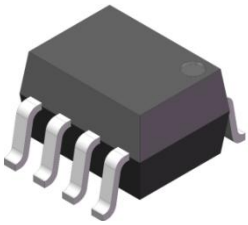
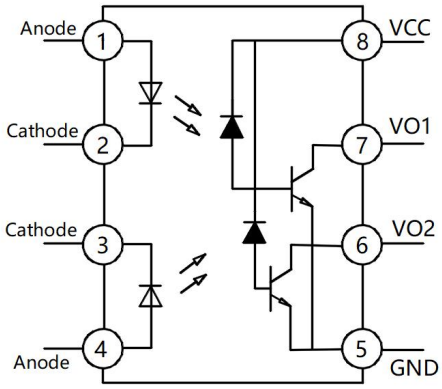
XL0530,XL0531,XL0534

Product packaging logic diagram



SOP8



Pin Configuration

Features

- Very high speed: 1MBit/s
- High isolation voltage between input and output (Viso =3750V rms)
- Operating Temperature: -40℃~100℃
- Environmentally friendly products, compliant with CQC, UL, and VDE requirements

Mechanical Data

- Case: SOP8
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solder ability-per MIL-STD-202, Method 208

Applications

- Widely used in communications and networking, industrial automation and control, motor drive and energy management, medical equipment, and automotive electronics fields.
- Communications and Networking： Fiber optic communication, data center.

Industrial Automation and Control： PLC and frequency converter, Servo drive system, Industrial robot.

- Motor Drive and Energy Management：Motor control, Motor protection,Power electronics,Consumer Electronics.
- Emerging Technology Fields： Intelligent Transportation System,Medical equipment,Automatic production line.
- Automotive Electronics： In-vehicle Network System,Battery Management System (BMS),EV Charging Station.




Ordering Information

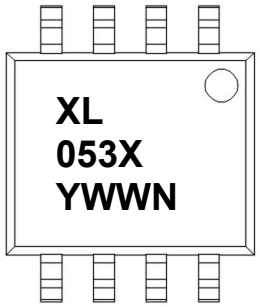
XL	053X	(X)	(X)	(X)	-	(U)	(N)	(Y)
①	②	③	④	⑤		⑥	⑦	⑧

① Brand (XL)
② Product series (053X)
③ Package type(None: SOP8)
④ Halogen option (None : Halogen free)
⑤ CTR Bank(None)
⑥ Lead frame (None: Copper)
⑦ Customer option 1 (0-9 or A- Z or none)
⑧ Customer option 2 (0-9 or A- Z or none)

Part Number	Package	Shipping Quantity	Marking Code
XL053XP	SOP8	1000pcs / Tape & Reel	XL053X

Marking Information

- " XL" denotes brand
- " 053X" denotes Product series: 0, 1,4
- " Y" denotes Year : A(2024), B(2025), C(2026)
- " WW" denotes Week' s number
- " N" denotes the day of Week.



Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter		Symbol	Value	Unit
Input	Forward Current	I_F	50	mA
	Reverse Voltage	V_R	5	V
	Power Dissipation	P_D	45	mW
Output	Collector Output	P_O	100	mW
	Output Current	I_O	8	mA
	Supply Voltage	V_{CC}	30	V
	Output Voltage	V_O	-0.5 ~ 20	V

Thermal Characteristics

Parameter	Symbol	Value	Unit
Isolation Voltage *2	V_{ISO}	3750	Vrms
Operating Temperature	T_{OPR}	-40 ~ +100	°C
Storage Temperature Range	T_{STG}	-55 ~ +125	°C
Soldering Temperature *3	T_{SOL}	260	°C

Notes:

1. Pulse width≤1μs, Duty ratio: 0.001
2. 40 to 60% RH, AC for 1 minute
3. For 10 seconds

Electrical Characteristics (@ T_A = 25°C unless otherwise specified)

