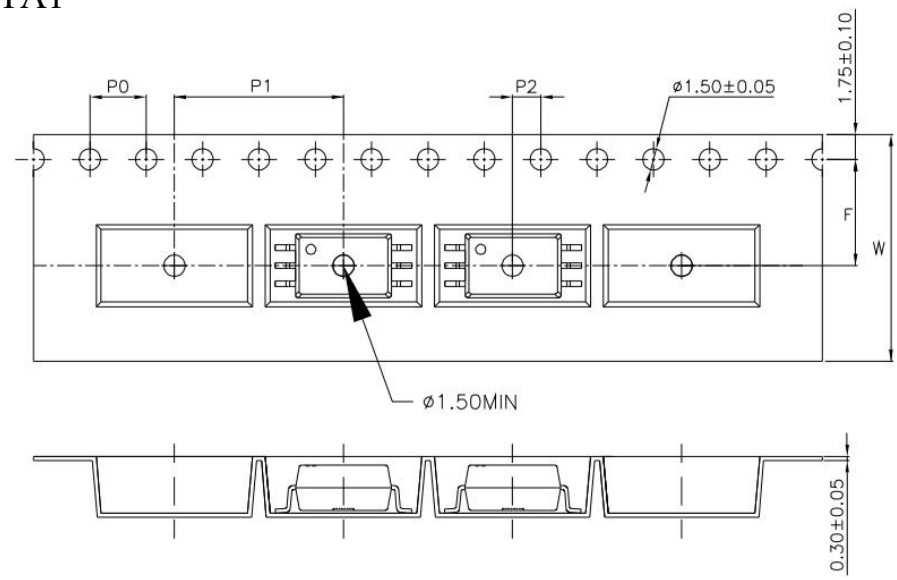
(2)OR-341W-TA1



(1)OR-341W1-TA



(2)OR-341W1-TA1



Type	symbol	Dimension in mm (inch) For W type	Dimension in mm (inch) For W1 type
bandwidth	W	16±0.3 (0.63)	16±0.3 (0.63)
pitch	P0	4±0.1 (0.16)	4±0.1 (0.16)
pitch	F	7.5±0.1 (0.3)	7.5±0.1 (0.3)
	P2	2±0.1 (0.079)	2±0.1 (0.079)
interval	P1	16±0.1 (0.63)	12±0.1 (0.47)

Encapsulation type	TA/TA1
amount （pcs）	1000

12. Package Dimension

(1) package dimension

Packing Information	
Packing type	Reel type
Tape Width	16mm
Qty per Reel	1,000pcs
Small box (inner) Dimension	345*345*58.5mm
Large box (Outer) Dimension	620x360x360mm
Max qty per small box	2,000pcs
Max qty per large box	20,000pcs

(2)Packing Label Sample

Note:

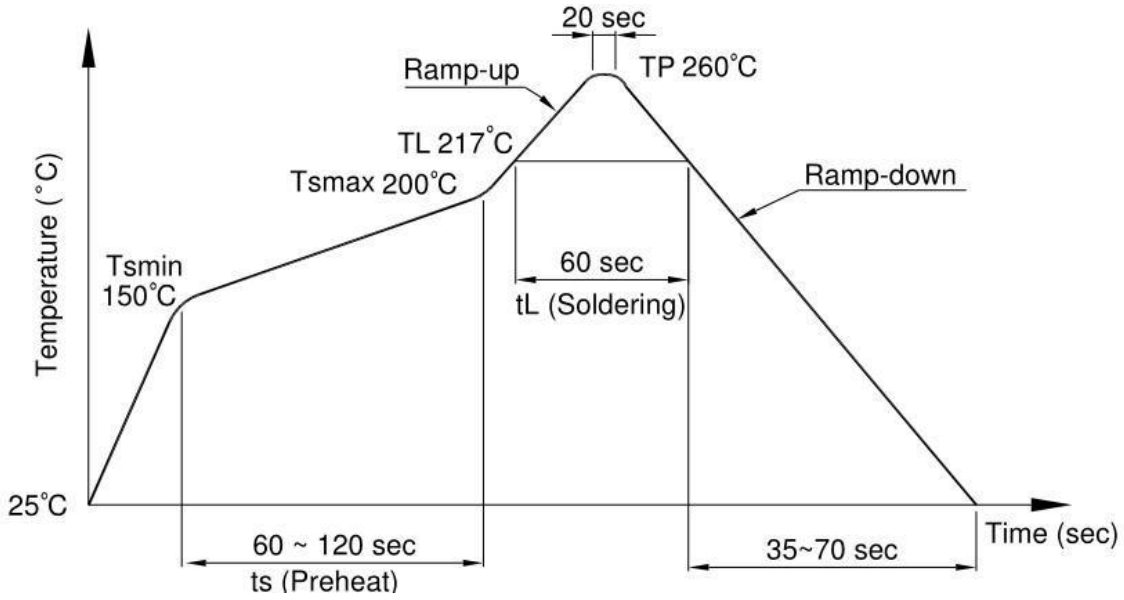
1. P/N :Contents with "Order Information" in the specification.
2. LOT NO : The production lot.
3. BATCH : The Electrical rank.
4. Quantity :Packaging quantity.
5. Product Data :Date of manufacture.

