LTR-301ALS-01

Digital Light Sensor

Technical Data Sheet

(Preliminary Specification)

Preliminary

SPEC NO: _____

CREATED: 13th June 2011

REV. NO: 1.0

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

Revision Table

Version	Change Description	Issue Date
1.0	As created	13/06/11

Preliminary

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

1. Description

The LTR-301ALS-01 is an integrated I2C digital light sensor [ALS] in a miniature chipled lead-free surface mount package. This device converts light intensity to a digital output signal capable of direct I^2C interface. It provides a linear response over a wide dynamic range from 0.01 lux to 64k lux and is well suited to applications under high ambient brightness.

The device supports an interrupt feature that removes the need to poll the sensor for a reading which improves system efficiency. The device also supports several features that help to minimize the occurrence of false triggering. This CMOS design and factory-set one time trimming capability ensure minimal device-to-device variations for ease of manufacturability to the end customers.

2. Features

- I^2C interface (Fast Mode @ 400kbit/s)
- Ultra-small ChipLED package
- Built-in temperature compensation circuit
- Low active power consumption with standby mode
- Supply voltage range from 2.4V to 3.6V capable of 1.7V logic voltage
- Operating temperature range from -30°C to +70°C
- RoHS and Halogen free compliant
- Light Sensor
  - Close to human eye spectral response
  - Immunity to IR / UV Light Source
  - Automatically rejects 50 / 60 Hz lightings flicker
  - Full dynamic range from 2 lux to 64k lux
  - High resolution range from 0.01 lux to 320 lux
  - 16-bit effective resolution

Preliminary

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

3. Applications

To control display backlight in

- Mobile Devices: Mobile phone, PDA
- Computing Devices: Notebook PC, Desktop Monitor
- Consumer Devices: LCD/PDP TV backlight systems, Cameras, Personal Navigation Device, Digital Photo Frame
- Dashboard

4. Ordering Information

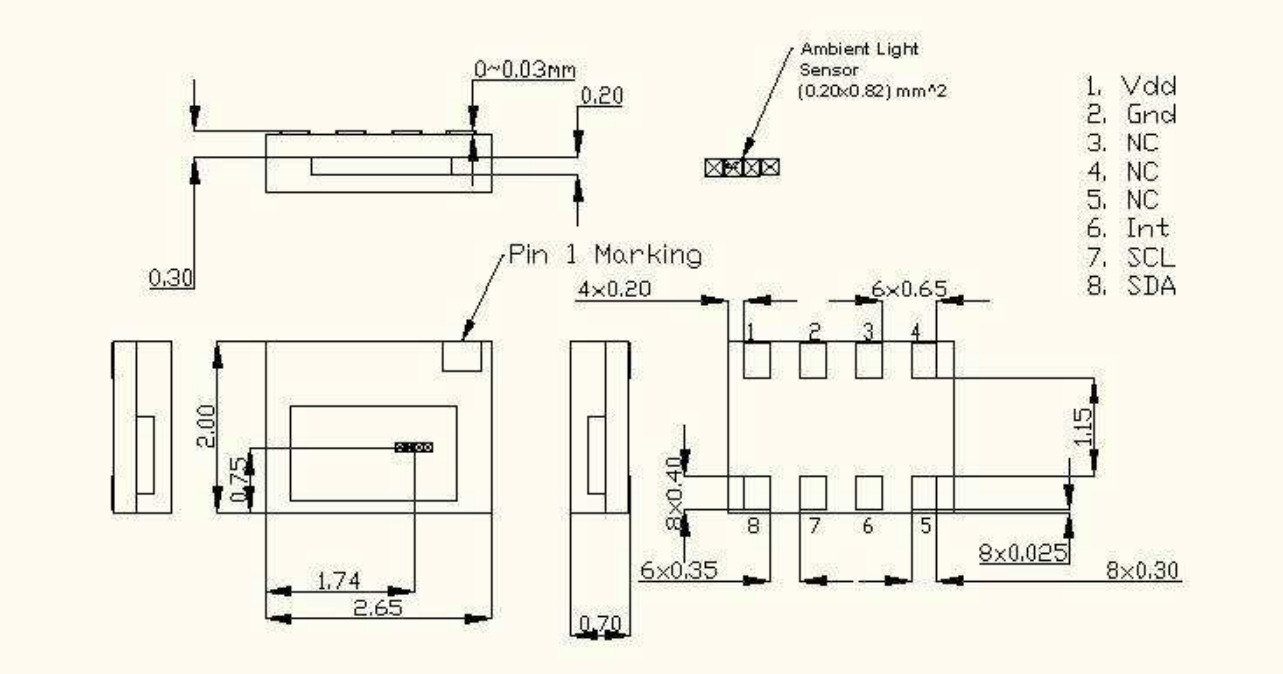
Part Number	Packaging Type	Package	Quantity
LTR-301ALS-01	Tape and Reel	8-pin chipled package	2500

Preliminary

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

5. Outline Dimensions



Notes:

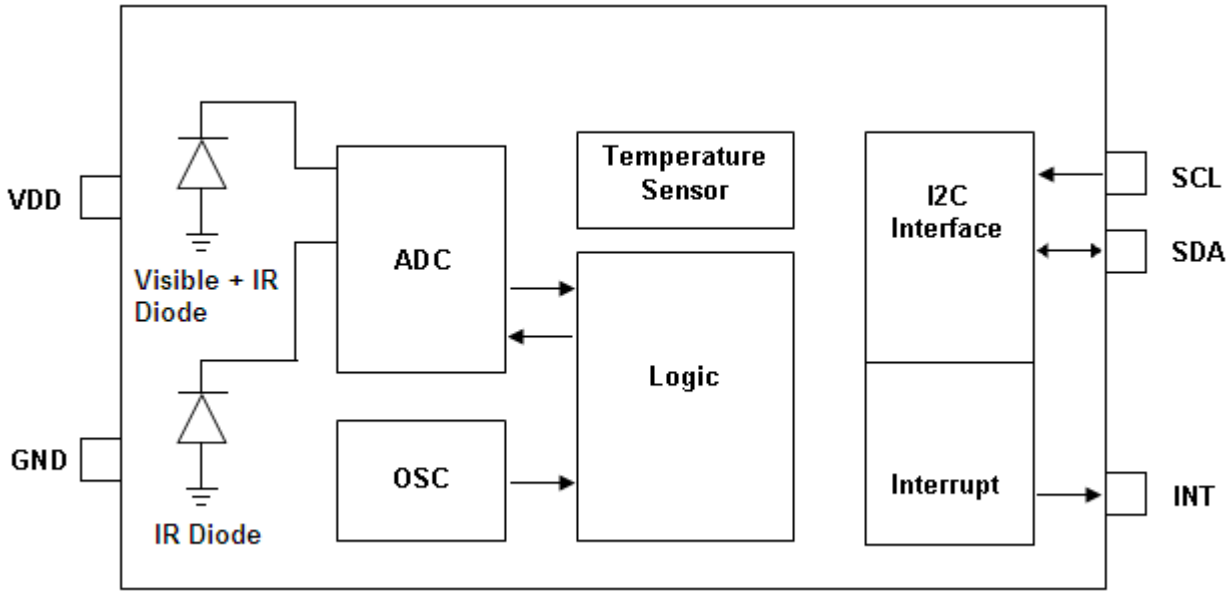
1. All dimensions are in millimeters
2. Tolerances: ±0.2mm
3. LTC reserves the right to change the drawing till final datasheet release

Prelim

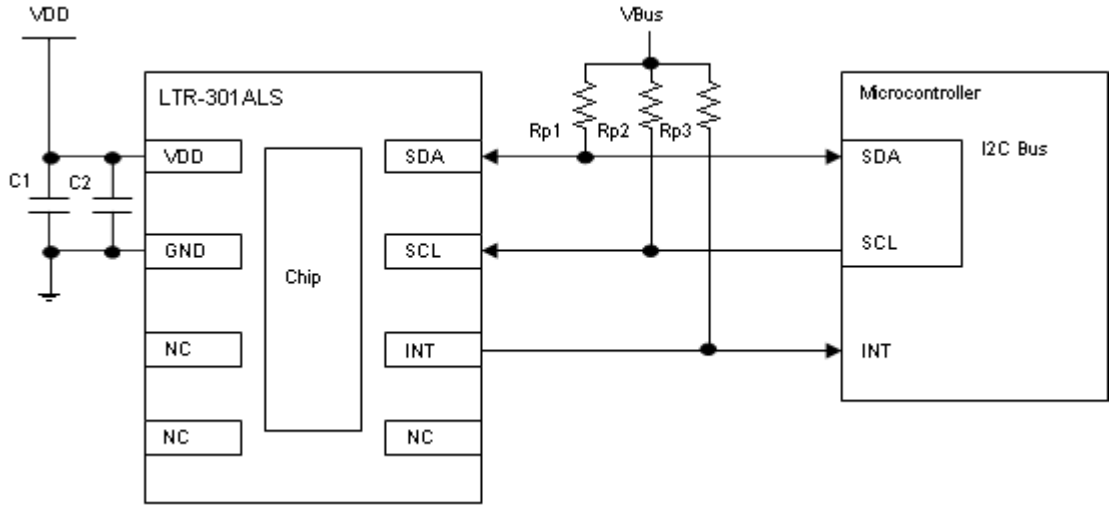
This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

6. Functional Block Diagram



7. Application Circuit



This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

I/O Pins Configuration Table

Pin	I/O Type	Symbol	Description
1		VDD	Supply Voltage
2		GND	Ground
3		NC	No Connect
4		NC	No Connect
5		NC	No Connect
6	O	INT	Level Interrupt pin. Active LOW for interrupt. This pin is an open drain.
7	I	SCL	I^2C serial clock
8	I/O	SDA	I^2C serial data

Recommended Application Circuit Components

Component	Recommended Value	Condition
Rp1, Rp2, Rp3 [1]	1 kΩ to 10 kΩ	
C1	0.1uF	
C2	4.7uF	

[1] Selection of pull-up resistors value is dependent on bus capacitance values. For more details, please refer to I2C Specifications: http://www.nxp.com/documents/user_manual/UM10204.pdf

Preliminary

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

8. Rating and Specification

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Rating	Unit
Supply Voltage	VDD	3.8	V
Digital Voltage Range	SCL, SDA, INT	-0.5 to 3.8	V
Digital Output Current	SCL, SDA, INT	-1 to 20	mA
Storage Temperature	T_{stg}	-40 to 85	°C

Note: Exceeding these ratings could cause damage to the sensor. All voltages are with respect to ground. Currents are positive into, negative out of the specified terminal.

Recommended Operating Conditions

Description	Symbol	Min.	Typ.	Max.	Unit	Condition
Supply Voltage	VDD	2.4		3.6	V	
Interface Bus Power Supply Voltage	V_{IO}	1.7		3.6	V	
Operating Temperature	T_{ope}	-30		70	°C	

Preliminary

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

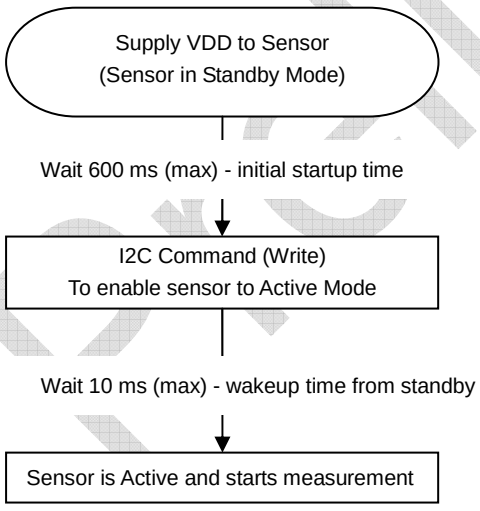
Downloaded From Oneyac.com

Electrical & Optical Specifications

All specifications are at VDD = 3.0V, T_{ope} = 25°C, unless otherwise noted.