Parameter			Symbol	Condition	Min	Typ	Max	Unit
Input	Forward Voltage		VF	IF =16mA	1.0	1.35	1.7	V
	Reverse Breakdown Voltage		BVR	IR =10μA	5	-	-	V
	Input Capacitance		CIN	V=0,f=1MHz	-	60	-	pF
Output	Logic Low Output Voltage	0530	VOL	IF =16mA, VCC =4.5V, IO =1.1mA	-	0.1	0.5	V
		0531、0534		IF =16mA, VCC =4.5V, IO =3mA				
	Logic High Output Current		IOH	VCC=VO =5.5V, IF =0mA	-	0.003	0.5	uA
				VCC =VO =15V, IF =0mA	-	-	50	uA
	Logic High Supply Current		ICCH	VCC =15V, IF =0mA	-	0.05	4	uA
	Logic Low Supply Current		ICCL	VCC =15V, IF =16mA	-	100	400	uA
Transfer Characteristics	Current Transfer Ratio	0530	CTR	IF =16mA, VCC =4.5V, VO =0.5V	7	-	-	%
		0531、 0534			19	-	-	%
Isolation Resistance			RI-O	VI-I =500V, 40 ~60%R.H.	-	10^{12}	-	Ω
Isolation Capacitance			CI-O	V=0,f=1MHz	-	0.6	-	pF

Switching Characteristics (@ T_A = -40°C～85°C, V_{CC}= 5V, I_F= 7.5mA, unless otherwise specified)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Propagation Delay Time to High Output Level		TPLH	RL =4.1kΩ	-	250	-	ns
			RL =1.9kΩ	-	450	-	ns
Propagation Delay Time to Low Output Level		TPHL	RL =4.1kΩ	-	250	-	ns
			RL =1.9kΩ	-	450	-	ns
Common Mode Transient Immunity at High Output Level	0530	CMH	IF =0mA RL =4.1kΩ TA =25℃ |VCM|=10V	1	10	-	kV/μs
	0531		IF =0mA RL =1.9kΩ TA =25℃ |VCM|=10V	1	10	-	kV/μs
	0534			15	30	-	
Common Mode Transient Immunity at Low Output Level	0530	CML	IF =16mA RL =4.1kΩ TA =25℃ |VCM|=10V	1	10	-	kV/μs
	0531		IF =16mA RL =1.9kΩ TA =25℃ |VCM|=10V	1	10	-	kV/μs
	0534			15	30	-	

Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

Fig.1 Normalized CTR vs. Input current

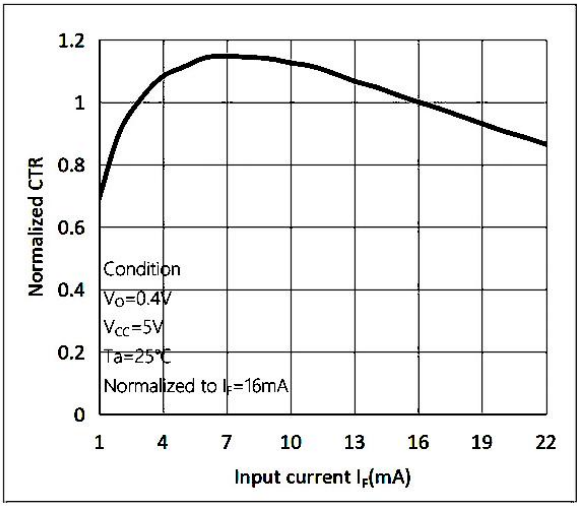


Fig.2 Normalized CTR vs. Ambient temperature

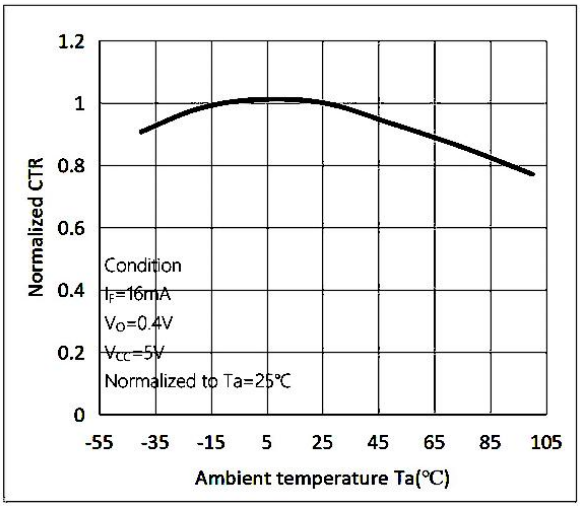


Fig.3 Output current vs. Output voltage

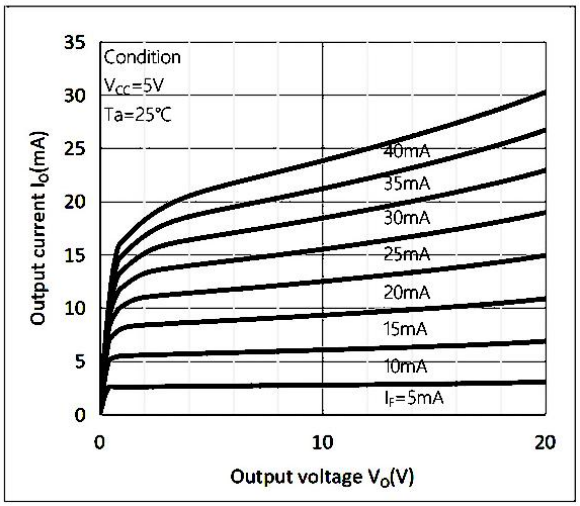


Fig.4 High level output voltage vs. Ambient temperature

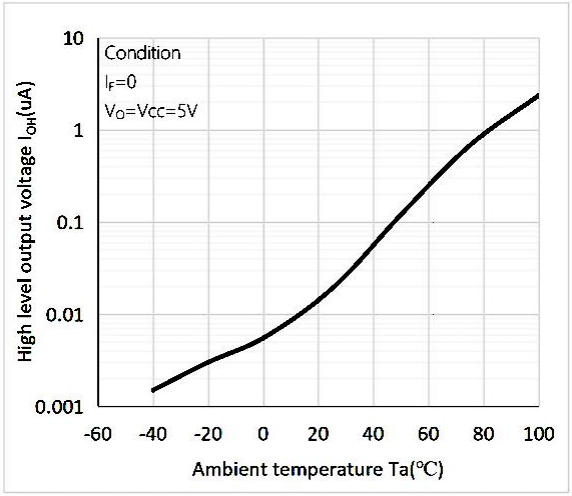


Fig.5 Propagation Delay Time vs. Ambient temperature

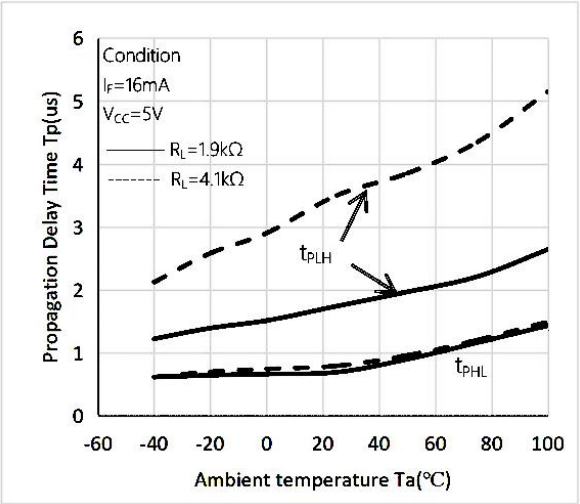
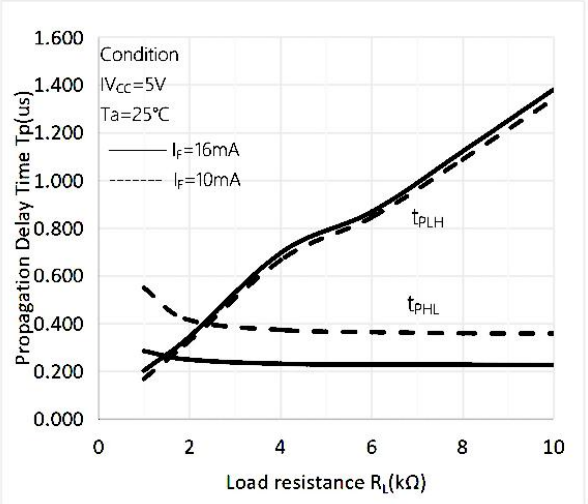