13. 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.

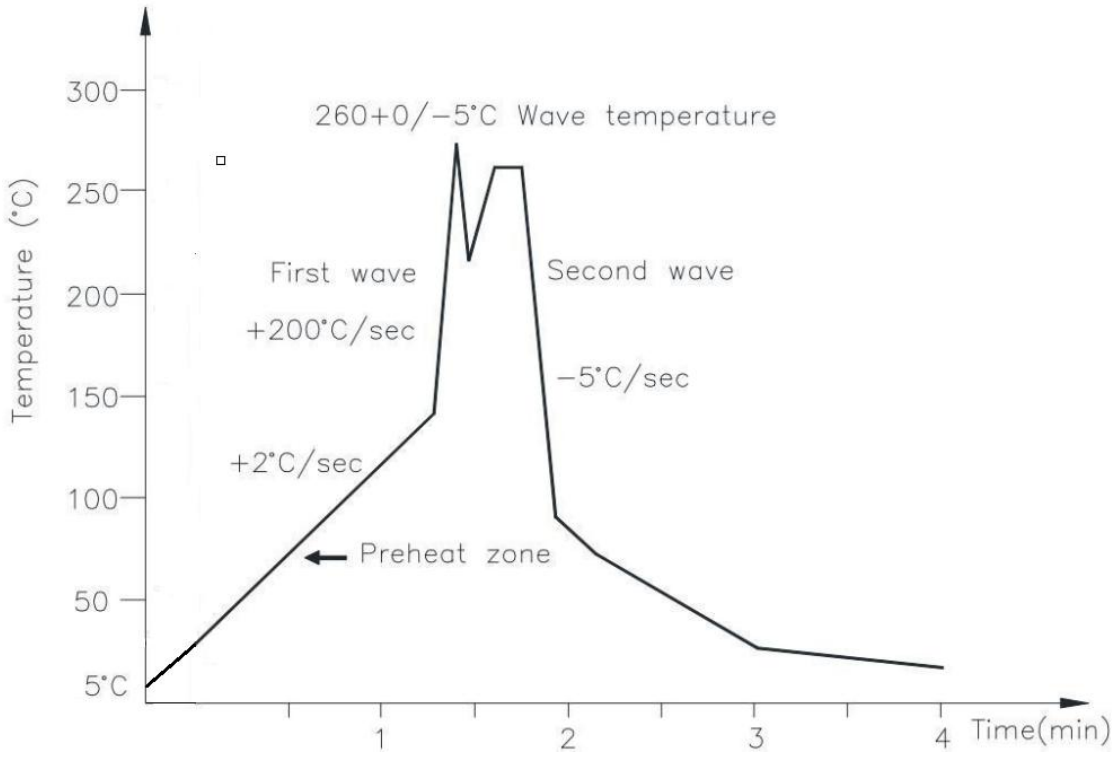
Profile item	Conditions
Preheat - Temperature Min (T Smin) - Temperature Max (T Smax) - Time (min to max) (ts)	 150˚C 200˚C 90±30 sec
Soldering zone - Temperature (TL) - Time (t L)	 217˚C 60 sec
Peak Temperature	260˚C
Peak Temperature time	20 sec
Ramp-up rate	3˚C / sec max.
Ramp-down rate from peak temperature	3~6˚C / sec
Reflow times	≤3



