[redacted]IENT

[redacted] coupler

Pr[redacted]Data Sheet

Part Num[redacted]er: OR-314(B)

Custom[redacted]er:

Da[redacted]te:

一级代理商：

深圳市弗瑞鑫电子有限公司

地址：深圳市宝安区西乡大道302号金源商务大厦B座三楼

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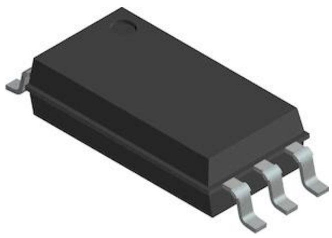
1.



(1) High speed response.
(2) Ultra high CMR.
(3) Bootstrappable supply current.
(4) $I_{OH(PEAK)}$ MIN：1.5A
(5) $I_{OL(PEAK)}$ MIN：1.5A
(6) 0.7-μs maximum propagation delay over temperature range
(7) $I_{CC(max)}$ = 3-mA maximum supply current
(8) 25 kV/μs minimum common mode rejection (CMR) at V_{CM} = 1500V
(9) Wide VCC operating range: 10V to 30V over temperature range
(10) Available in Stretched SO-6 package
(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 standard
(14) MSL Level 1

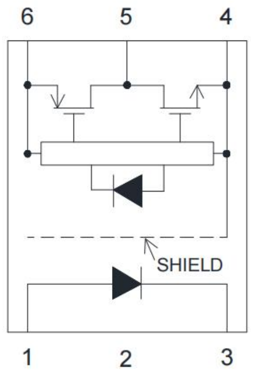
2.

The OR-314(B) consists of a GaAsP LED optically coupled to an integrated circuit with a power output stage. These optocouplers are 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 current supplied by this optocoupler makes it ideally suited for directly driving small or medium power IGBTs.

3.

(1)Isolated IGBT/Power MOSFET gate drive
(2)AC and Brushless DC motor drives
(3)Industrial inverters
(4)Inverter for home appliances
(5)Switching power supplies
(6)Induction cooker

4.



1. Anode
3. Cathode
4. GND
5. Vo (Output)
6. Vcc

5.

Input	Average Forward Input Current	I_F	25	mA
	Reverse Input Voltage	V_R	5	V
Output	"High" Peak Output Current	$I_{OH(PEAK)}$	1.5	A
	"Low" Peak Output Current	$I_{OL(PEAK)}$	1.5	A
	Output Collector Power Dissipation	P_O	250	mW
Total Output Supply Voltage		V_{CC} - V_{EE}	-0.5~35	V
Output Voltage		$V_{O(PEAK)}$	-0.5~V_{CC}	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.

High Level Output Current	I_{OH}	—	0.7	-0.4	A	$V_O = (V_{CC} – 2V)$
		—	—	-1.5		$V_O = (V_{CC} – 6V)$
Low Level Output Current	I_{OL}	0.4	0.9	—	A	$V_O = (V_{EE} + 2V)$
		1.5	—	—		$V_O = (V_{EE} + 6V)$
High Level Output Voltage	V_{OH}	$(V_{CC} – 0.6)$	$(V_{CC} – 0.3)$	—	V	I_F = 10 mA ,I_O = –100 mA
Low Level Output Voltage	V_{OL}	—	V_{EE} + 0.14	V_{EE} + 0.4	V	I_O = 100 mA
High Level Supply Current	I_{CCH}	—	1.8	3.0	mA	I_F = 10 mA ,V_{CC} =30V
Low Level Supply Current	I_{CCL}	—	2.2	3.0	mA	I_F = 0 V ,V_{CC} =30V
Threshold Input Current Low to High	I_{FLH}	—	2.4	5.0	mA	V_{CC} =30V, V_O > 5 V
Threshold Input Voltage High to Low	V_{FHL}	0.8	—	—	V	V_{CC} =30V, V_O <5 V
Input Forward Voltage	V_F	1.2	1.55	1.95	V	I_F = 10 mA
Temperature Coefficient of Forward Voltage	$\Delta V_F/\Delta T_A$	—	–1.8	—	mV/°C	I_F = 10 mA
Input Reverse Breakdown Voltage	B_{VR}	5	—	—	V	I_R = 100 μA
Input Capacitance	C_{IN}	—	33	—	pF	f = 1 MHz, VF = 0V
UVLO Threshold	V_{UVLO+}	6.9	7.9	8.7	V	V_O > 5V, I_F = 10 mA
	V_{UVLO-}	5.9	6.8	7.5	V	V_O < 5V, I_F = 10 mA

7.

Propagation Delay Time to High Output Level	t_{PLH}	30	130	200	ns	R_g = 47 Ω, C_g = 3 nF, f = 10 kHz, Duty Cycle = 50% I_F = 8 mA, V_{CC} = 30 V
Propagation Delay Time to Low Output Level	t_{PHL}	30	120	200	ns	
Propagation Delay Difference Between Any Two Parts	P_{DD}	-100	—	100	ns	
Rise Time	t_r	—	70	—	ns	
Fall Time	t_f	—	60	—	ns	
Output High Level Common Mode Transient Immunity	$\|CM_H\|$	25	—	—	kV/μs	T_A = 25° C, V_{CM} = 1500 V
Output Low Level Common Mode Transient Immunity	$\|CM_L\|$	25	—	—		

8.

314= Part Number .

