Feature:

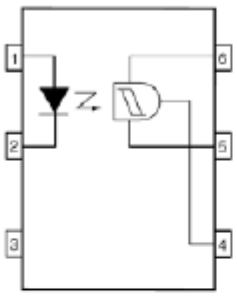
- High data rate, 1MHz typ. (NRZ)
- Microprocessor compatible drive
- Free from latch up and oscillation throughout voltage and temperature ranges
- Wide supply voltage capability, compatible with all popular logic systems
- High Isolation voltage between input and output (Viso = 5300V rms)
- Logic compatible output sinks 16mA at 0.4V max.
- Guaranteed on/off threshold hysteresis
- Current transfer ration
  (CTR: 50~600% at I_F = 5mA, V_{CE} = 5V)
  (CTR: 40~320% at I_F = 10mA, V_{CE} = 5V)
- Compact Dual-in-Line Package
- Available packaged in Tube or Tape and reel
- Conventional black housing package

Certification & Compliance:

- Pb free and RoHS Compliant
- UL approved (E338132)
- cUL approved (E338132)

Schematic:

Schematic



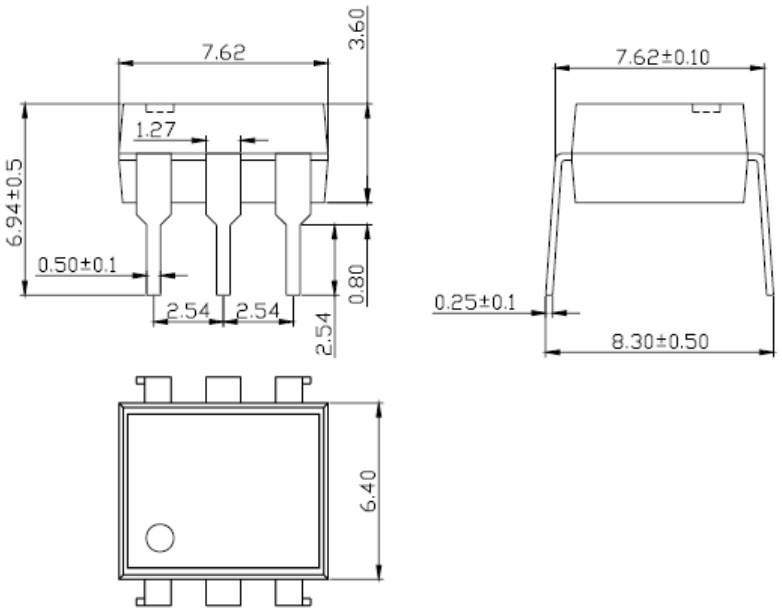
1. Anode
2. Cathode
3. No Connection
4. V_O
5. GND
6. V_{CC}

Truth Table

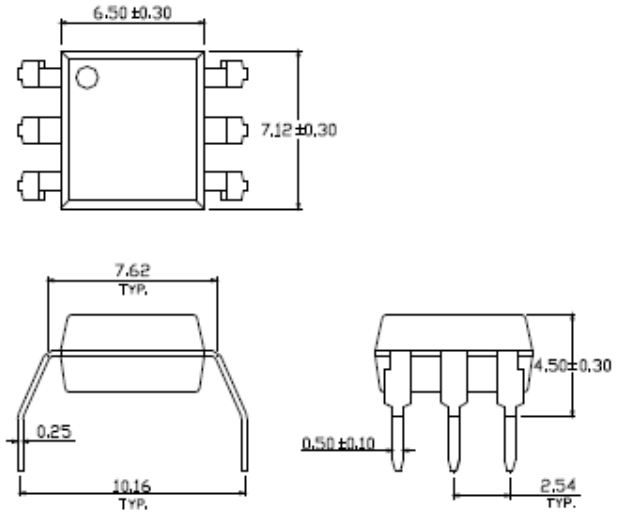
Input	Output
H	L
L	H

Dimension: (Dot location indicates pin 1)

6-Pin Dip (standard):