(3) .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

14. CHARACTERISTICS CURVES (TYPICAL PERFORMANCE)

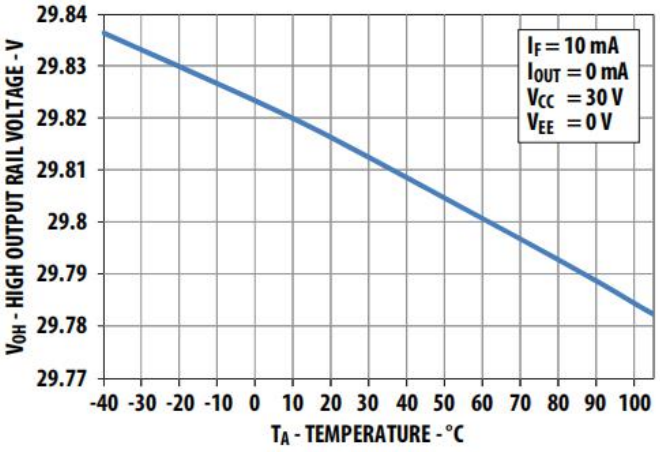


Figure 1. High output rail voltage vs. temperature

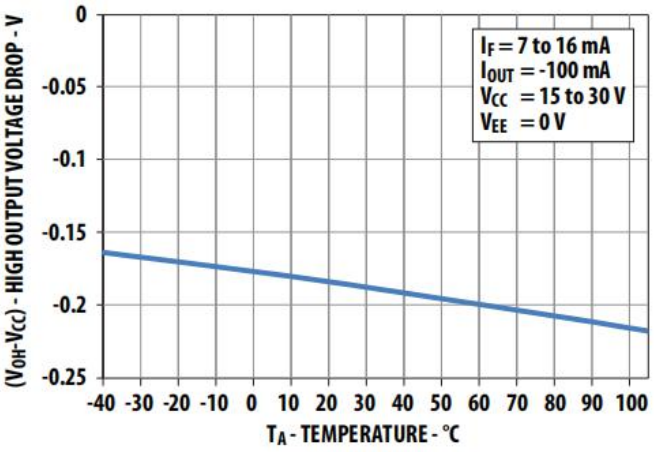


Figure 2. V_{OH} vs. temperature

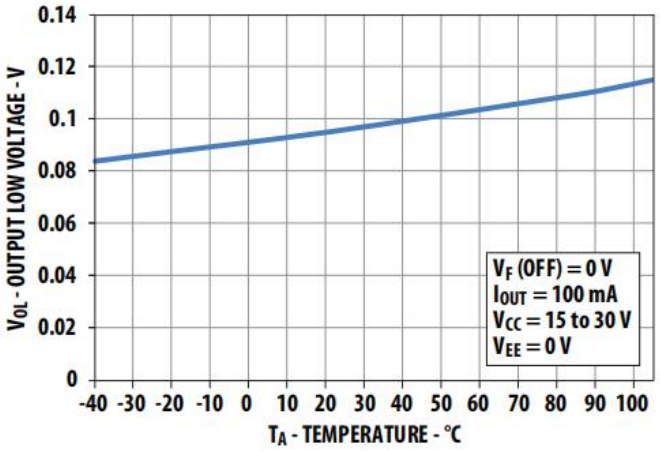