Parameter	Min.	Typ.	Max.	Unit	Condition
Active Supply Current		200	300	uA	Active Mode, T_{ope} = 25°C
Standby Current			5	uA	Standby / Sleep Mode
Initial Startup Time			600	ms	(Note 1)
Wakeup Time from Standby			10	ms	(Note 1)
Light Sensor					
Parameter	**Min.**	**Typ.**	**Max.**	**Unit**	**Condition**
Full Scale ADC Count			65535	count	
Dark ADC Count	0		5	count	Ch0, Lux = 0
	0		5	count	Ch1, Lux = 0
ADC Count	TBD	TBD	TBD	count	Ch0
	TBD	TBD	TBD	count	Ch1
Dynamic Range 1	0.01		320	lux	0.005 lux / count
Dynamic Range 2	2		64k	lux	1 lux / count

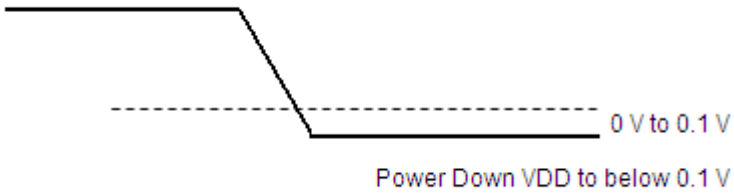
Notes:
1. Startup Sequence



This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

2. Power Down Sequence for VDD



Preliminary

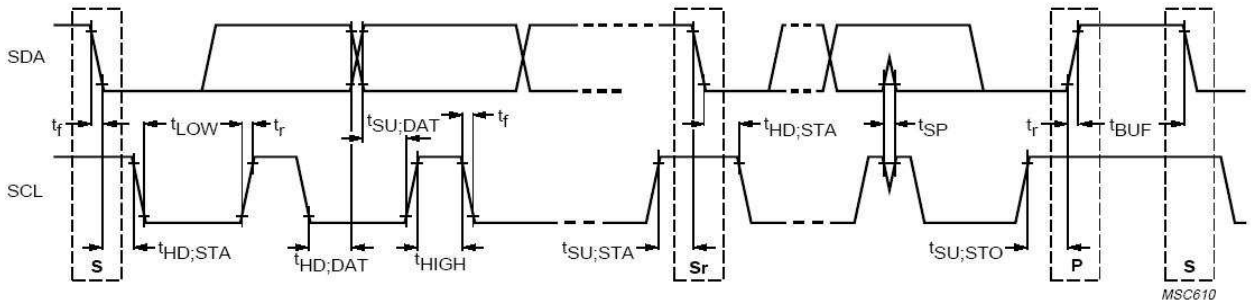
This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

AC Electrical Characteristics

All specifications are at VBus = 1.8V, T_{ope} = 25°C, unless otherwise noted.

Parameter	Symbol	Min.	Max.	Unit
SCL clock frequency	f_{SCL}	1	400	kHz
Bus free time between a STOP and START condition	t_{BUF}	1.3		us
Hold time (repeated) START condition. After this period, the first clock pulse is generated	$t_{HD;STA}$	0.6		us
LOW period of the SCL clock	t_{LOW}	1.3		us
HIGH period of the SCL clock	t_{HIGH}	0.6		us
Set-up time for a repeated START condition	$t_{SU;STA}$	0.6		us
Set-up time for STOP condition	$t_{SU;STO}$	0.6		us
Rise time of both SDA and SCL signals	t_r	30	300	ns
Fall time of both SDA and SCL signals	t_f	30	300	ns
Data hold time	$t_{HD;DAT}$	0.3	0.9	us
Data setup time	$t_{SU;DAT}$	100		ns
Pulse width of spikes which must be suppressed by the input filter	t_{SP}	0	50	ns



Definition of timing for I²C bus

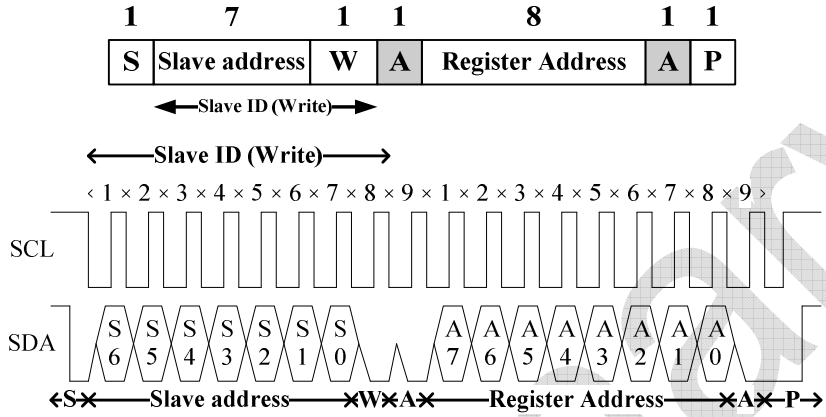
This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

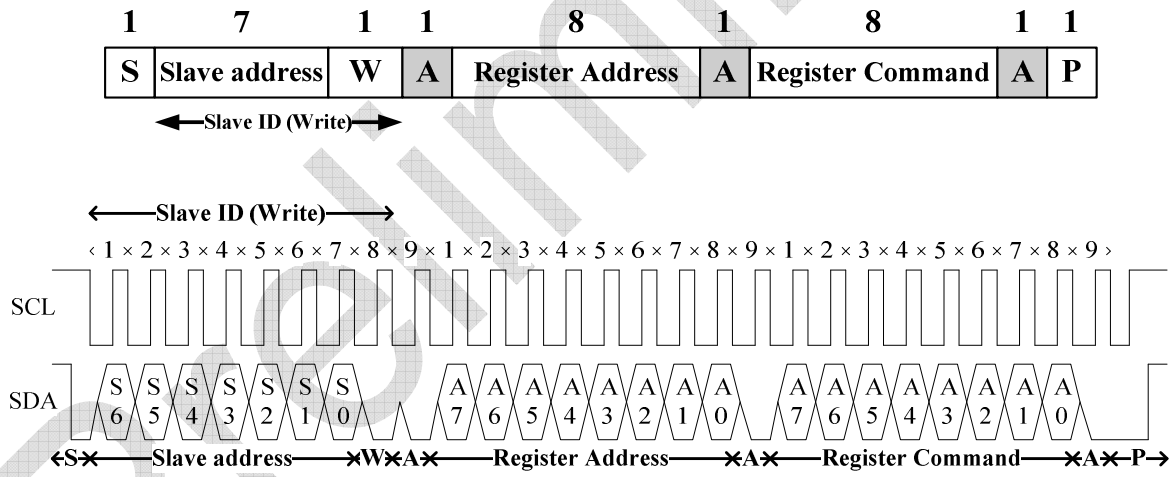
9. Principles of Operation

I2C Protocols

· I2C Write Protocol (type 1):