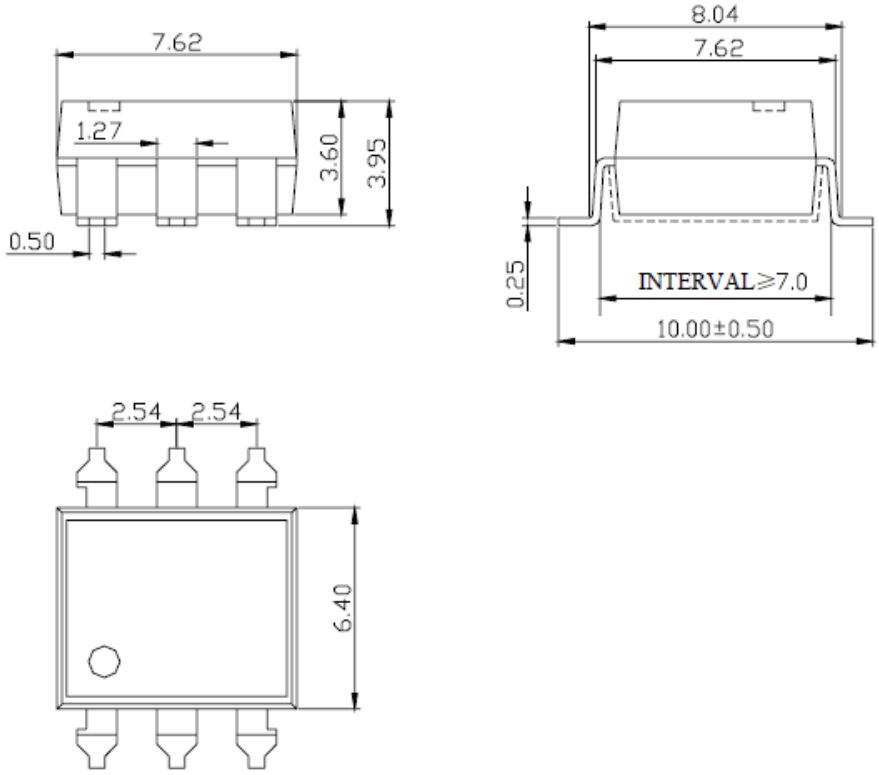


Wide lead bend (Option W):



All Dimensions are in mm
Tolerance = +/- 0.1mm

SMD lead bend (Option S):



All Dimensions are in mm
Tolerance = +/- 0.1mm

Absolute Maximum Rating:

Symbol	Parameter	Rating	Units
		H11L1 H11L2 H11L3	
T_{STG}	Storage Temperature	-55 ~ +150	ºC
T_{OPR}	Operating Temperature	-40 ~ +85	ºC
T_{SOL}	Lead Solder Temperature	260	ºC
P_{TOT}	Total Power Dissipation	250	mW
EMITTER			
I_F	Continuous Forward Current	60	mA
I_{PF}	Peak Forward Current (300us pulse, 2% Duty Cycle	1.2	A
V_R	Reverse Voltage	5	V
P_D	Power Dissipation	100	mW
DETECTOR			
V_O	V_{45} Allowed Range	0 to 16	V
V_{cc}	V_{65} Allowed Range	3 to 16	V
I_O	Output Current	50	mA
P_D	Collector Power Dissipation	150	mW
	Derate above 25 ºC	2	mW/ ºC

Electrical Characteristic: (T=25 °C)

Emitter

Symbol	Characteristic	Device	Test Condition	Range			Unit
				Min	Typ	Max	
V_F	Forward voltage	H11L1 H11L2 H11L3	I_F = 10mA	-	1.2	1.5	V
I_R	Reverse current	H11L1 H11L2 H11L3	V_R = 3V	-	-	10	μA
C_J	Capacitance	H11L1 H11L2 H11L3	V = 0, f = 1KHz	-	-	100	pF