(B)= Identification.

U = Lead form option ,W or W1 .

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

Z = ‘V’ code for VDE safety (This options is not necessary).

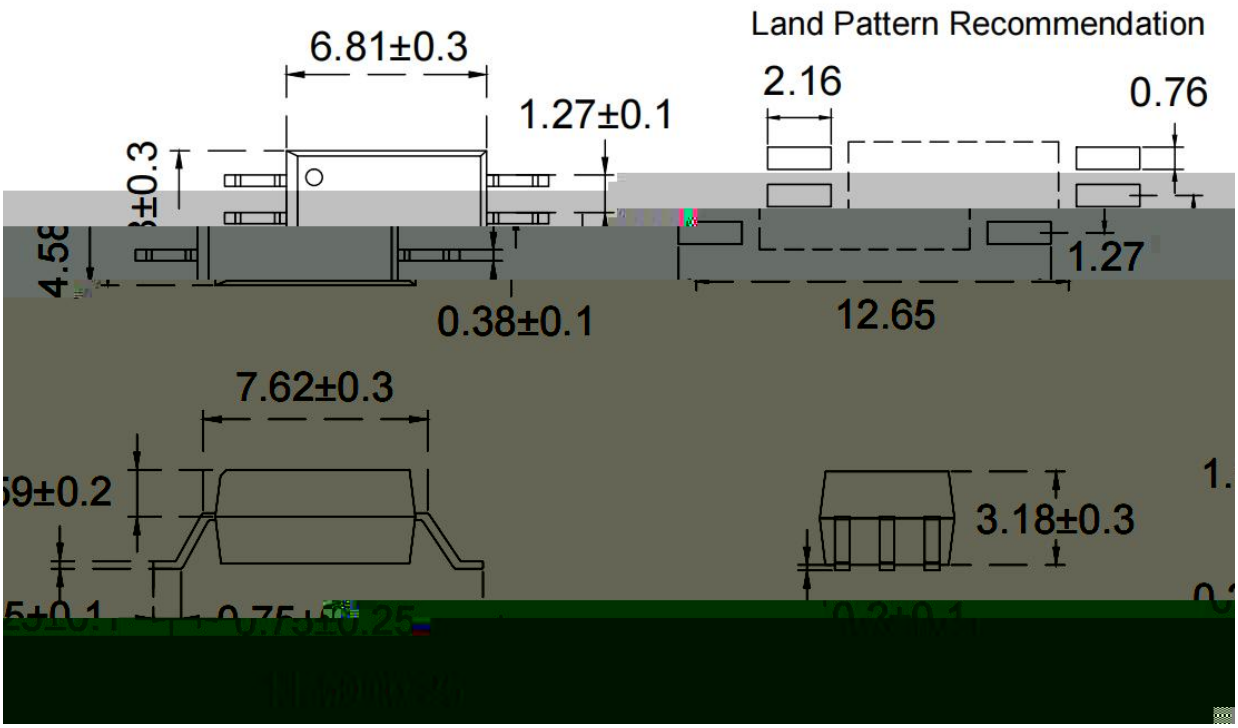
* VDE Code can be selected.

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

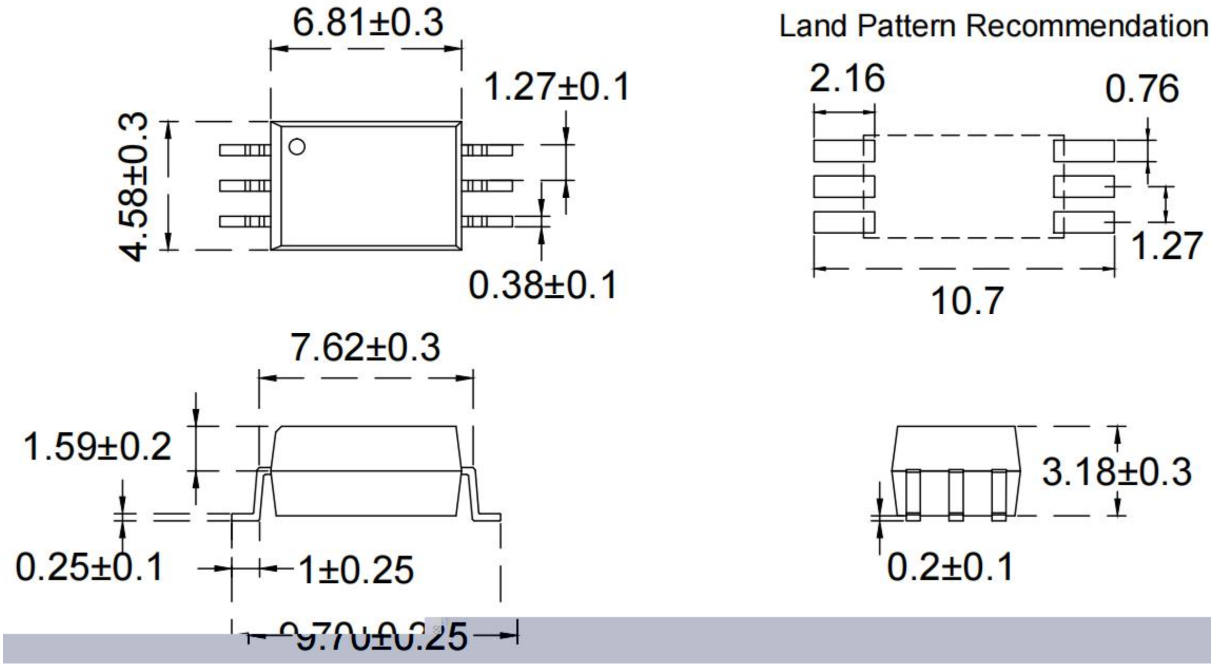
9.