· I2C Write Protocol (type 2):

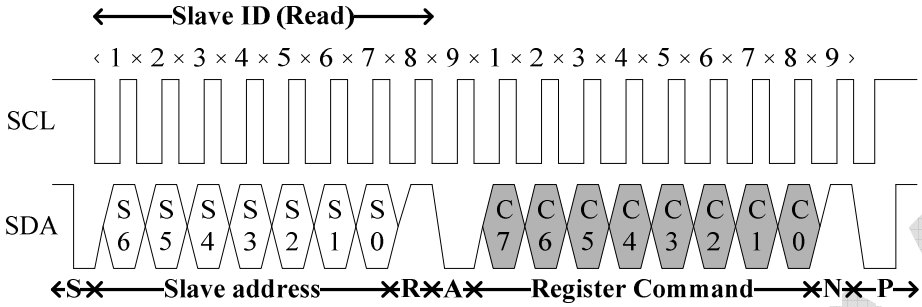


· I2C Read Protocol:

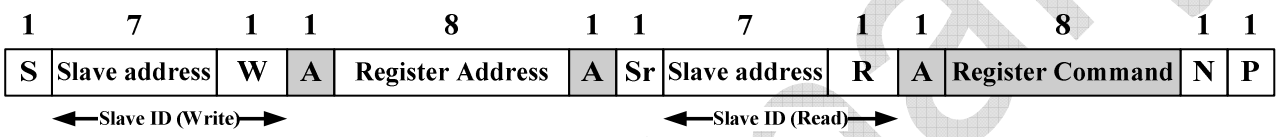
Preliminary

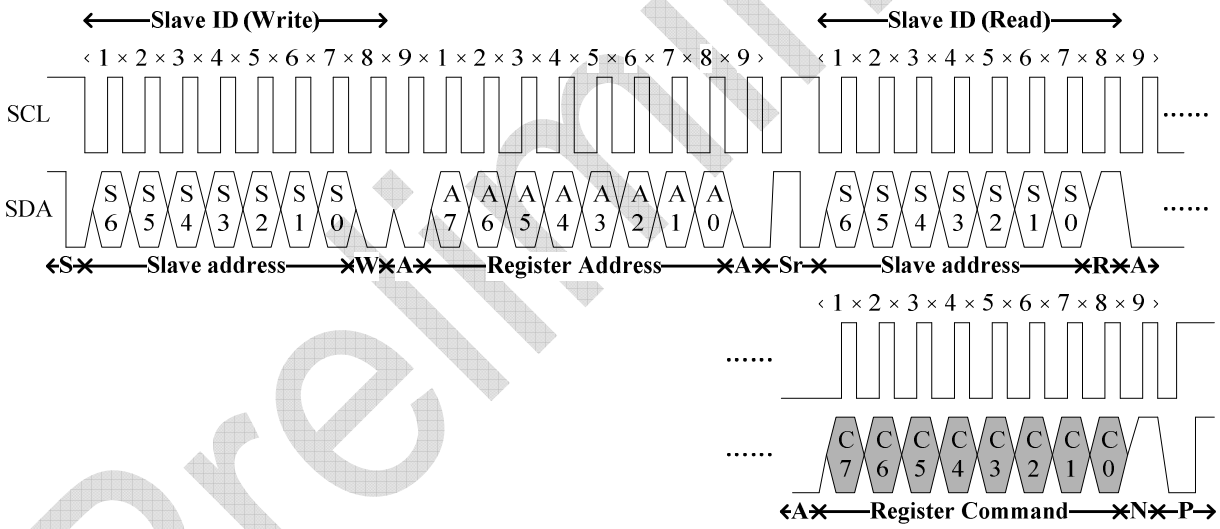
This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com



· I2C Read (Combined format) Protocol:





A	Acknowledge (0 for an ACK)	**N**	Non-Acknowledge(1 for an NACK)
S	Start condition	**Sr**	Repeated Start condition
P	Stop condition		
W	Write (0 for writing)	**R**	Read (1 for read)
▩	Slave-to-master	□	Master-to-Slave

Preliminary

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

I2C Slave Address

The 7 bits slave address for this sensor is 0x23H. A read/write bit should be appended to the slave address by the master device to properly communicate with the sensor.

I2C Slave Address									
Command Type	(0x23H)							W/R	value
	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	
Write	0	1	0	0	0	1	1	0	0x46H
Read	0	1	0	0	0	1	1	1	0x47H