Figure 3. V_{OL} vs. temperature

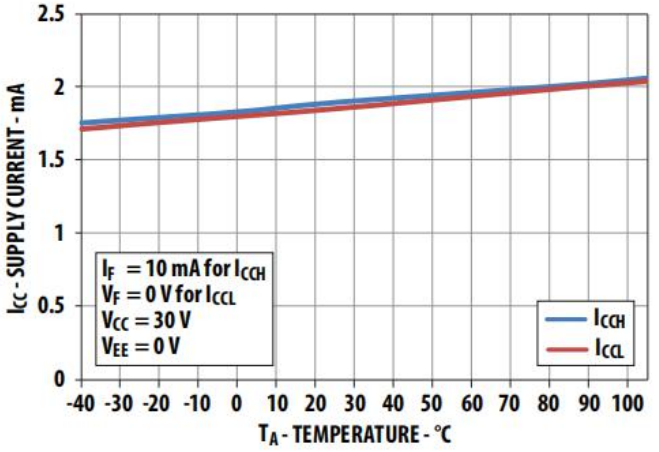


Figure 4. I_{CC} vs. temperature

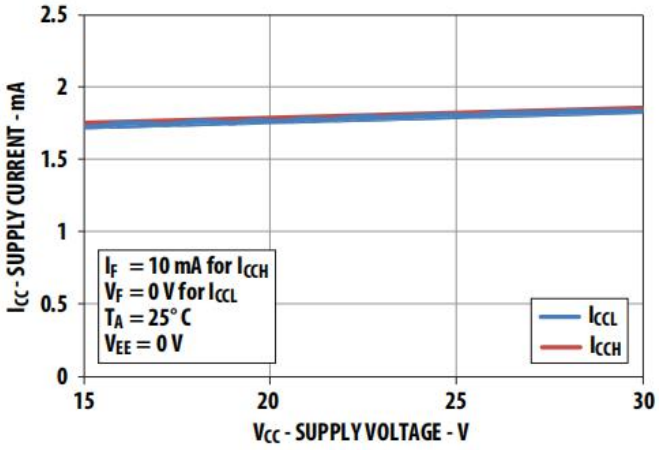


Figure 5. I_{CC} vs. V_{CC}

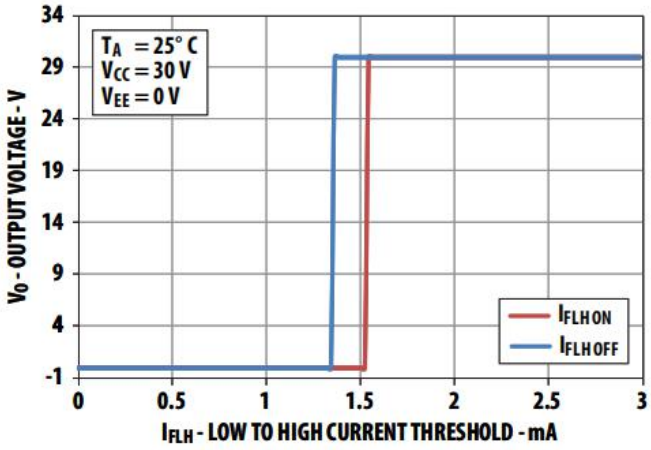


Figure 6. I_{FLH} hysteresis

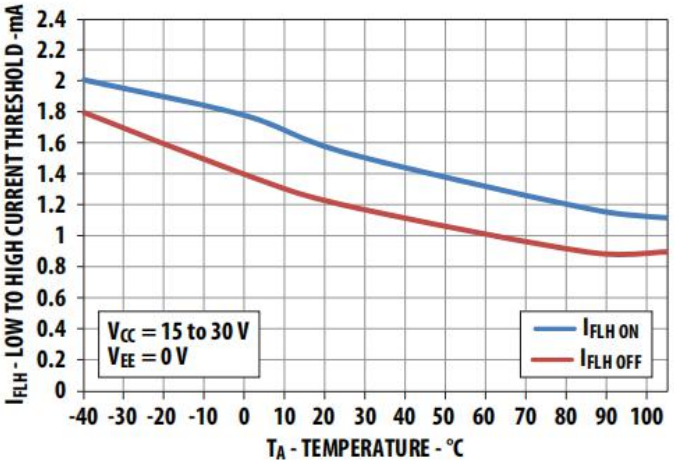