10.

(1).OR-314W

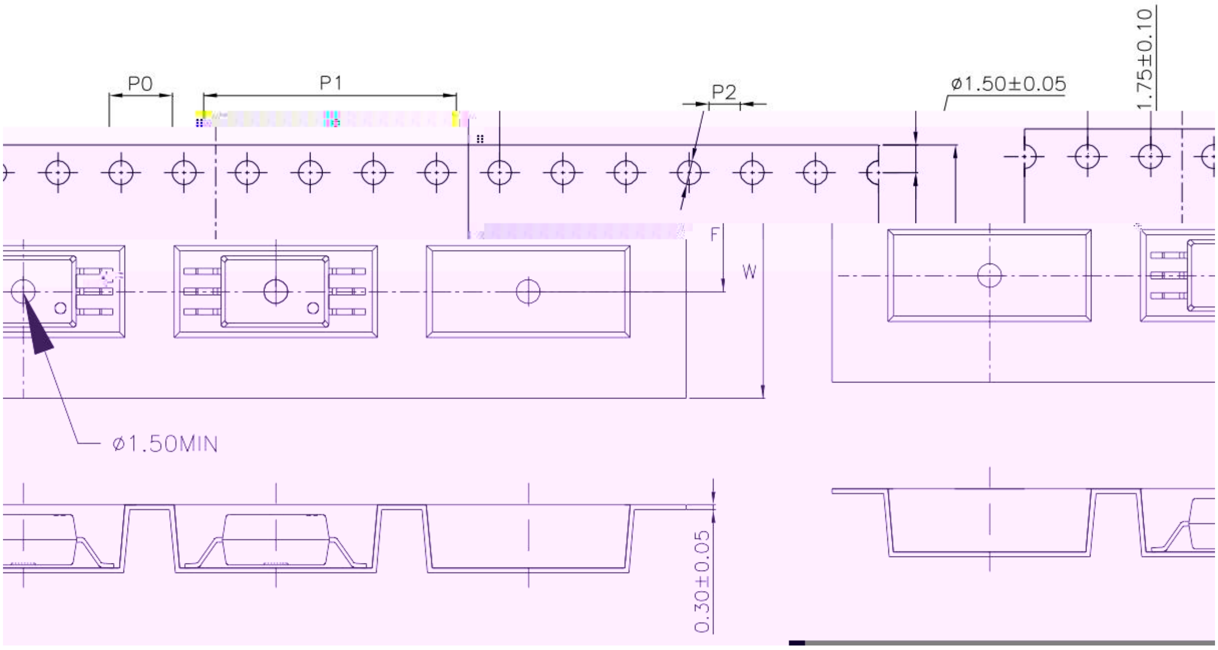


(2).OR-314W1

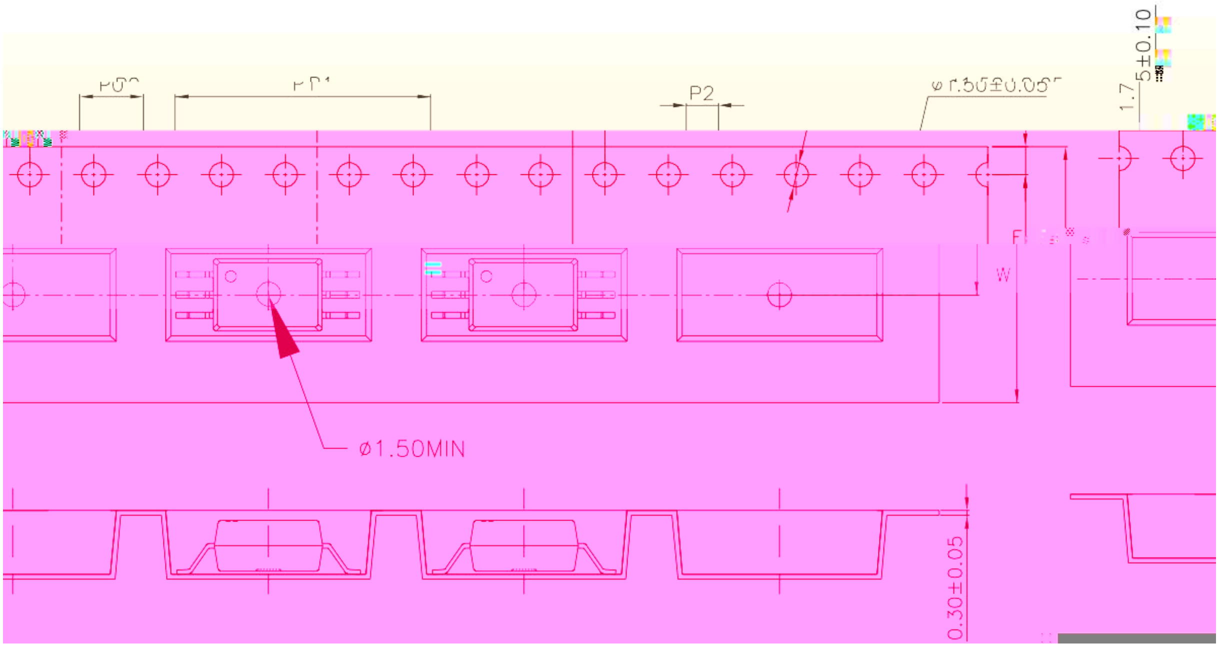


11.