Detector

Symbol	Characteristic	Device	Test Condition	Range			Unit
				Min	Typ	Max	
V_{CC}	Operation Voltage Range	H11L1 H11L2 H11L3		3	-	15	V
$I_{CC(off)}$	Supply Current	H11L1 H11L2 H11L3	I_F = 0mA, V_{CC} =5v	-		3	mA
I_{CH}	Output Current, High	H11L1 H11L2 H11L3	I_F = 0mA, V_{CC} =V_O = 15V	-	-	100	V

Isolation Characteristics

R_{ISO}	Isolation Resistance	H11L1 H11L2 H11L3	V_{I-O} = 500VCD	10^{11}	-	-	Ω
V_{ISO}	Isolation Voltage		Ioff<0.3mA, AC, 60s	5300			Vrms

Symbol	Characteristic	Device	Test Condition	Range			Unit
				Min	Typ	Max	
DC Transfer Characteristic							
$I_{CC(on)}$	Supply Current	H11L1 H11L2 H11L3	I_F = 10mA, V_{CC} = 5V	-	1.6	5	mA
V_{OL}	Output Voltage .low	H11L1 H11L2 H11L3	V_{CC} = 5V, I_F = I_{FON}(max), R_L = 270Ω	-	0.2	0.4	V
I_{FON}	Turn on Threshold Current [1]	H11L1	V_{CC} = 5V, R_L = 270Ω	-	1.2	1.6	mA
		H11L2		-	-	10	mA
		H11Ll3		-	-	5	mA
I_{FOFF}	Turn off Threshold Current	H11L1 H11L2 H11L3	V_{CC} = 5V, R_L = 270Ω	0.3	0.75	-	mA
I_{fon}/I_{foo}	Hysteresis Ratio	H11L1 H11L2 H11L3	V_{CC} = 5V, R_L = 270Ω	0.5	-	0.9	
AC Transfer Characteristic							
T_{on}	Turn on Time	H11L1 H11L2 H11L3	V_{CC} = 5V, I_F = I_{FON}, R_L = 270Ω	-	1.2	4	µS
Tr	Rise Time	H11L1 H11L2 H11L3	V_{CC} = 5V, I_F = I_{FON}, R_L = 270Ω	-	0.1	-	µS
T_{off}	Turn off Time	H11L1 H11L2 H11L3	V_{CC} = 5V, I_F = I_{FON}, R_L = 270Ω	-	1.2	4	µS
Tf	Fall Time	H11L1 H11L2 H11L3	V_{CC} = 5V, I_F = I_{FON}, R_L = 270Ω	-	0.1	-	µS
	Data Rate	H11L1 H11L2 H11L3		-	1	-	MHz

[1]. Max. $I_{F(on)}$ is the maximum current required to trigger the output. For examples, a 1.6mA maximum trigger current would require the LED to be driven at a current greater than 1.6mA to guarantee the device will turn on. A 10% guard band is recommended to account for degradation of the LED over its lifetime. The maximum allowable LED drive current is 60mA

Characteristic Curves:

Figure 1. Forward Current vs Forward Voltage

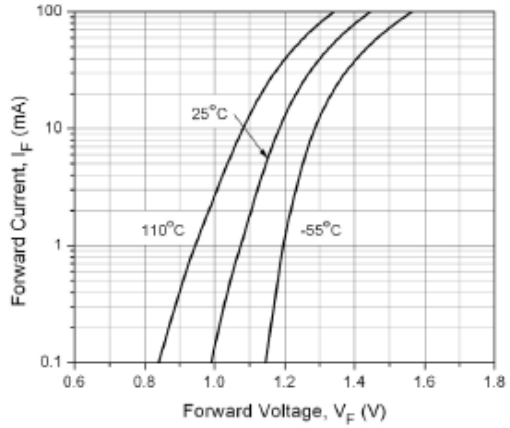


Figure 2. Transfer Characteristics

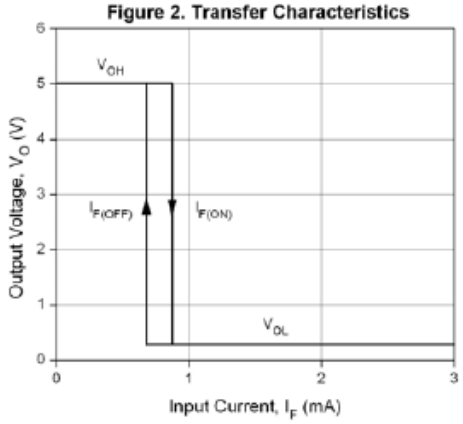


Figure 3. Turn On Threshold Current vs Supply Voltage

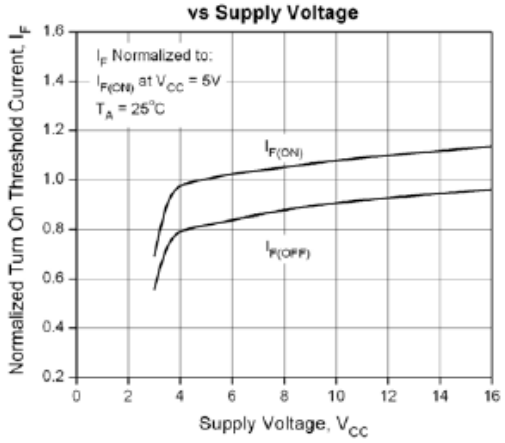


Figure 4. Turn On Threshold Current vs Ambient Temperature

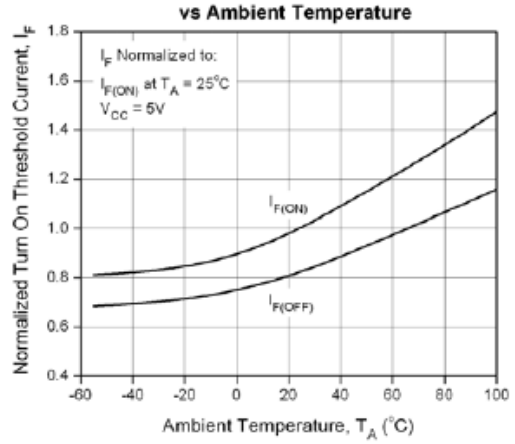


Figure 5. Low Level Output Voltage vs Load Current

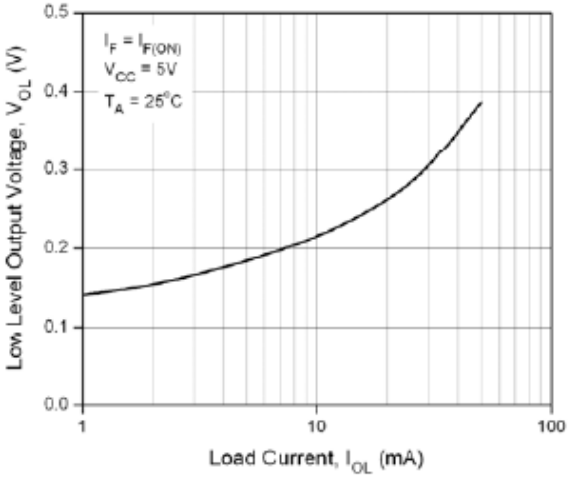
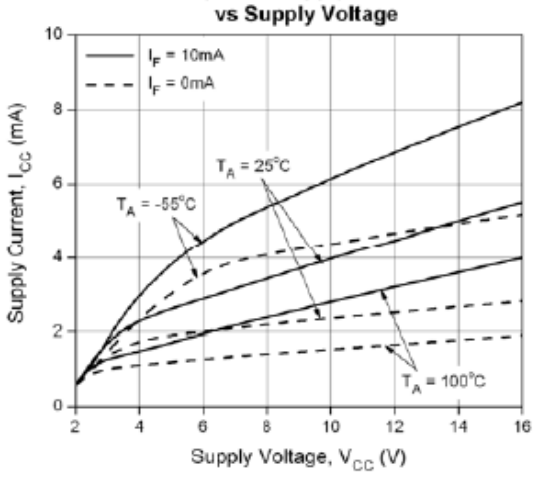
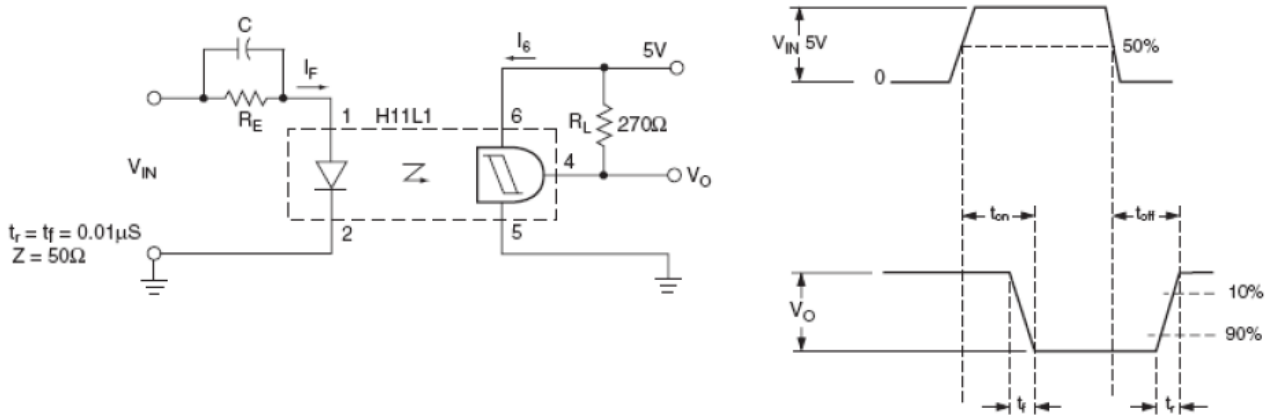