Preliminary

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

Register Set

Addr	R / W	Register Name	Description	Reset Value
0x80	R / W	ALS_CONTR	ALS operation mode control SW reset	0x00
0x81	R / W	RESERVED	Reserved Register	0x00
0x82	R / W	RESERVED	Reserved Register	0x6B
0x83	R / W	RESERVED	Reserved Register	0x08
0x84	R / W	RESERVED	Reserved Register	0x02
0x85	R / W	ALS_MEAS_RATE	ALS measurement rate in active mode	0x03
0x86	R	PART_ID	Part Number ID and Revision ID	0x80
0x87	R	MANUFAC_ID	Manufacturer ID	0x05
0x88	R	ALS_DATA_CH1_0	ALS measurement CH1 data, lower byte	0x00
0x89	R	ALS_DATA_CH1_1	ALS measurement CH1 data, upper byte	0x00
0x8A	R	ALS_DATA_CH0_0	ALS measurement CH0 data, lower byte	0x00
0x8B	R	ALS_DATA_CH0_1	ALS measurement CH0 data, upper byte	0x00
0x8C	R	ALS_STATUS	ALS new data status	0x00
0x8D	R	RESERVED	Reserved Register	0x00
0x8E	R	RESERVED	Reserved Register	0x00
0x8F	R / W	INTERRUPT	Interrupt settings	0x08
0x90	R / W	RESERVED	Reserved Register	0xFF
0x91	R / W	RESERVED	Reserved Register	0x07
0x92	R / W	RESERVED	Reserved Register	0x00
0x93	R / W	RESERVED	Reserved Register	0x00
0x97	R / W	ALS_THRES_UP_0	ALS interrupt upper threshold, lower byte	0xFF
0x98	R / W	ALS_THRES_UP_1	ALS interrupt upper threshold, upper byte	0xFF
0x99	R / W	ALS_THRES_LOW_0	ALS interrupt lower threshold, lower byte	0x00
0x9A	R / W	ALS_THRES_LOW_1	ALS interrupt lower threshold, upper byte	0x00
0x9E	R / W	INTERRUPT PERSIST	ALS Interrupt persist setting	0x00

* R / W Reserved Register: Must write as reset / default value

Preliminary

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

ALS_CONTR Register (0x80)

The ALS_CONTR register controls the ALS operation modes and software (SW) reset for the sensor. The ALS sensor can be set to either standby mode or active mode. At either of these modes, the I^2C circuitry is always active. The default mode after power up is standby mode. During standby mode, there is no ALS measurement performed but I^2C communication is allowed to enable read/write to all the registers.

0x80	ALS_CONTR (default = 0x00)							
	B7	**B6**	**B5**	**B4**	**B3**	**B2**	**B1**	**B0**
	Reserved				***ALS Gain***	***SW Reset***	***ALS Mode***	

Field	BITS	Description
Reserved	7:4	Must write as 0
ALS Gain	3	0: Dynamic Range 2 (2 lux to 64k lux) (default) 1: Dynamic Range 1 (0.01 lux to 320 lux)
SW Reset	2	0: Software reset is NOT started (default) 1: Software reset is started, default value after reset is 0
ALS Mode	1:0	00 / 01: Standby Mode (default) 10 / 11: Active Mode

ALS_MEAS_RATE Register (0x85)

The ALS_MEAS_RATE register controls the integration time and timing of the periodic measurement of the ALS in active mode. ALS Measurement Repeat Rate is the interval between ALS_DATA registers update. ALS Integration Time is the measurement time for each ALS cycle.

ALS Integration Time must be set to be equal or smaller than the ALS Measurement Repeat Rate. If ALS Integration Time is set to be bigger than ALS Measurement Repeat Rate, it will be automatically reset to be equal to ALS Measurement Repeat Rate by the IC internally.

Preliminary

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

0x85	ALS_MEAS_RATE (default = 0x03)							
	B7	B6	B5	B4	B3	B2	B1	B0
	Reserved			*ALS Integration Time*		*ALS Measurement Repeat Rate*		

Field	BITS	Description
Reserved	7:5	Must write as 0
ALS Integration Time	4:3	00: 100ms (default) 01: 50ms (can only be used in Dynamic Range 2, effective resolution is 15-bit @ 2 lux / count) 10: 200ms (can only be used in Dynamic Range 1) 11: 400ms (can only be used in Dynamic Range 1)
ALS Measurement Repeat Rate	2:0	000: 50ms 001: 100ms 010: 200ms 011: 500ms (default) 100: 1000ms 101 / 110 / 111: 2000ms

PART_ID Register (0x86) (Read Only)

The PART_ID register defines the part number and revision identification of the sensor.

0x86	PART_ID (default = 0x80)							
	B7	B6	B5	B4	B3	B2	B1	B0
	Part Number ID				*Revision ID*			

Field	BITS	Description
Part Number ID	7:4	0x08H
Revision ID	3:0	0x00H

Preliminary

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

MANUFAC_ID Register (0x87) (Read Only)

The MANUFAC_ID register defines the manufacturer identification of the sensor.

0x87	MANUFAC_ID (default = 0x05)							
	B7	B6	B5	B4	B3	B2	B1	B0
	Manufacturer ID							

Field	BITS	Description
Manufacturer ID	7:0	0x05H

ALS_DATA_CH1 Register (0x88 / 0x89) (Read Only)

The ALS ADC channel 1 data are expressed as a 16-bit data spread over two registers. The ALS_DATA_CH1_0 and ALS_DATA_CH1_1 registers provide the lower and upper byte respectively. When the I^2C read operation starts, both the registers are locked until the I^2C read operation is completed. This will ensure that the data in the registers is from the same measurement even if an additional integration cycle ends during the read operation. New measurement data is stored into temporary registers and the ALS_DATA registers are updated as soon as there is no on-going I^2C read operation.

0x88	ALS_DATA_CH1_0 (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	ALS Data Ch1 Low							

0x89	ALS_DATA_CH1_1 (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	ALS Data Ch1 High							

Preliminary

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

Field	Addr	BITS	Description
ALS Data Ch1 Low	0x88	7:0	ALS ADC channel 1 lower byte data
ALS Data Ch1 High	0x89	7:0	ALS ADC channel 1 upper byte data

ALS_DATA_CH0 Register (0x8A / 0x8B) (Read Only)

The ALS ADC channel data 0 are expressed as a 16-bit data spread over two registers. The ALS_DATA_CH0_0 and ALS_DATA_CH0_1 registers provide the lower and upper byte respectively. When the I^2C read operation starts, both the registers are locked until the I^2C read operation is completed. This will ensure that the data in the registers is from the same measurement even if an additional integration cycle ends during the read operation. New measurement data is stored into temporary registers and the ALS_DATA registers are updated as soon as there is no on-going I^2C read operation.