Figure 7. I_{FLH} vs. temperature

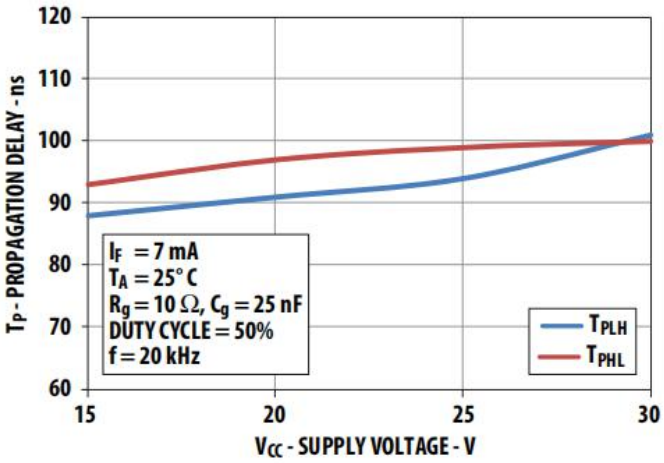


Figure 8. Propagation delays vs. V_{CC}

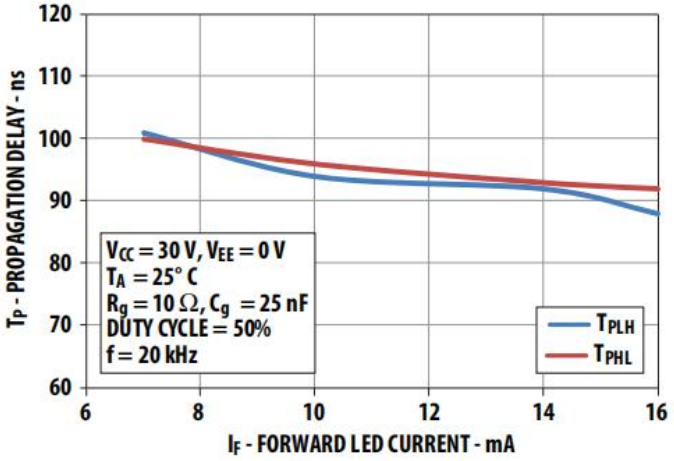


Figure 9. Propagation delays vs. I_F

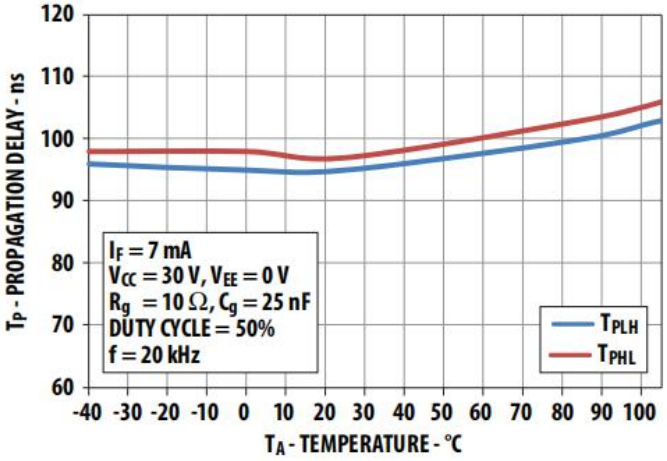


Figure 10. Propagation delays vs. temperature

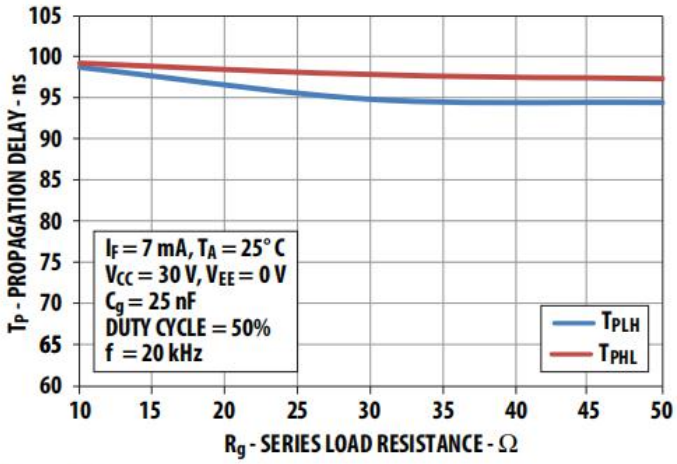


