



## Description

The TD101X series combine an AlGaAs infrared emitting diode as the emitter which is optically coupled to a silicon planar phototransistor detector in a plastic LSO package with the robust coplanar double mold structure.

TD101X series provide the most stable isolation feature.

## Features

High isolation (000) +S

Temperature flexibility available see order information

DI, input with transistor output

Operating temperature range: (-40 to 110 °C)

Output current: 1A, RoHS compliance

UL class 1

Regulatory Approvals

2L, 2L1(33)

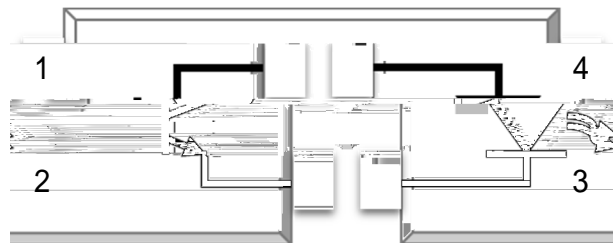
1D1, 1450313, (6)D10771, (8)

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## Applications

- Switch mode power supplies
- Programmable controllers
- Household appliances
- Office equipment

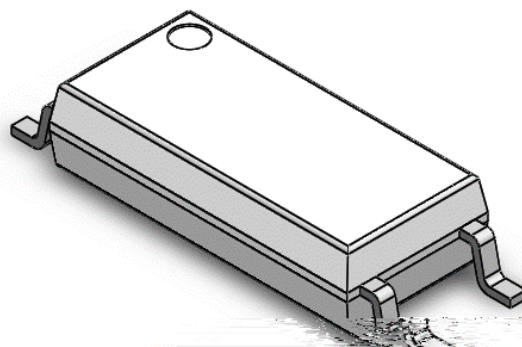
## SCHEMATIC



## PIN DEFINITION

1. Anode
2. Cathode
3. Emitter
4. Collector

## PACKAGE OUTLINE





A ' SO# " TE MA (IM " M ) ATIN ! S				
A * A+ 1T1 *	S@+ ; OL	)AL21	24AT	4OT1
A4 2T				
Borward , urrent	A <sub>B</sub>	50	mA	
ea" Borward , urrent	A <sub>B</sub>	1	A	1
* e&erse )oltage	) *	5	)	
Anput ower Dissipation	A	100	m\$	
O2T 2T				
, ollector . 1mitter )oltage	) , 10	70	)	
1mitter . , ollector )oltage	) 1 , 0	3	)	
, ollector , urrent	A ,	(0	mA	
Output ower Dissipation	o	1(0	m\$	
, O+ +O4				
Total ower Dissipation	tot	?(0	m\$	
Asolation )oltage	) iso	(000	) rms	?
Operating Temperature	Topr	.( (C110	/ ,	
Storage Temperature	Tstg	.( (C1?(	/ ,	
Soldering Temperature	Tsol	?50	/ ,	

Note 1. 100µs pulse, 100Hz frequency

Note 2. AC For 1 Minute, R.H. = 40 ~ 60%



ELECTRICAL CHARACTERISTICS at Ta=25°C							
Symbol	Unit	Min	Typ	Max	Test Conditions	Notes	Ref
Forward Voltage (V <sub>F</sub> )	V	1.8	2.0	2.2	I <sub>F</sub> = 10mA, I <sub>R</sub> = 0		
Reverse Current (I <sub>R</sub> )	μA	1	5	10	V <sub>R</sub> = 5V, I <sub>F</sub> = 0		
Input Capacitance (C <sub>i</sub> )	pF	0	5	10	f = 1MHz, V <sub>R</sub> = 0V		
Collector Current (I <sub>C</sub> )	mA	0	100	100	V <sub>CE</sub> = 5V, I <sub>B</sub> = 10mA		
Collector-Emitter Saturation Voltage (V <sub>CE(sat)</sub> )	V	0.7	0.8	1.0	I <sub>C</sub> = 10mA, I <sub>B</sub> = 10mA		
Emitter-B Junction Capacitance (C <sub>je</sub> )	pF	0	1	1	f = 1MHz, V <sub>CE</sub> = 0V		
Turn-off Frequency (f <sub>off</sub> )	MHz	0	70	70	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA, I <sub>B</sub> = 10mA		
Response Time (t <sub>rise</sub> )	ns	0	17	17	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA, I <sub>B</sub> = 10mA		
Response Time (t <sub>fall</sub> )	ns	0	5	17	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA, I <sub>B</sub> = 10mA		
Collector-Emitter Isolation Resistance (R <sub>iso</sub> )	Ω	10 <sup>11</sup>	10 <sup>11</sup>	10 <sup>11</sup>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA		
Bloating Capacitance (C <sub>blo</sub> )	pF	0	0	1	f = 1MHz, V <sub>CE</sub> = 0V		
Turn-off Frequency (f <sub>off</sub> )	MHz	0	70	70	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA, I <sub>B</sub> = 10mA		
Response Time (t <sub>rise</sub> )	ns	0	17	17	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA, I <sub>B</sub> = 10mA		
Response Time (t <sub>fall</sub> )	ns	0	5	17	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA, I <sub>B</sub> = 10mA		