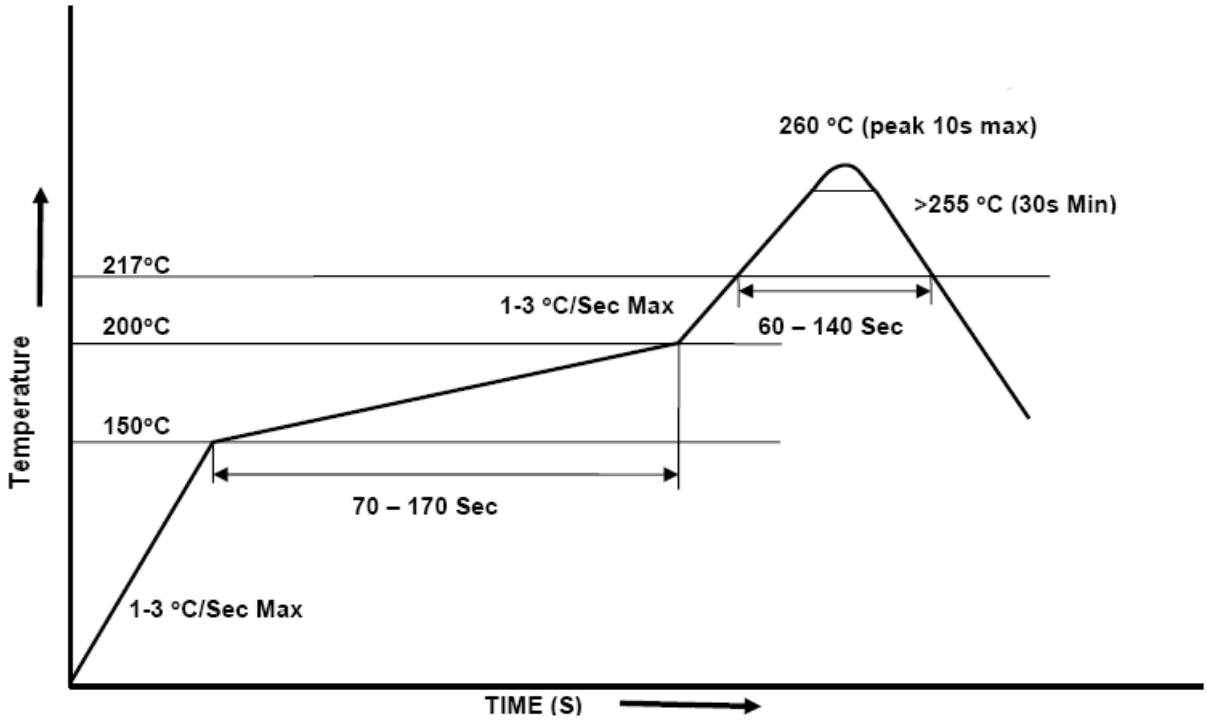
Figure 6. Supply Current vs Supply Voltage