0x8A	ALS_DATA_CH0_0 (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	ALS Data Ch0 Low							

0x8B	ALS_DATA_CH0_1 (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	ALS Data Ch0 High							

Field	Addr	BITS	Description
ALS Data Ch0 Low	0x8A	7:0	ALS ADC channel 0 lower byte data
ALS Data Ch0 High	0x8B	7:0	ALS ADC channel 0 upper byte data

ALS_STATUS Register (0x8C) (Read Only)

The ALS_STATUS register stores the information about interrupt status and ALS data status. New data means data has not been read yet. When the measurement is completed and data is written to

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Preliminary

Downloaded From Oneyac.com

the data register, the data status bit will be set to logic 1. When the data register is read, the data status bit will be set to logic 0.

Interrupt status determines if the ALS interrupt criteria are met. It will check if the ALS measurement data is outside of the range defined by the upper and lower threshold limits.

0x8C	ALS_STATUS (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	Reserved			*ALS Gain*	*ALS Interrupt Status*	*ALS Data Status*	*Reserved*	

Field	BITS	Description
Reserved	7:5	Do not care
ALS Gain	4	0: ALS measurement data is in dynamic range 2 (2 to 64k lux) 1: ALS measurement data is in dynamic range 1 (0.01 to 320 lux)
ALS Interrupt Status	3	0: ALS interrupt is clear or not yet triggered 1: ALS interrupt is triggered
ALS Data Status	2	0: ALS measurement data is old data (Data has been read) 1: ALS measurement data is new data (Data has not been read)
Reserved	1:0	Do not care

INTERRUPT Register (0x8F)

The INTERRUPT register controls the operation of the interrupt pin and functions. When the Interrupt Mode is set to 00, the INT output pin 2 is inactive / disabled and will not trigger any interrupt. However at this condition, the ALS_STATUS register will still be updated.

0x8F	INTERRUPT (default = 0x08)							
	B7	B6	B5	B4	B3	B2	B1	B0
	Reserved				*Output Mode*	*Interrupt Polarity*	*Interrupt Mode*	

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

Field	BITS	Description
Reserved	7:4	Must write as 0
Output Mode	3	0: INT output pin 2 is latched and keep in triggered state until INTERRUPT Register is read 1: INT output pin 2 is updated after every measurement (default)
Interrupt Polarity	2	0: INT output pin 2 is considered active when it is a logic 0 (default) 1: INT output pin 2 is considered active when it is a logic 1
Interrupt Mode	1:0	00: INT output pin 2 is inactive / high impedance state (default) 10: ALS measurement can trigger interrupt 01/11: Reserved

ALS_THRES Register (0x97 / 0x98 / 0x99 / 0x9A)

The ALS_THRES_UP and ALS_THRES_LOW registers determines the upper and lower limit of the interrupt threshold value respectively. These two values form a range and the interrupt function compares if the measurement value in ALS_DATA registers is inside or outside the range. The interrupt function is active if the measurement data is outside the range defined by the upper and lower limits. The data format for ALS_THRES must be the same as ALS_DATA registers.

0x97	ALS_THRES_UP_0 (default = 0xFF)							
	B7	B6	B5	B4	B3	B2	B1	B0
	ALS Upper Threshold Low							

0x98	ALS_THRES_UP_1 (default = 0xFF)							
	B7	B6	B5	B4	B3	B2	B1	B0
	ALS Upper Threshold High							

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Preliminary

Downloaded From Oneyac.com

0x99	ALS_THRES_LOW _0 (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	ALS Lower Threshold Low							

0x9A	ALS_THRES_LOW_1 (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	ALS Lower Threshold High							

Field	Addr	BITS	Description
ALS Upper Threshold Low	0x97	7:0	ALS upper threshold lower byte
ALS Upper Threshold High	0x98	7:0	ALS upper threshold upper byte
ALS Lower Threshold Low	0x99	7:0	ALS lower threshold lower byte
ALS Lower Threshold High	0x9A	7:0	ALS lower threshold upper byte

INTERRUPT PERSIST Register (0x9E)

The INTERRUPT PERSIST register controls the N number of times the measurement data is outside the range defined by the upper and lower threshold limits before asserting the INT output pin 2.

0x9E	INTERRUPT PERSIST (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	Reserved				*ALS Persist*			

Field	BITS	Description
Reserved	7:4	Must write as 0

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

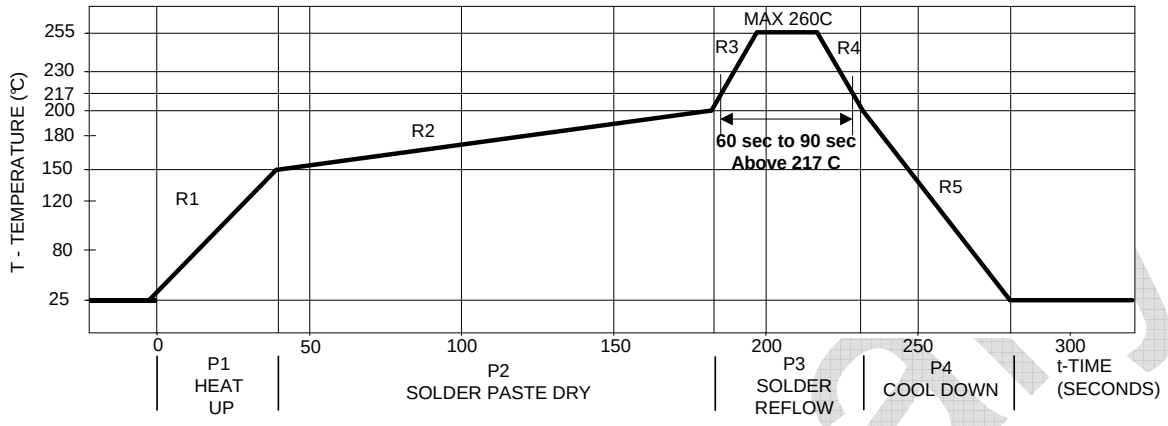
ALS Persist	3:0	0000: Every ALS measurement data will generate an interrupt (default) 0001: 1 consecutive ALS measurement data outside the range 0010: 2 consecutive ALS measurement data outside the range … 1111: 15 consecutive ALS measurement data outside the range