Fig.6 Propagation Delay Time vs. Load resistance



Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

Fig.7 Forward current vs. Forward voltage

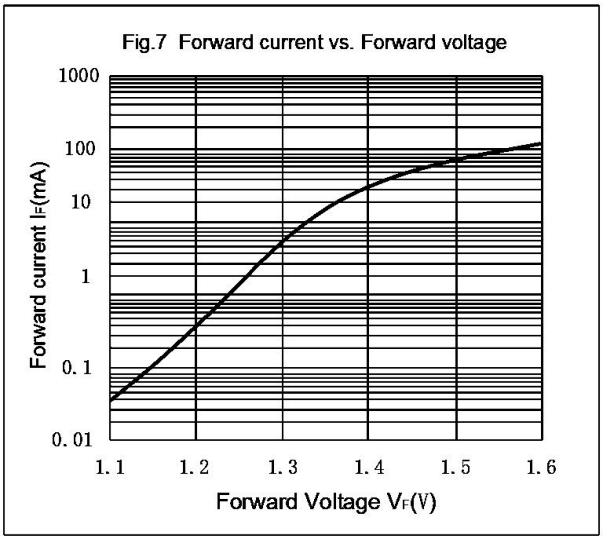
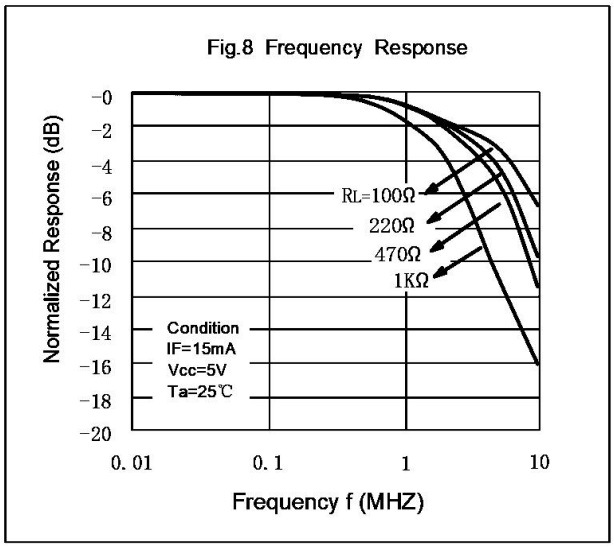
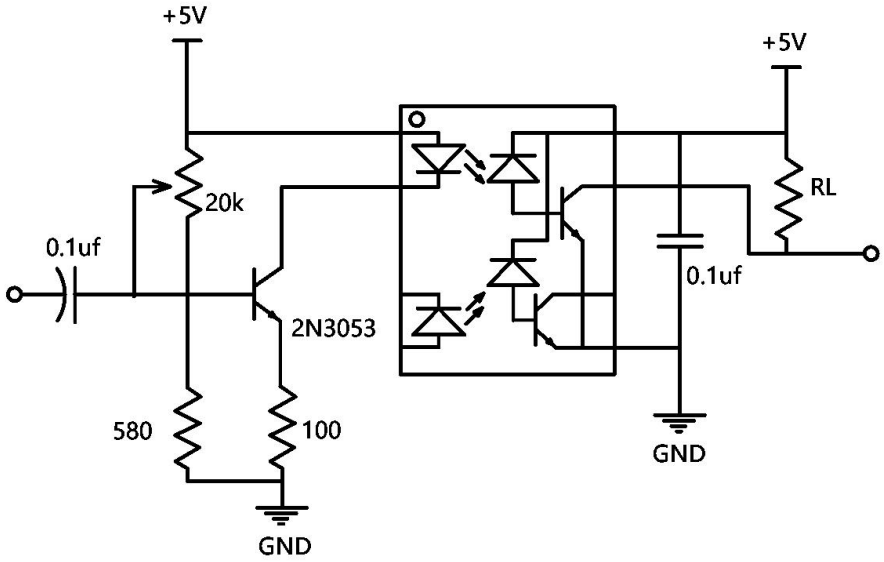