Figure 11. Propagation delay vs. Rg

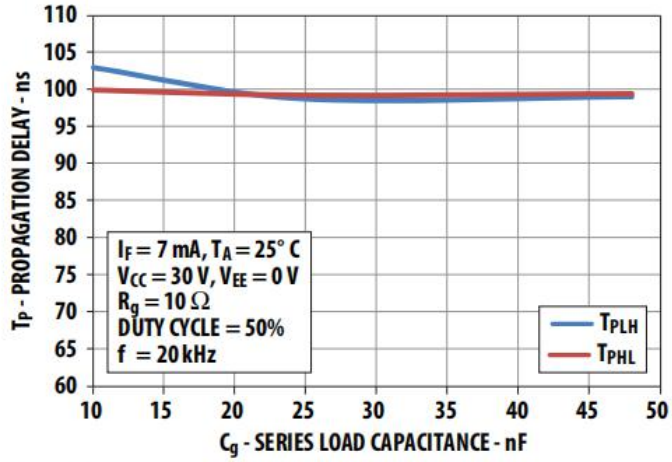


Figure 12. Propagation delay vs. Cg

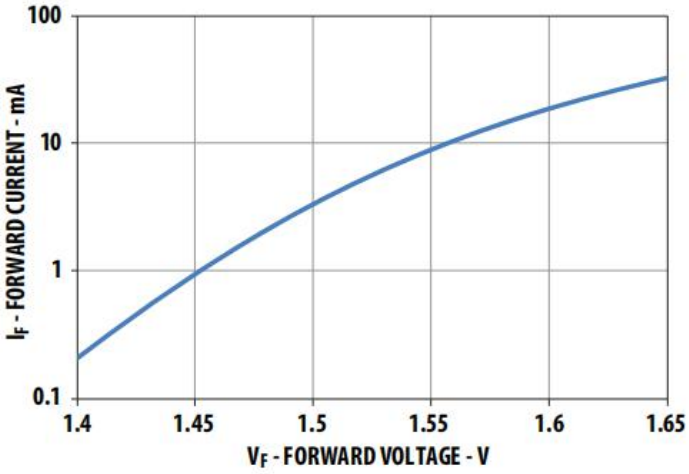


Figure 13. Input current vs. forward voltage

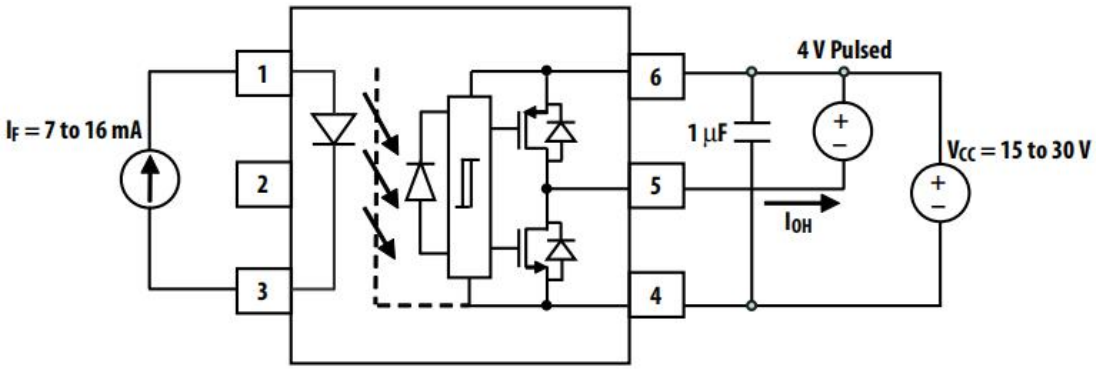


Figure 14. I_{OH} test circuit