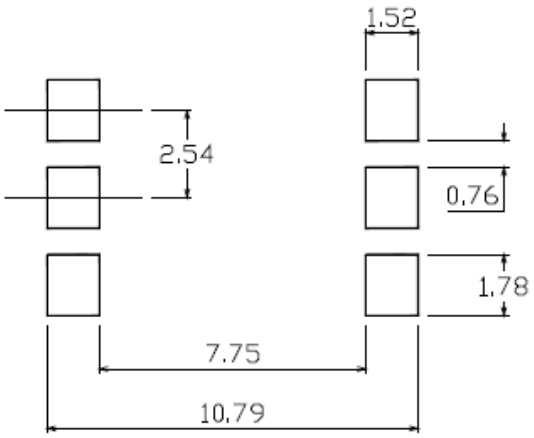
Test Circuit for Response Time:



Solder Reflow temperature Profile:



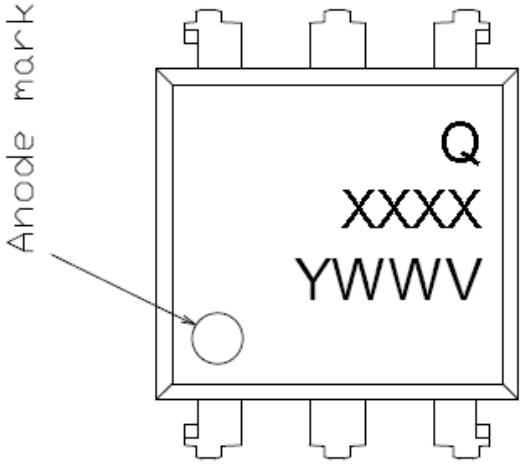
Solder Profile & Footprint:



Recommended Solder Footprint for SMD Leadform

Units: mm tolerance: +/- 0.1mm

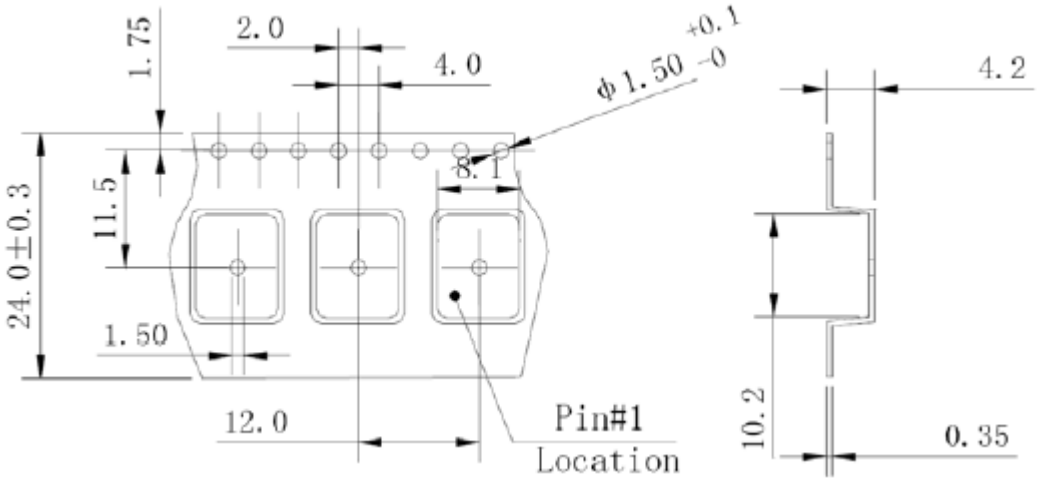
Device Marking:



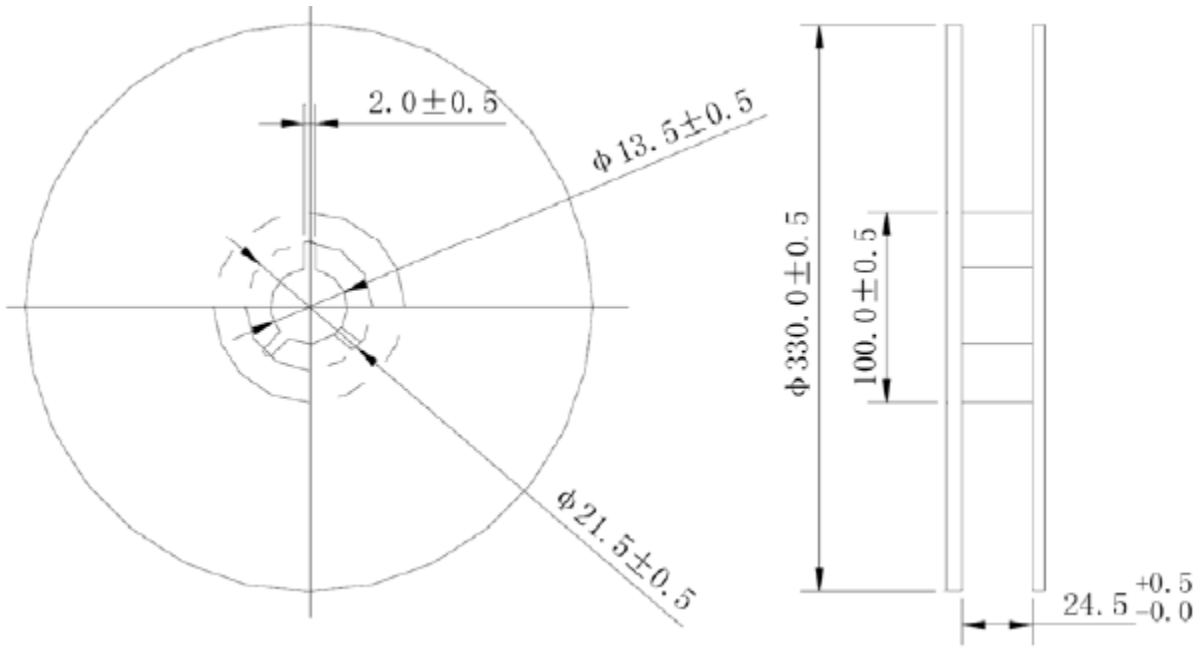
Q = QT-Brightek Corporation
XXXX = H11L1, H11L2, or H11L3
Y = Year
WW = Week

Tape and Reel Packing Specifications:

Tape Dimensions:



Reel Dimensions:



Ordering Information:

Part Number	Orderable Part Number	Options	Description	Quantity per packing
H11L1	H11L1	None	Standard 6 pin	60pcs / Tube
	H11L1W	W	Wide lead bend (0.4 inch spacing)	60pcs / Tube
	H11L1STA	S	SMD lead form with tape and reel option	1000pcs / Tube
H11L2	H11L2	None	Standard 6 pin	60pcs / Tube
	H11L2W	W	Wide lead bend (0.4 inch spacing)	60pcs / Tube
	H11L2STA	S	SMD lead form with tape and reel option	1000pcs / Tube
H11L3	H11L3	None	Standard 6 pin	60pcs / Tube
	H11L3W	W	Wide lead bend (0.4 inch spacing)	60pcs / Tube
	H11L3STA	S	SMD lead form with tape and reel option	1000pcs / Tube

Revision History:

Description:	Revision #	Revision Date
Initial release of H11L1 H11L2 H11L3	1.0	4/22/2010
Information updates	1.1	04/07/2011

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.