Note 3. Fig.12&13

Note 4. Fig.14



CHARACTERISTICS - ES

Fig. 1 Forward Current vs. Ambient Temperature

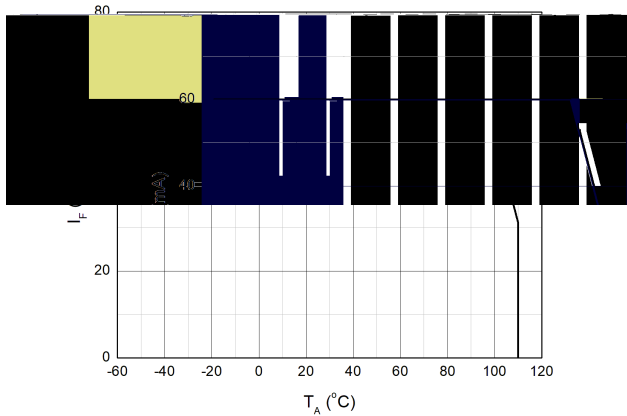


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

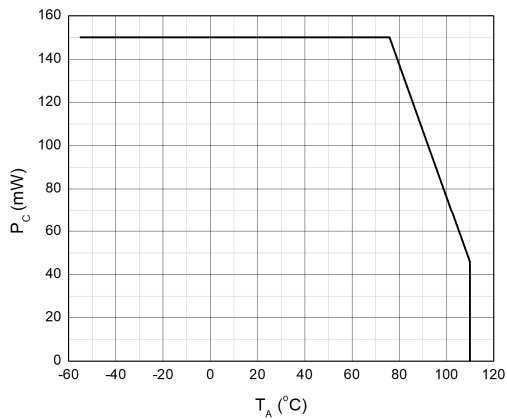


Fig. 3 Forward Current vs. Forward Voltage

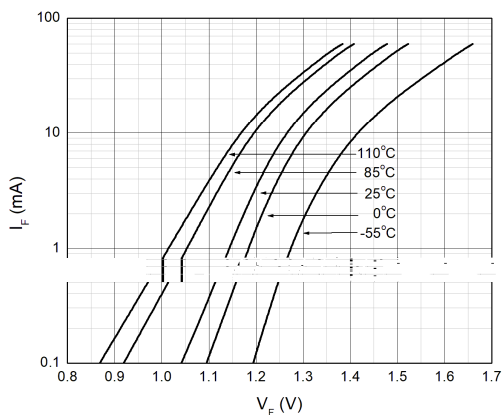


Fig. 4 Collector Dark Current vs. Ambient Temperature

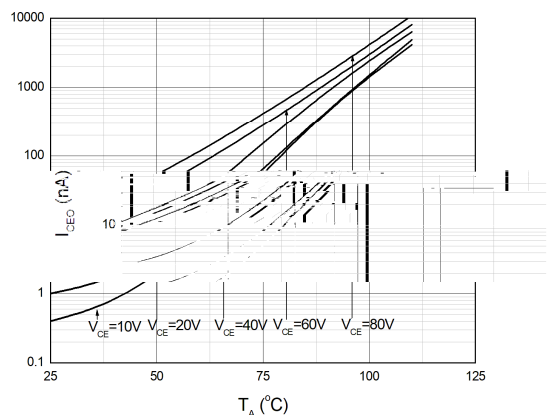


Fig. 5 Collector Current vs. Collector-Emitter Voltage

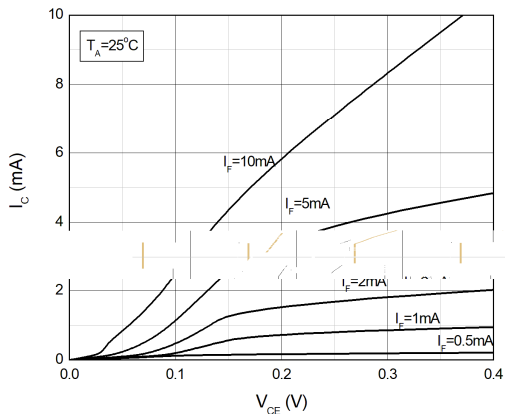
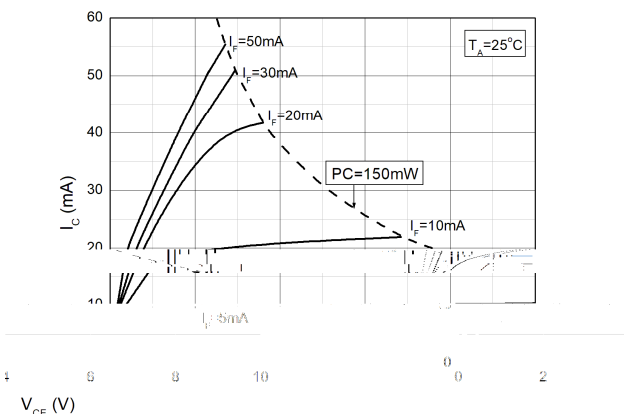