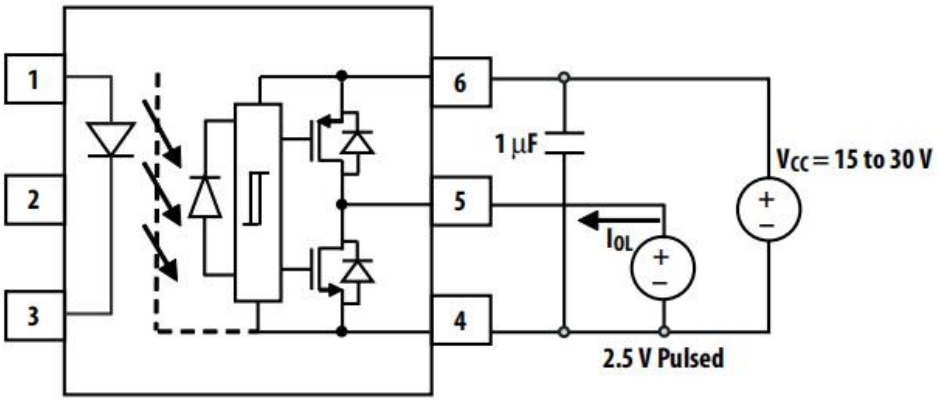


Figure 15. I_{OL} test circuit

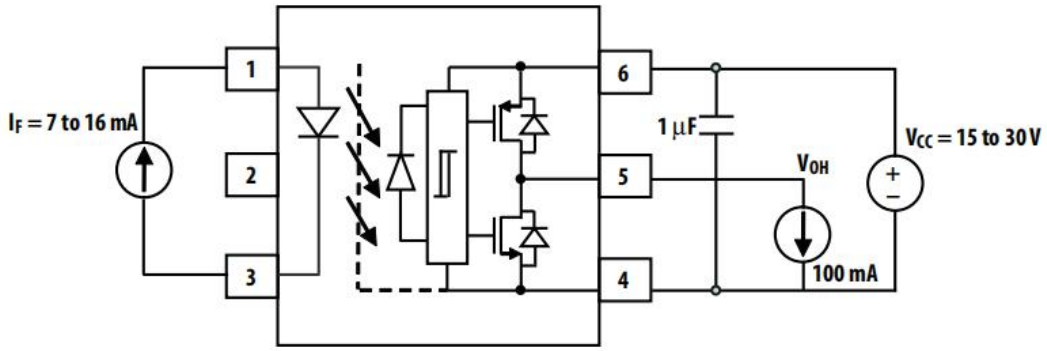


Figure 16. V_{OH} test circuit

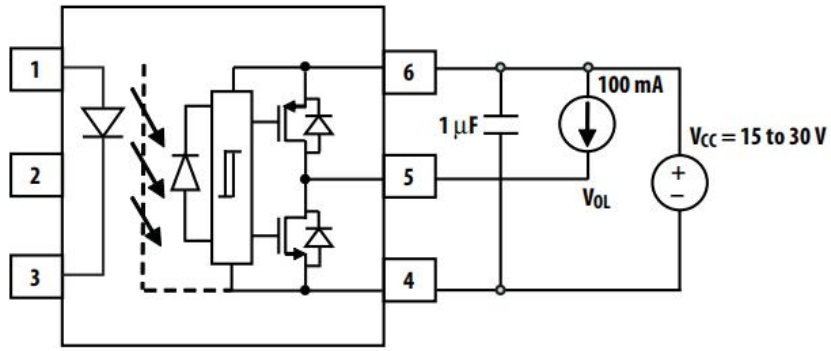


Figure 17. V_{OL} test circuit

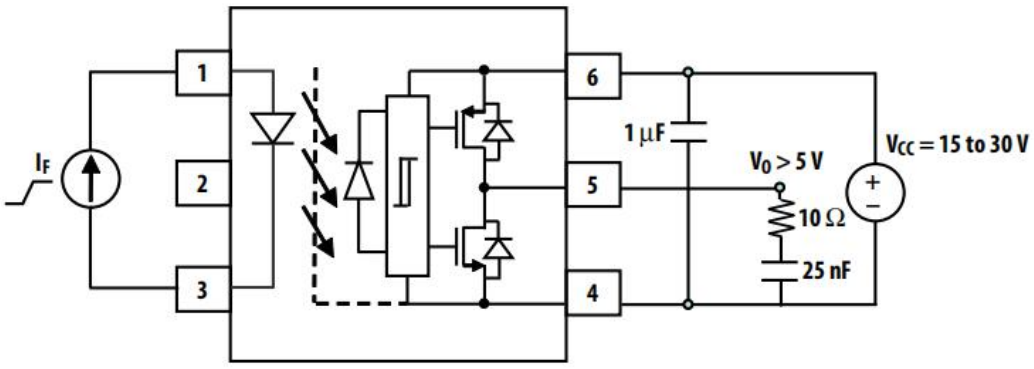


Figure 18. I_{FLH} test circuit

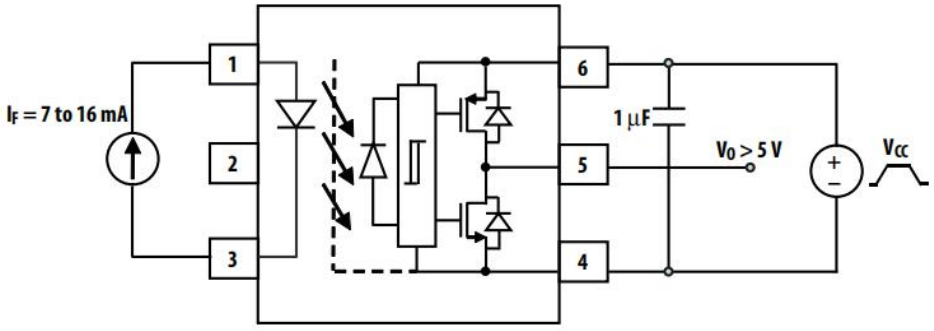