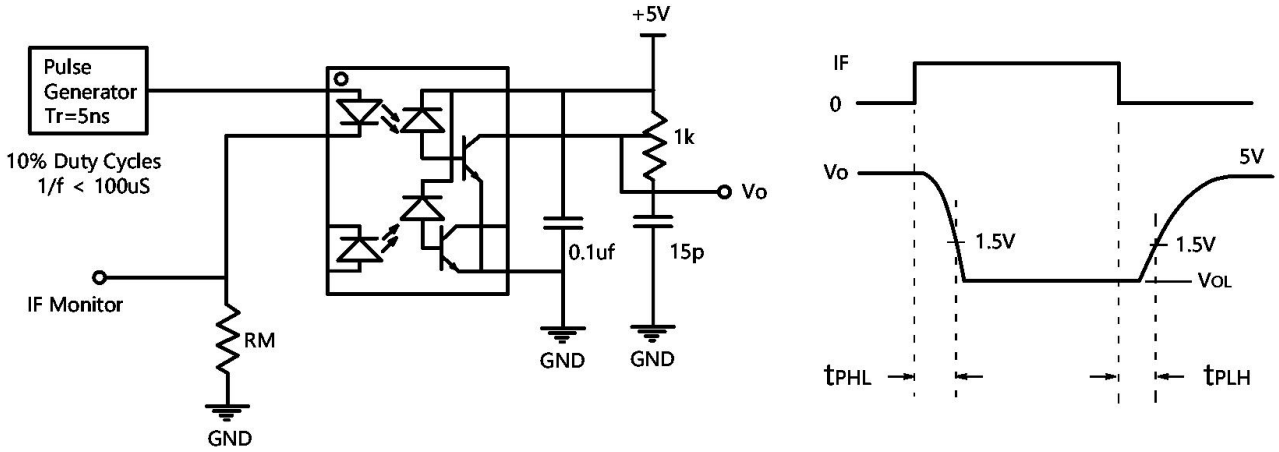
Fig.8 Frequency Response



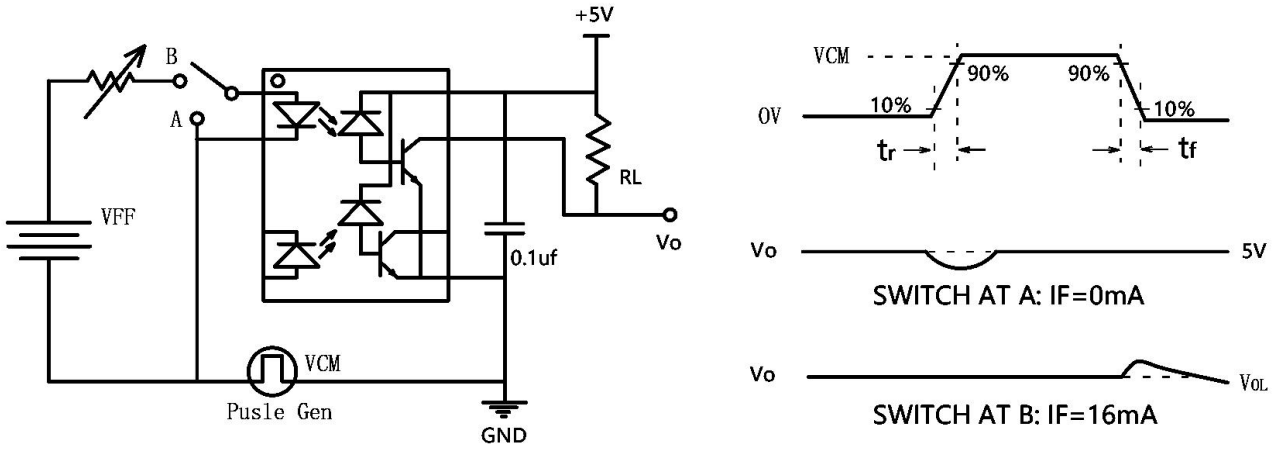
Test Circuit for Frequency Response



Witch Time Test Circuit

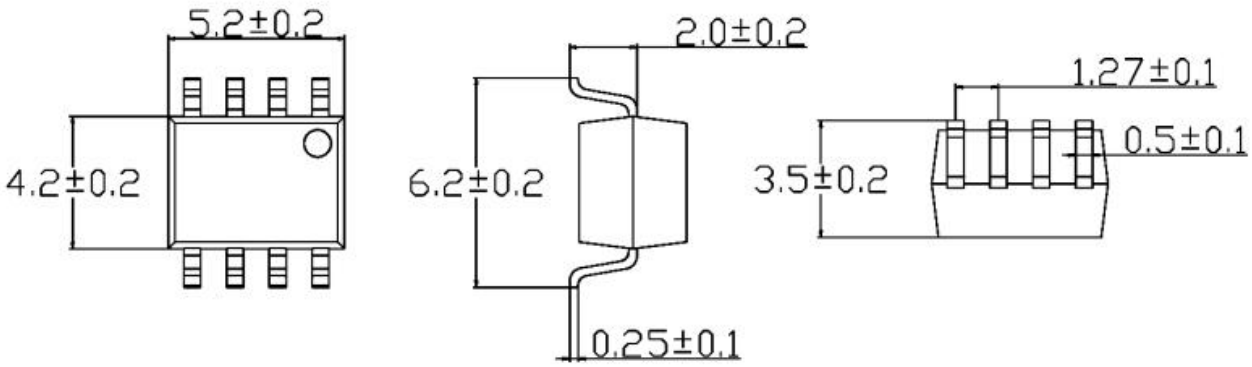


TestCircuit for Common Mode Transient Immunity

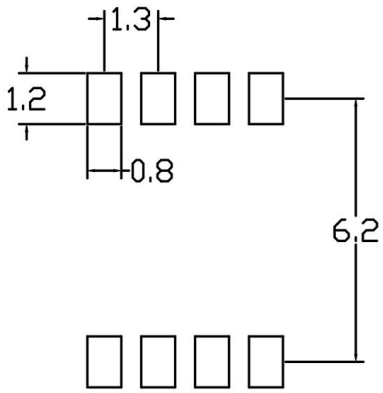


Package Outline Dimensions (unit: mm)

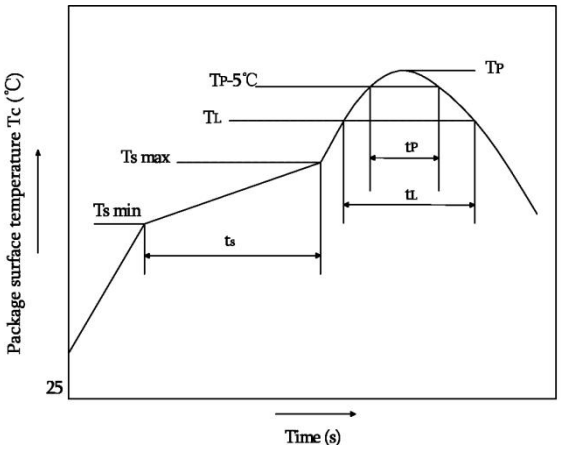
SOP8



SOLDERING FOOTPRINT (unit: mm)



Reflow soldering