Fig. 6 Collector Current vs. Collector-Emitter Voltage





CHARACTERISTIC CURVES

Fig. 5 Normalized Current Transfer Ratio vs. Forward Current

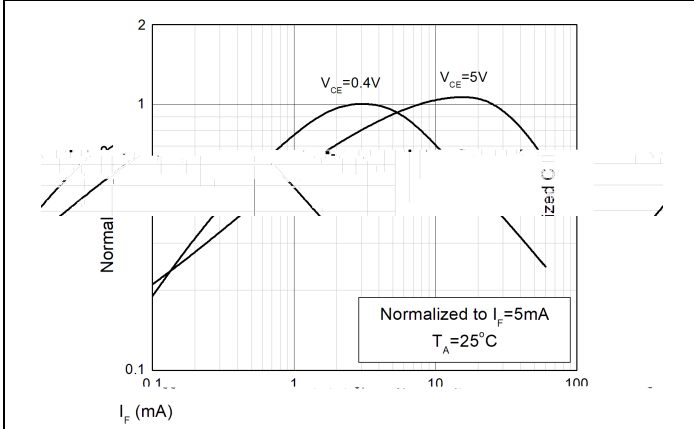


Fig. 8 Normalized Current Transfer Ratio vs. Ambient Temperature

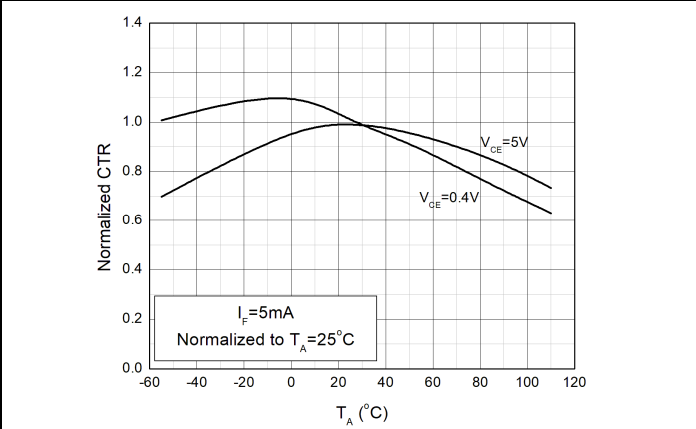


Fig. 9 Collector-Emitter Saturation Voltage vs. Ambient Temperature

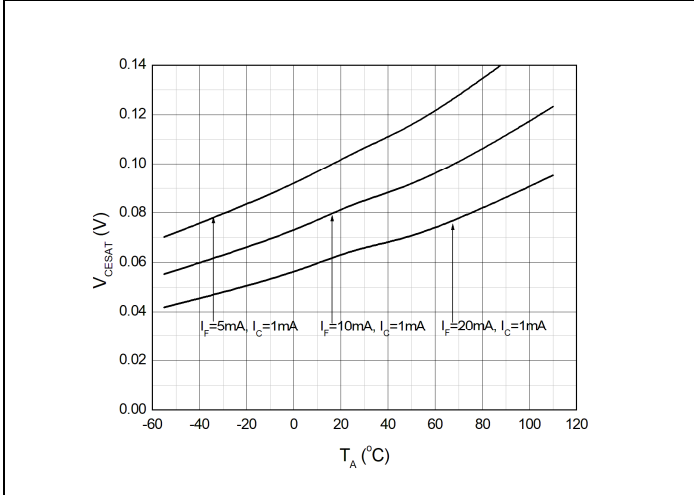


Fig. 10 Switching Time vs. Load Resistance

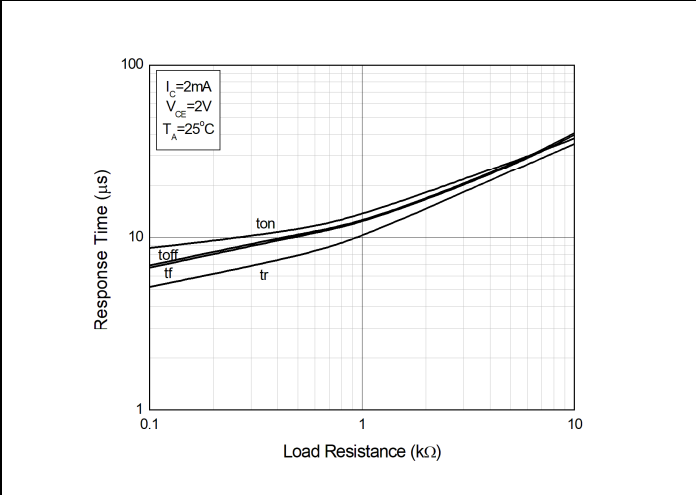
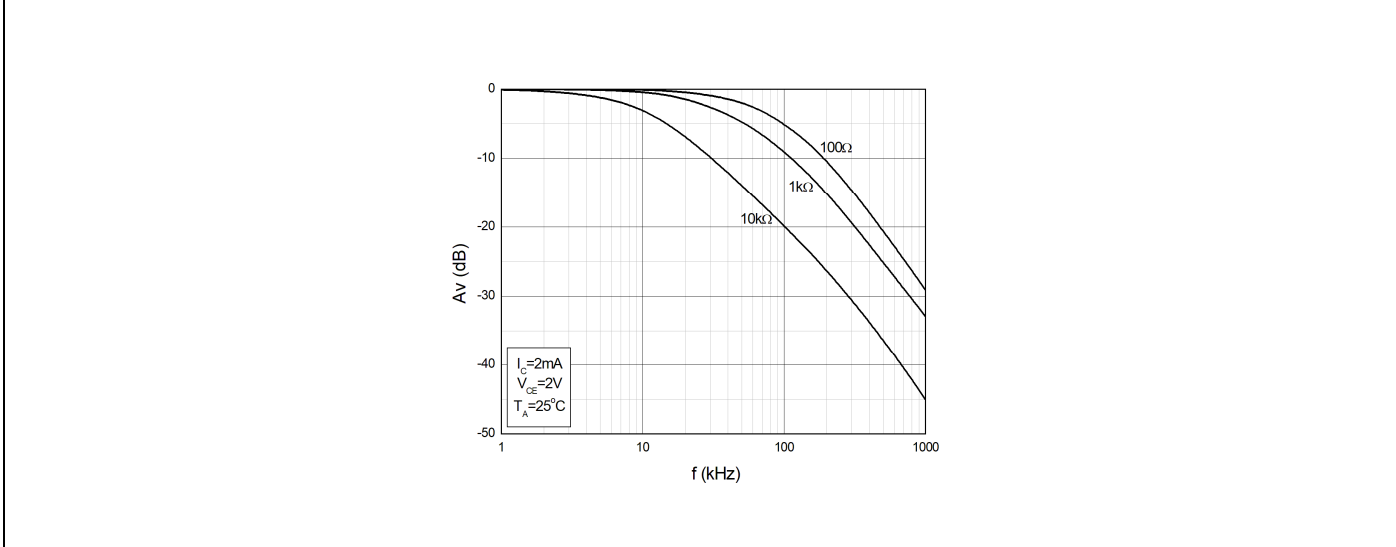