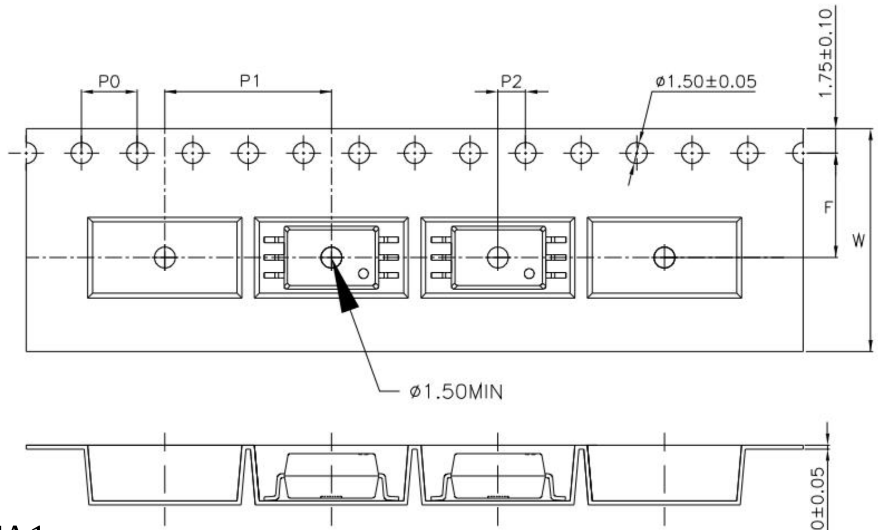
(1)OR-314W-TA



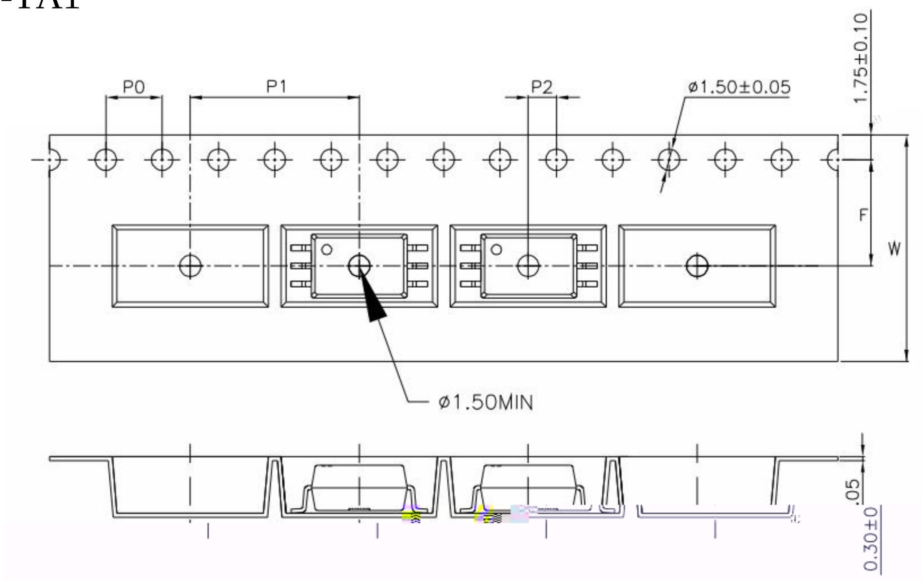
(2)OR-314W-TA1



(1)OR-314W1-TA



(2)OR-314W1-TA1

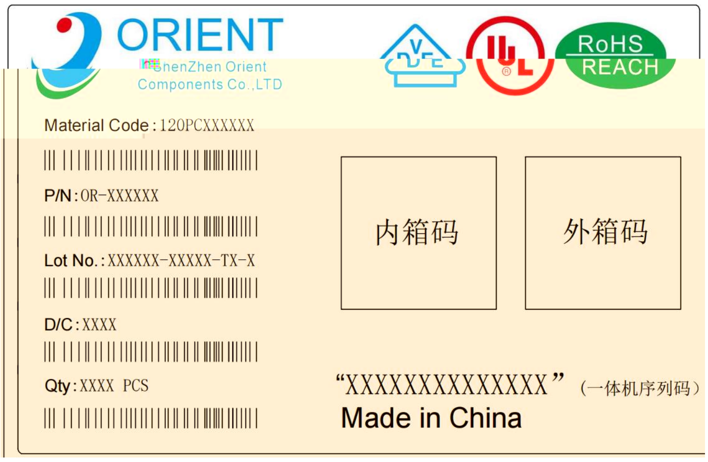


Type	symbol		
bandwidth	W	16±0.3 (0.63)	16±0.3 (0.63)
pitch	P0	4±0.1 (0.16)	4±0.1 (0.16)
pitch	F	7.5±0.1 (0.3)	7.5±0.1 (0.3)
	P2	2±0.1 (0.079)	2±0.1 (0.079)
interval	P1	16±0.1 (0.63)	12±0.1 (0.47)

Encapsulation type	TA/TA1
amount （pcs）	1000

12.