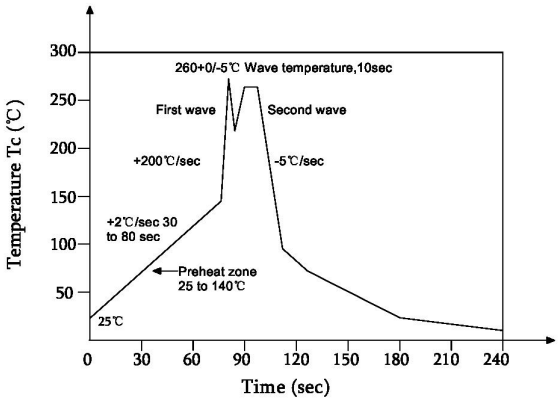


	Symbol	Min	Max	Unit
Preheat temperayure	Ts	150	200	℃
Preheat time	ts	60	120	s
Ramp-up ratea(T_L to T_P)			3	℃/s
Liquidus temperature	T_L	217		℃
Time above T_L	t_L	60	150	s
Peak temperature	Tp		260	℃
Time during which Tc is between (T_P-5) and T_P	t_p		30	s
Ramp-down rate(T_P to T_L)			6	℃/s

Note:

Reflow soldering is recommended at the temperatures and times shown, no more than three times.