Fig. 11 Frequency Response



TEST CIRCUITS

Fig. 12 Test Circuit of Forward Time

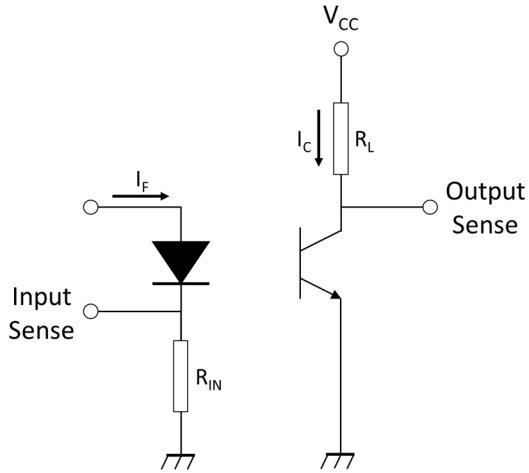


Fig. 13 Characteristic of Forward Time

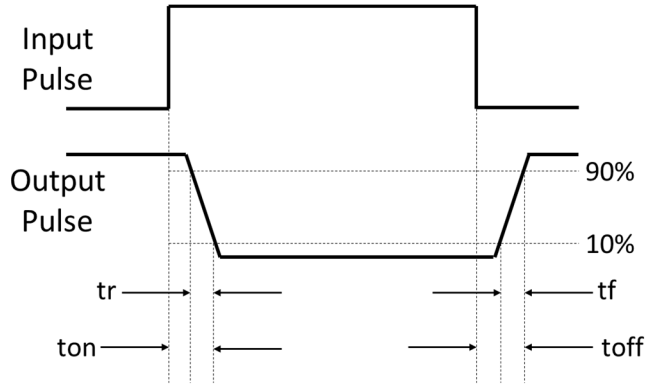
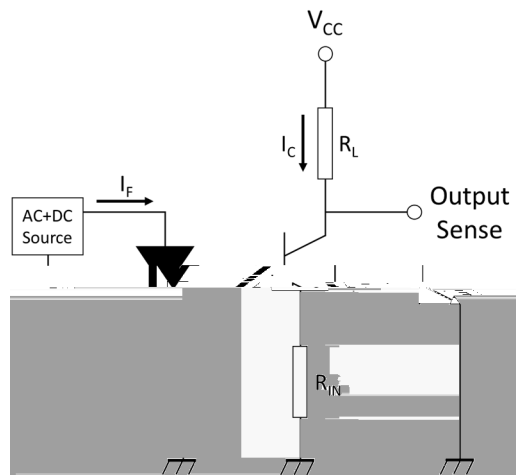
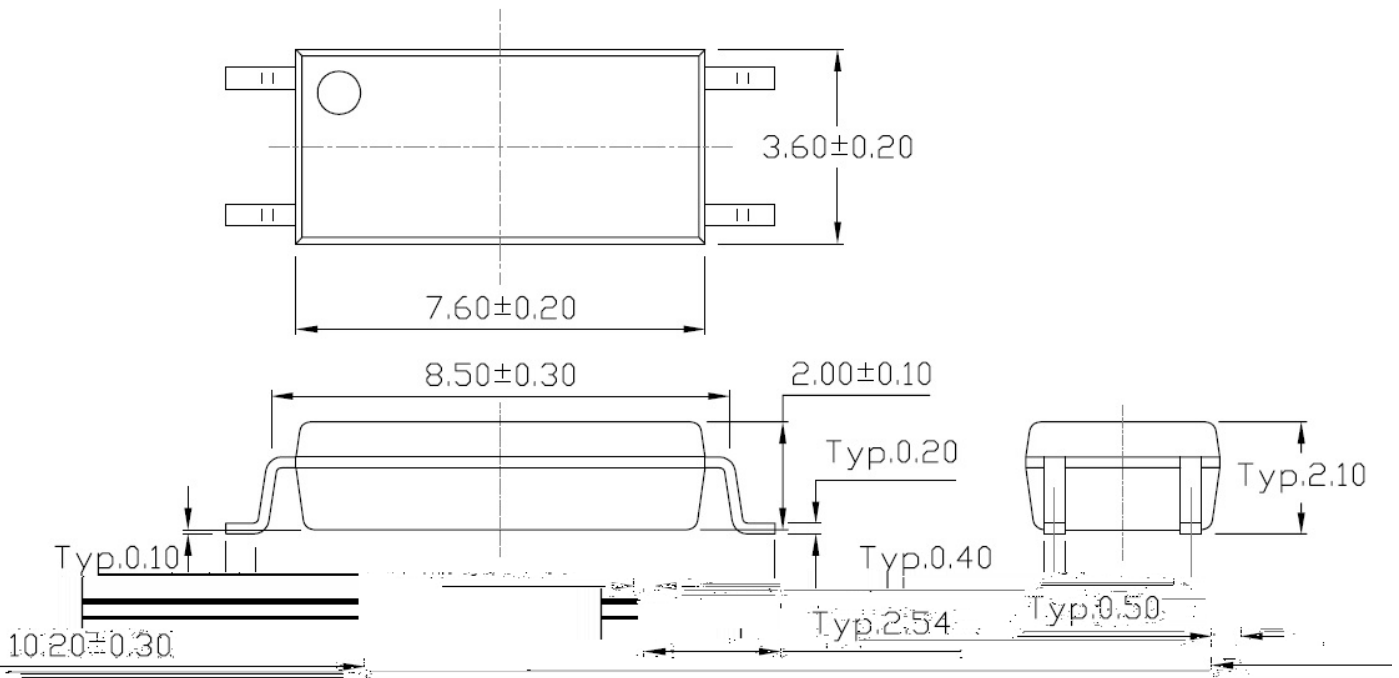