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



:

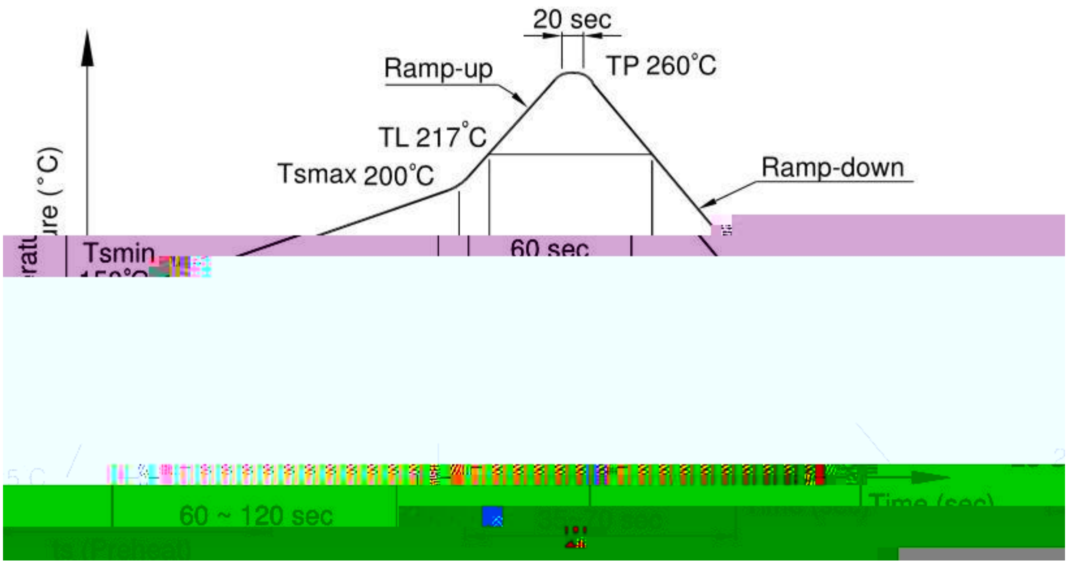
1. Material Code :Product ID.
2. P/N :Contents with "Order Information" in the specification.
3. Lot No. :Product data.
4. D/C :Product weeks.
5. Quantity :Packaging quantity.

13.

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

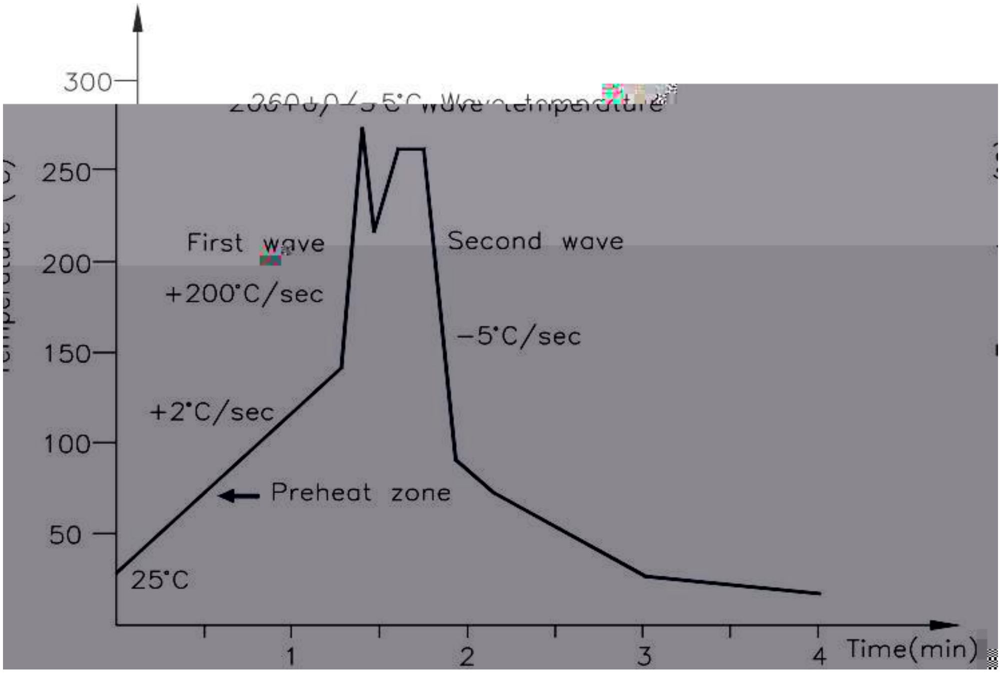
One time soldering reflow is recommended within the condition of temperature and time profile shown below. Do not solder more than three times.

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



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



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

14.