Preliminary

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

10. Recommended Leadfree Reflow Profile



Process Zone	Symbol	ΔT	Maximum ΔT/Δtime or Duration
Heat Up	P1, R1	25°C to 150°C	3°C/s
Solder Paste Dry	P2, R2	150°C to 200°C	100s to 180s
Solder Reflow	P3, R3	200°C to 260°C	3°C/s
	P3, R4	260°C to 200°C	-6°C/s
Cool Down	P4, R5	200°C to 25°C	-6°C/s
Time maintained above liquidus point , 217°C		> 217°C	60s to 90s
Peak Temperature		260°C	-
Time within 5°C of actual Peak Temperature		> 255°C	20s
Time 25°C to Peak Temperature		25°C to 260°C	8mins

It is recommended to perform reflow soldering no more than twice.

Preliminary

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

11. Moisture Proof Packaging

All LTR-301ALS-01 are shipped in moisture proof package. Once opened, moisture absorption begins. This part is compliant to JEDEC J-STD-033A Level 3.

Time from Unsealing to Soldering

After removal from the moisture barrier bag, the parts should be stored at the recommended storage conditions and soldered within seven days. When the moisture barrier bag is opened and the parts are exposed to the recommended storage conditions for more than seven days, the parts must be baked before reflow to prevent damage to the parts.

Recommended Storage Conditions

Storage Temperature	10°C to 30°C
Relative Humidity	Below 60% RH

Baking Conditions

Package	**Temperature**	**Time**
In Reels	60°C	48 hours
In Bulk	100°C	4 hours

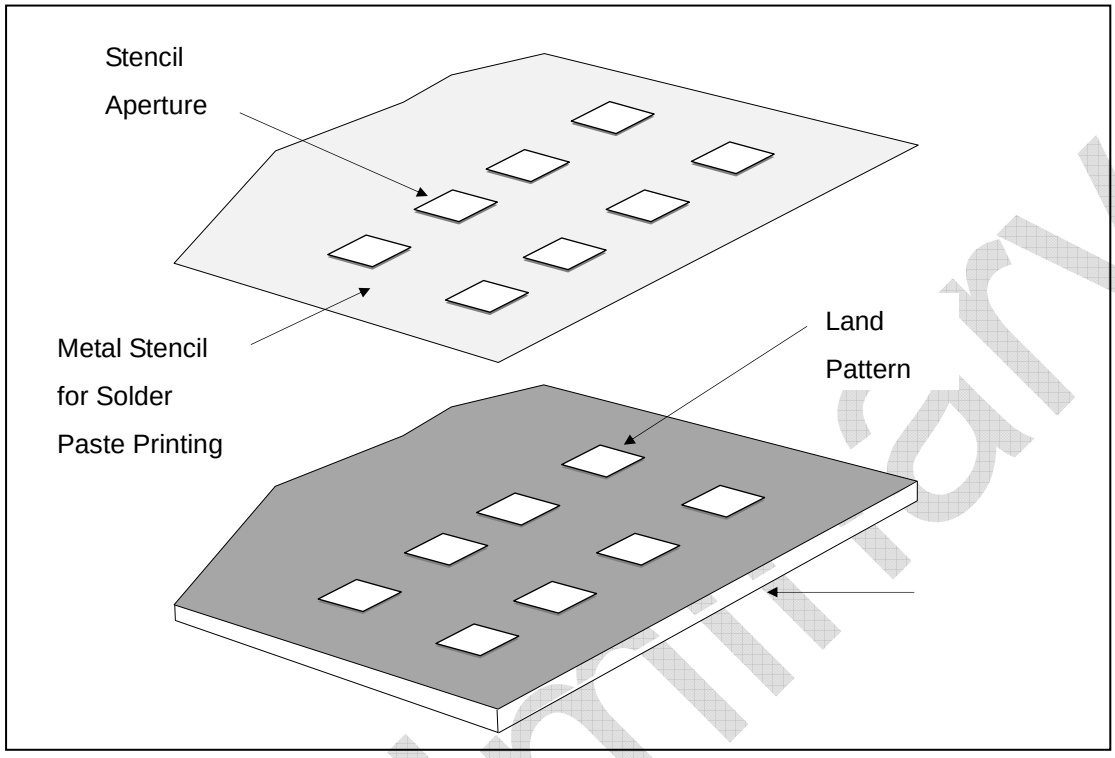
Baking should only be done once.

Preliminary

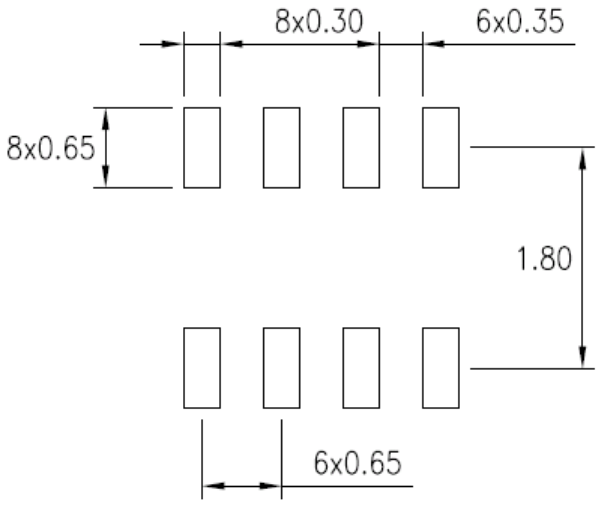
This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

12. Recommended Land Pattern and Metal Stencil Aperture



Recommended Land Pattern



Note:

1. All dimensions are in millimeters

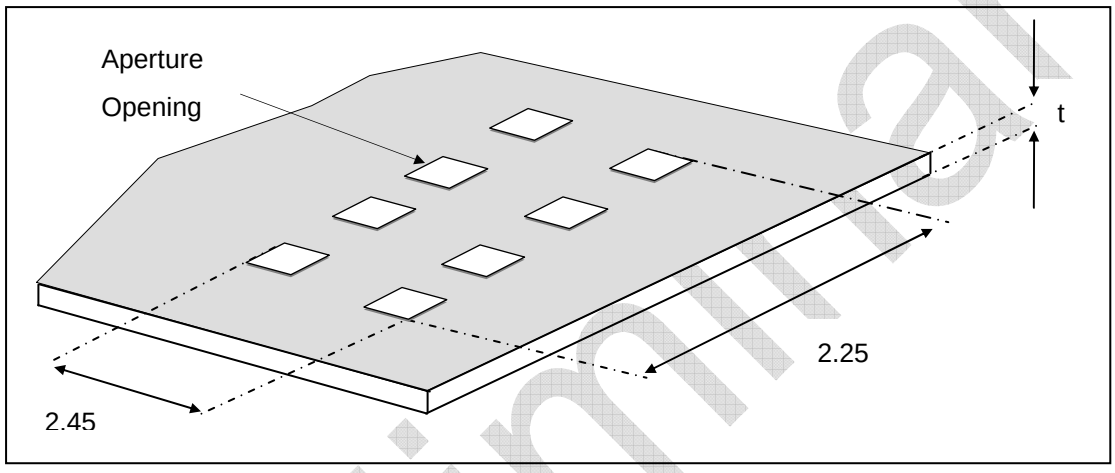
This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

Recommended Metal Stencil Aperture

It is recommended that the metal stencil used for solder paste printing has a thickness (t) of 0.11mm (0.004 inches / 4 mils) or 0.127mm (0.005 inches / 5 mils).

The stencil aperture opening is recommended to be 0.3mm x 0.65mm which has the same dimension as the land pattern. This is to ensure adequate printed solder paste volume and yet no shorting.



Note:

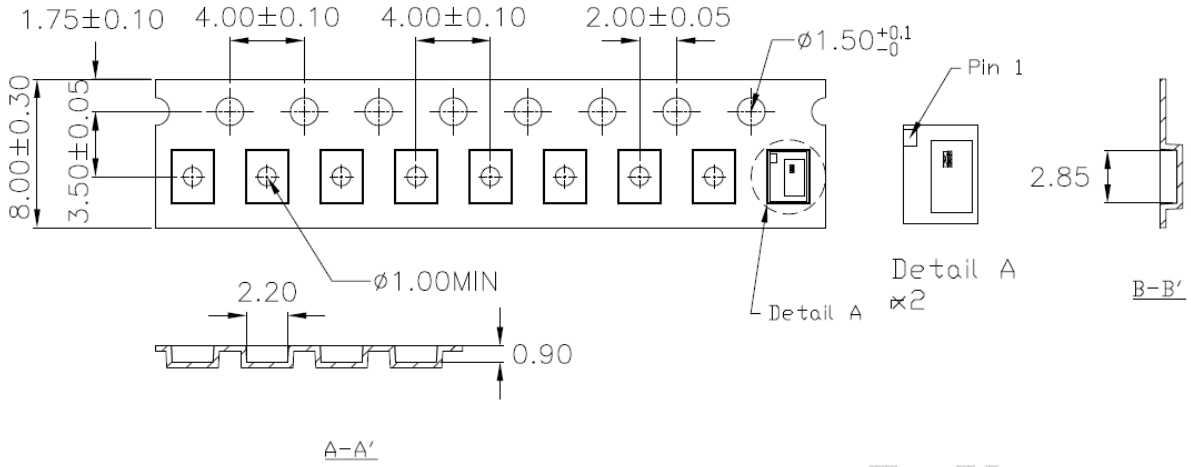
1. All dimensions are in millimeters

Preliminary

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

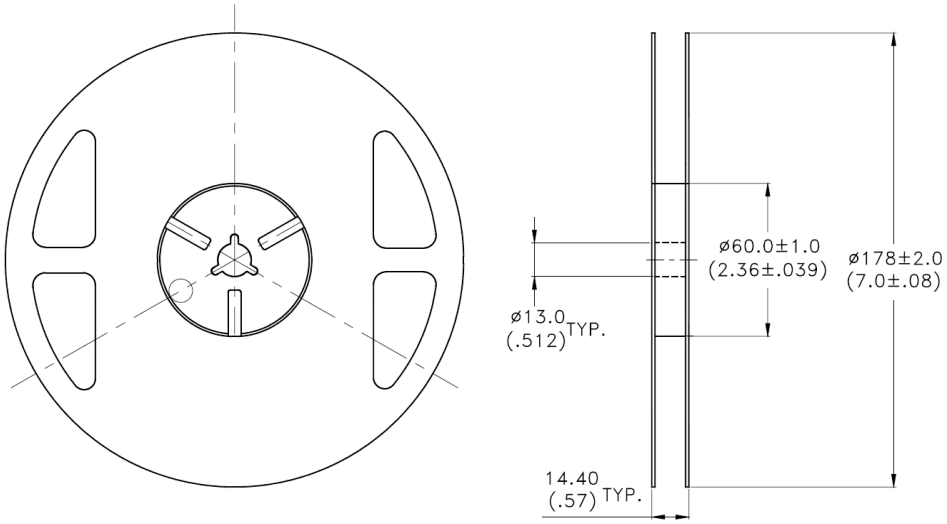
13. Package Dimension for Tape and Reel



Note:

1. All dimensions are in millimeters

Package Dimension of Reel



Notes:

1. All dimensions are in millimeters (inches)
2. Empty component pockets sealed with top cover tape
3. 7 inch reel - 2500 pieces per reel
4. In accordance with ANSI/EIA 481-1-A-1994 specifications

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until LTC releases this product for general sales, LTC reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime

Downloaded From Oneyac.com

ONEYAC 唯样商城 | 电子元器件线上授权代理开拓者
原厂授权 · 正品现货 · 一件即发

单击下面可查看定价，库存，交付和生命周期等信息

>>Lite-On(光宝)

Downloaded From Oneyac.com