Fig. 14 Test Circuit of Reverse Time

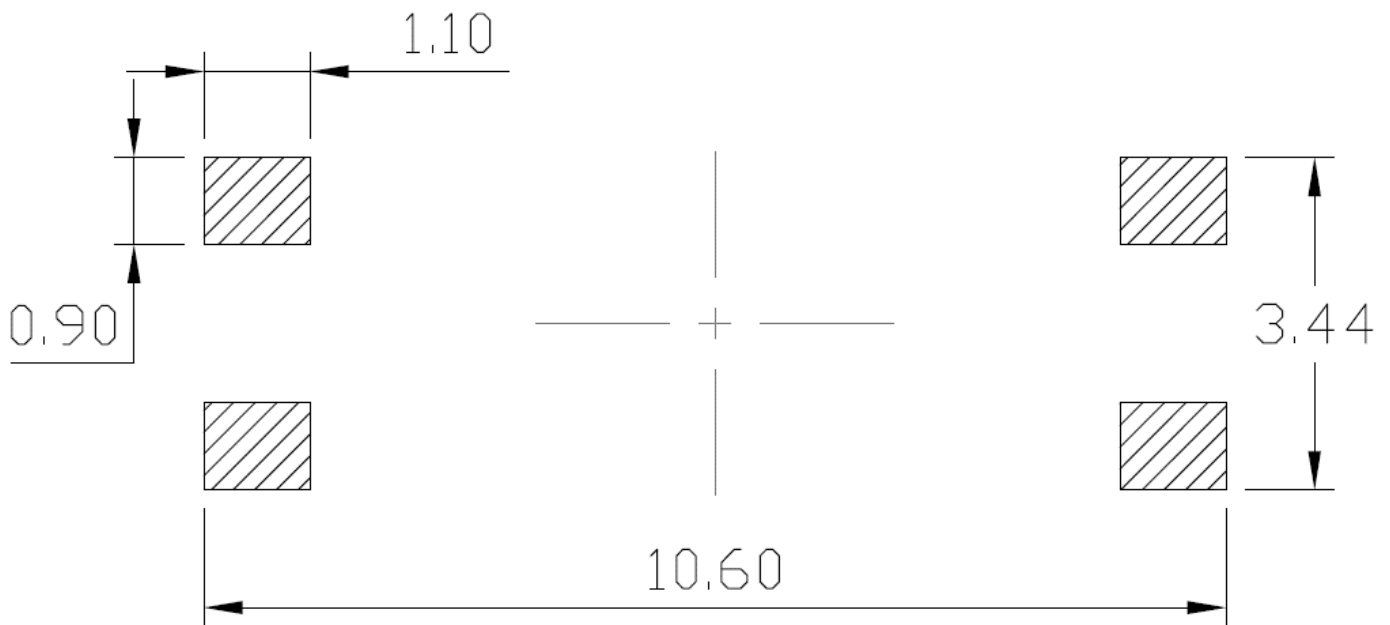




**PAC A ! E DIMENSIONS (Dimension\$ in mm & nle\$\$ other / i\$e \$tated=**



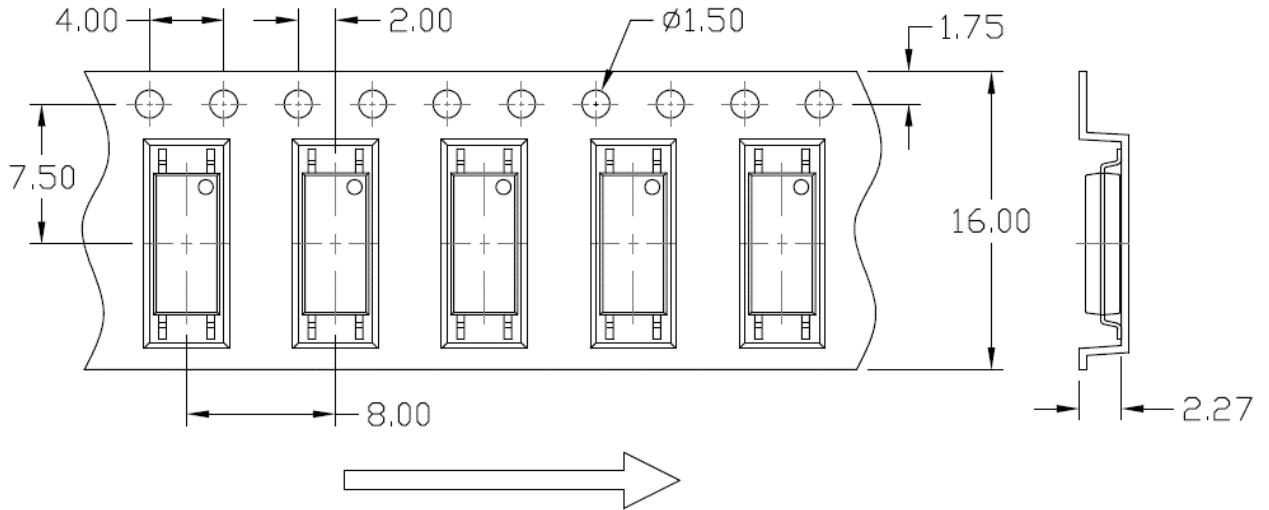
**) ECOMMENDED SO#DE ) MAS (Dimension\$ in mm & nle\$\$ other / i\$e \$tated=**