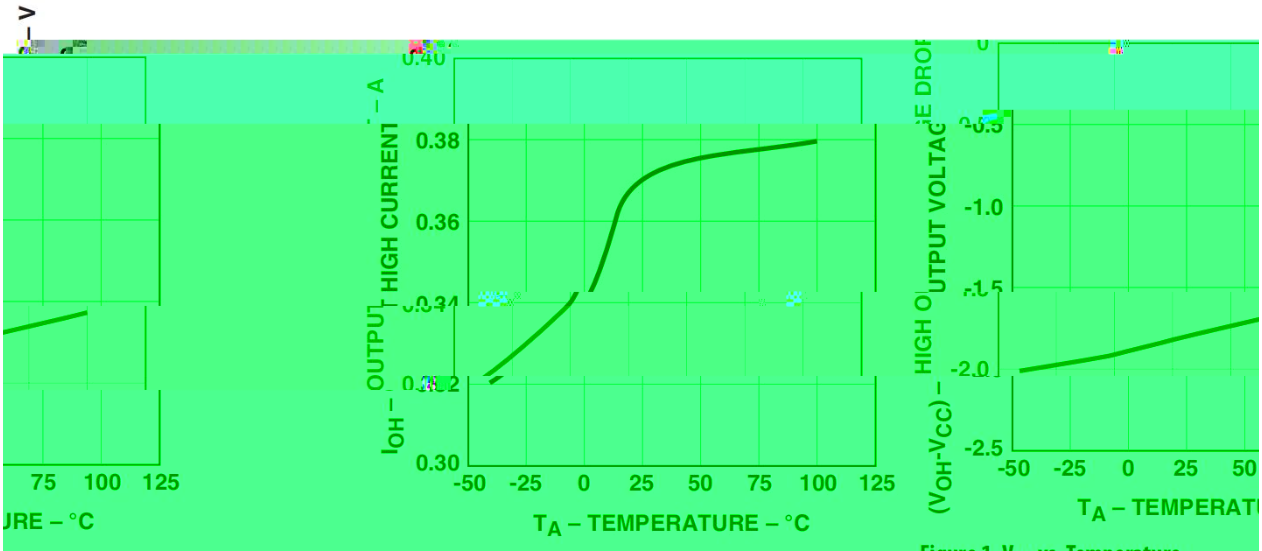


Figure 2. I_{OH} vs. Temperature.

Figure 1. V_{OH} vs. Temperature.

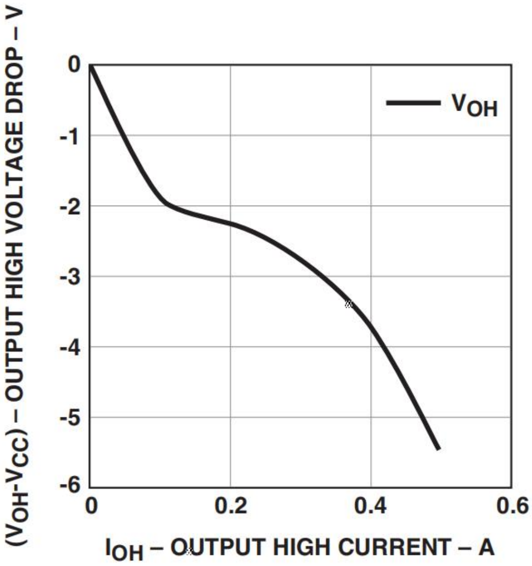


Figure 3. V_{OH} vs. I_{OH}.

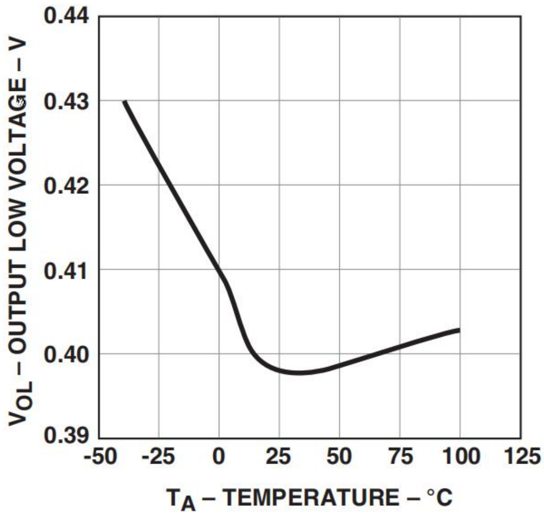


Figure 4. V_{OL} vs. Temperature.

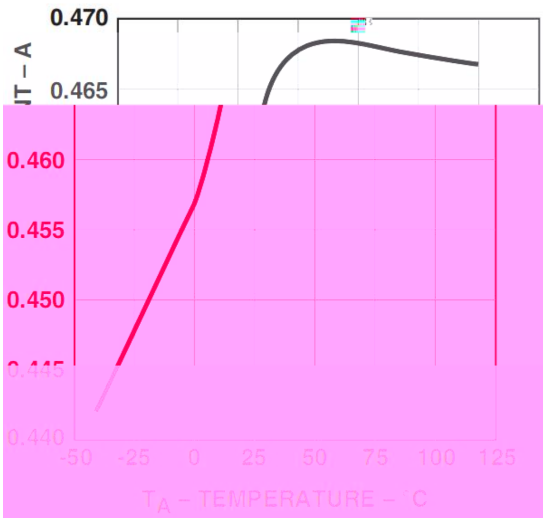


Figure 5. I_{OL} vs. Temperature.