Figure 19. UVLO test circuit

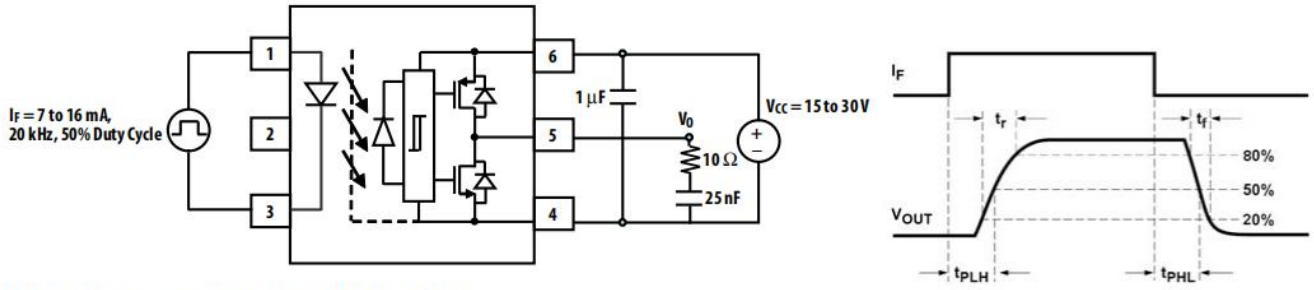


Figure 20. t_{PHL}, t_{PHL}, t_r and t_f test circuit and waveforms

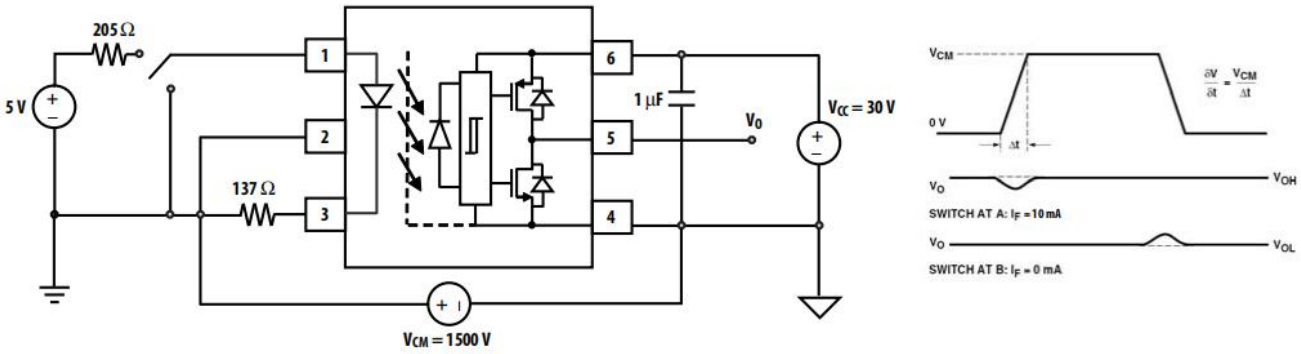


Figure 21. CMR test circuit with split resistors network and waveforms

单击下面可查看定价，库存，交付和生命周期等信息

>>ORIENT(奥伦德)