Wave soldering



Profile feature	
Average ramp-up rate	~200℃/s
Heating rate during preheat	1℃/s to 2℃/s typical;4℃/s maximum
Final preheat temperature Ts	~130℃
Preheat time (25℃ to Ts)	>60s
Peak temperature Tp	260℃
Time within peak temperature tp	10s
Ramp-down rate	5℃/s maximum

Soldering with hand soldering iron

A. Hand soldering iron is only used for product rework or sample testing.

B. Hand soldering iron requirements:Temperature:360 ℃+5℃ within 3s.

Packing

Package Type	Packing Form	Quantity per Tube &Reel	Quantity per Box	Quantity per Carton	Antistatic Bag Specification	Box Specification	Carton Specification	Note
SOP8	Reel(ϕ330mm)	1000pcs/reel	2 reels /box	10 boxes /ctn	450*390*0.1mm	340*60*340mm	620*360*365mm	Guard band 200mm min.

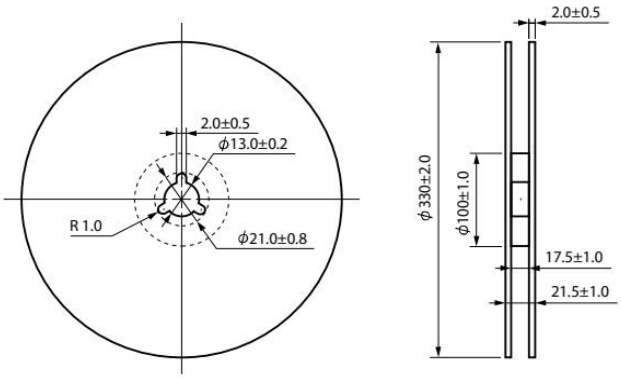
■ Summary table

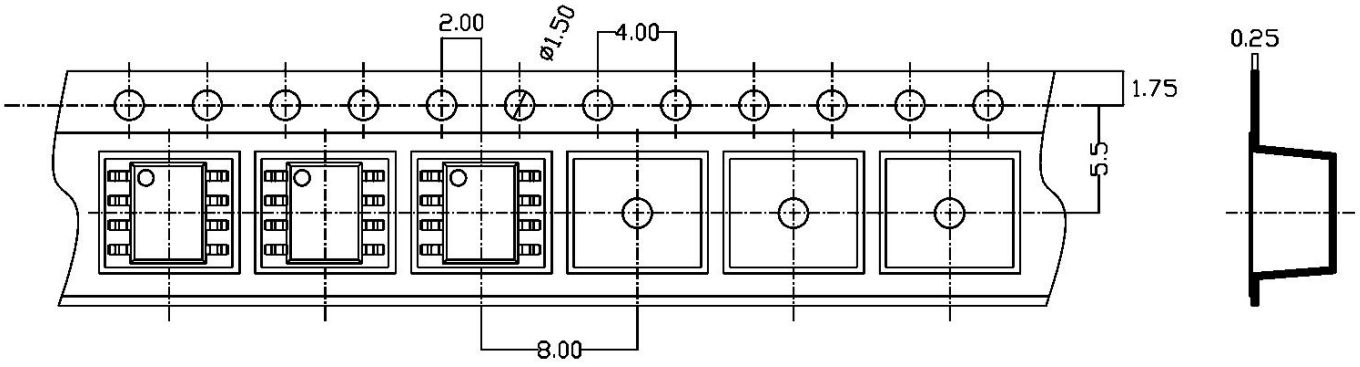
■ SOP8 (Reel)

Qty/reel: 1000pcs. Qty/box: 2000pcs.

Qty/ctn: 20000pcs.

Schematic: (unit: mm)





Attention

■ XINGLIGHT implements dynamic technical updates. Specifications are subject to change. Refer to the official website for the latest version.

■ Users must strictly adhere to specified conditions. Failures caused by misuse (overload, high temperature, incompatible circuits) are excluded from warranty.

■ Contact technical support for customized validation in critical applications (medical devices, industrial control).

■ This document is valid until Dec 31, 2026. Updates will be notified on the official website.

■ For further clarification on technical specifications or application solutions, please contact us through official channels.