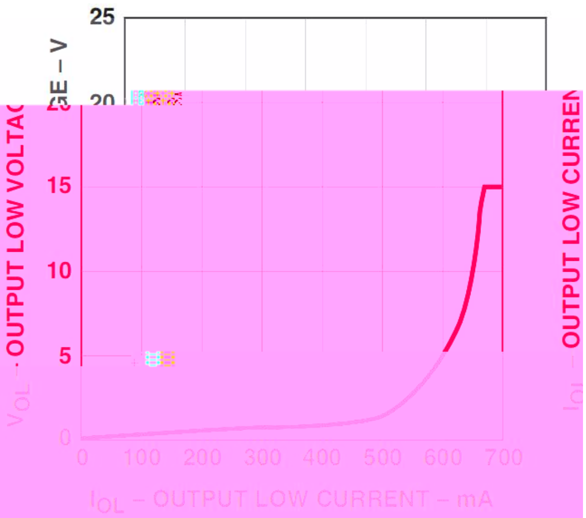
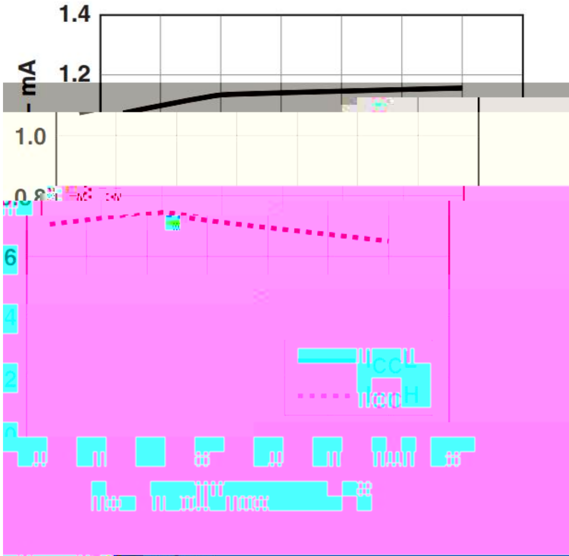


Figure 6. V_{OL} vs. I_{OL}.



[illegible]perature.

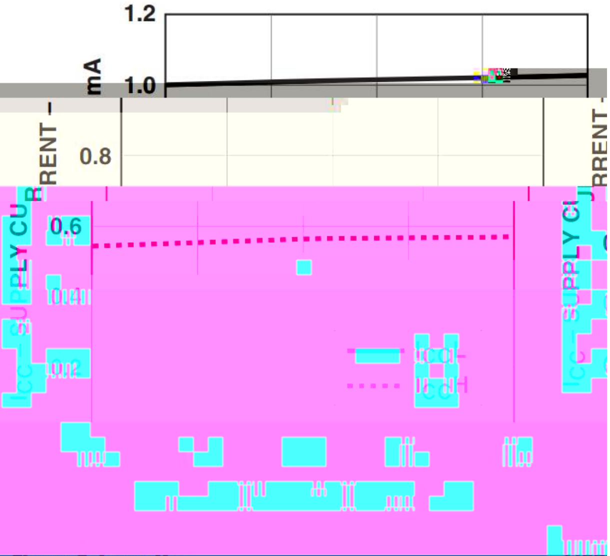


Figure 8. I_{CC} vs. V_{CC}.

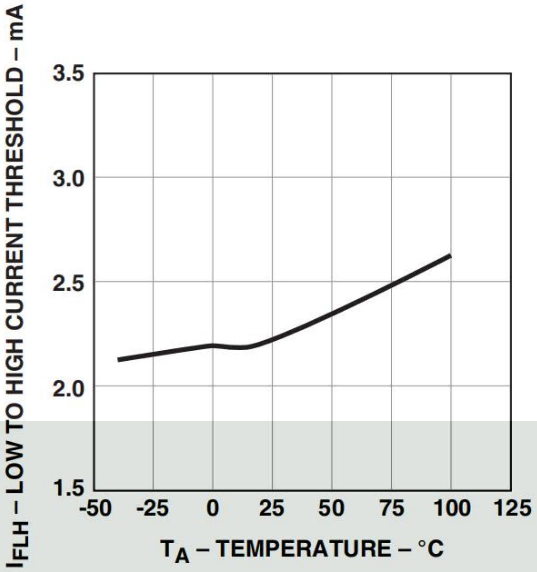


Figure 9. I_{FLH} vs. Temperature.

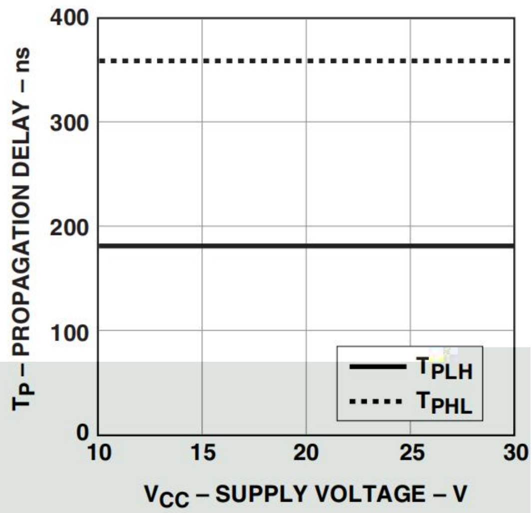


Figure 10. Propagation Delay vs. V_{CC}.

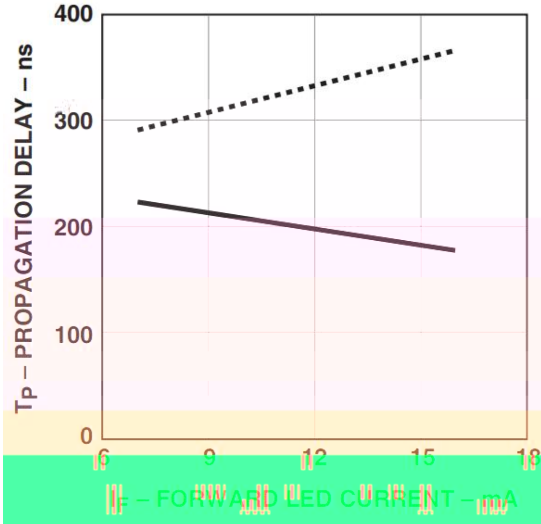


Figure 11. Propagation Delay vs. I_F.

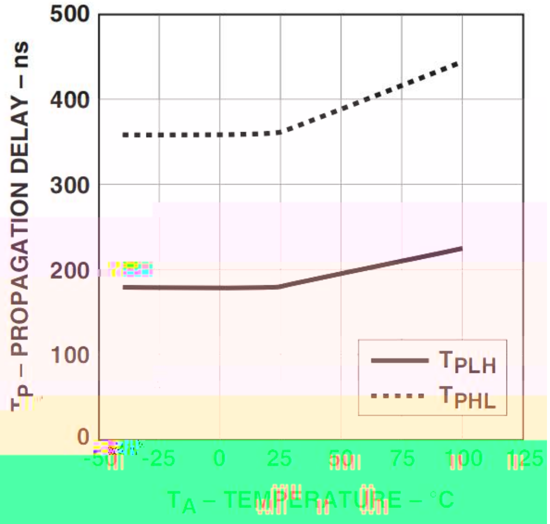


Figure 12. Propagation Delay vs. Temperature.

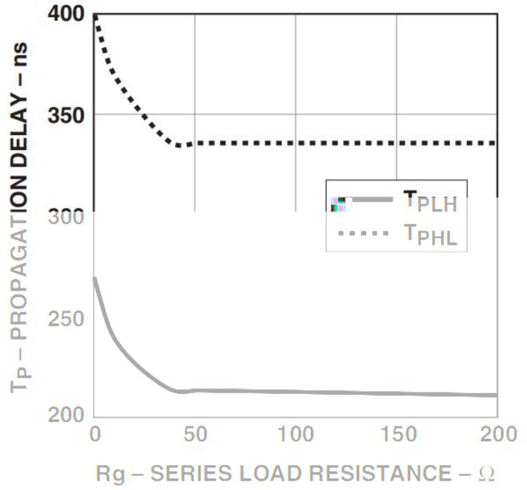


Figure 13. Propagation Delay vs. Rg

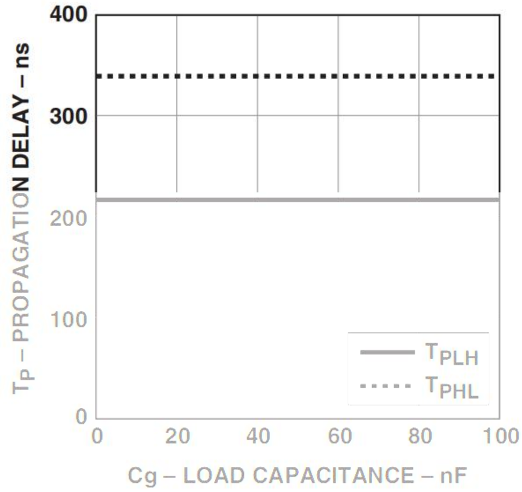
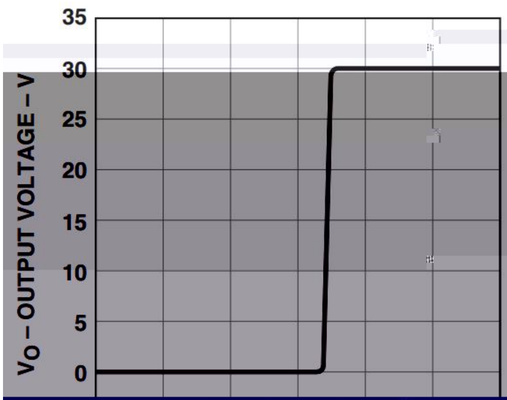
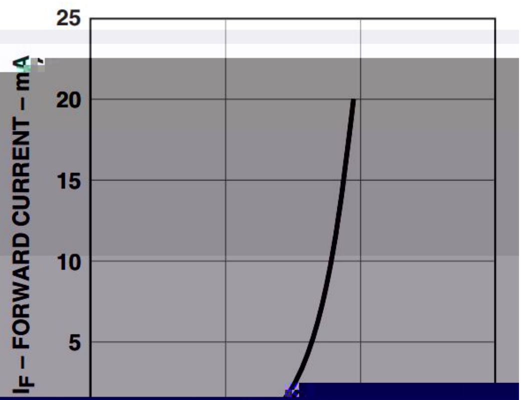


Figure 14. Propagation Delay vs. Cg





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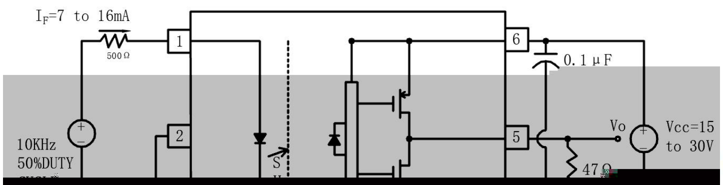

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