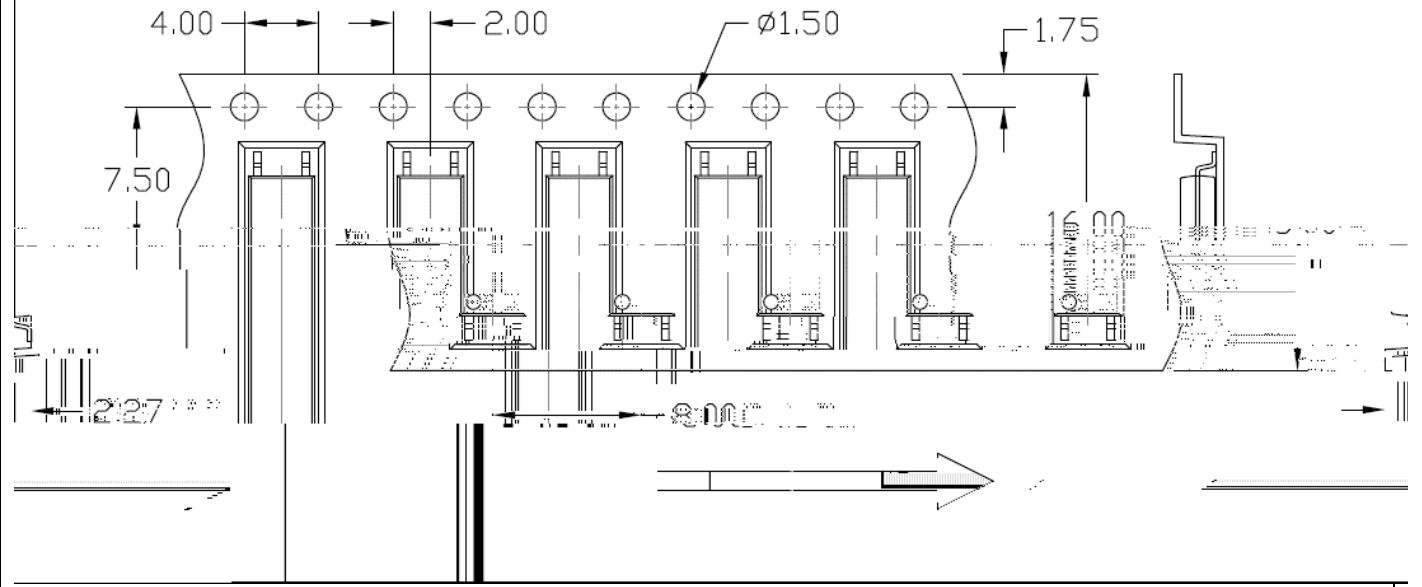


# CA ) IE ) TAPE SPECIFICATIONS (Dimension\$ in mm &nle\$\$ other / ise \$stated=

## O%tion T1



## O%tion T2

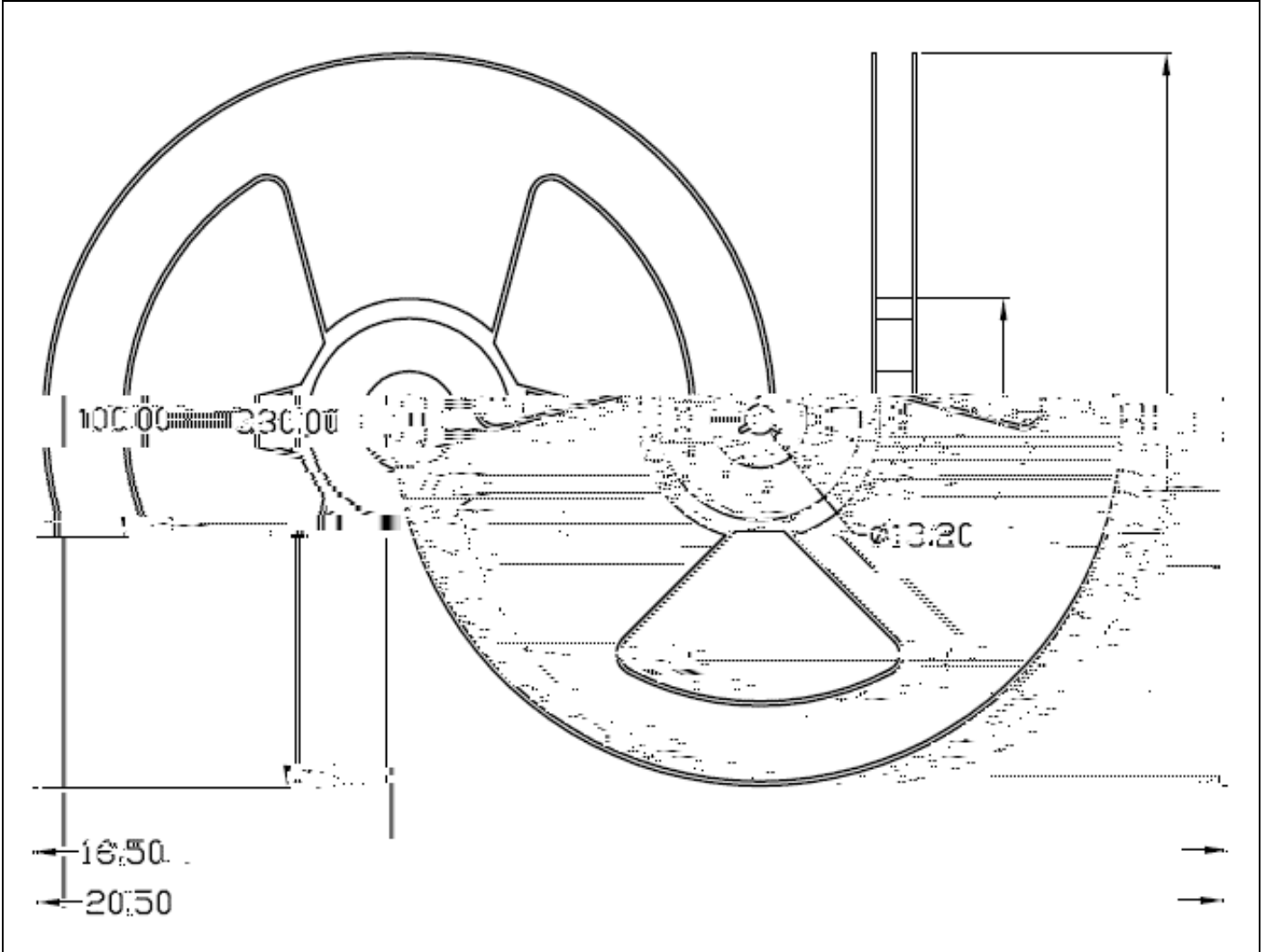






) EE# SPECIFICATIONS (Dimension\$ in mm &nle\$\$ other / i\$e \$tated=

O%tion T1 > T2





' O( SPECIFICATIONS ( ) eel T<%e=

Inner ' o?

L x W x H = 36cm x 36cm x 6.9cm



**O)DE)IN! AND MA) IN! INFO)MATION**

**MA) IN! INFO)MATION**



**TD**      @ Com%an< A11r.  
**1:1(**    @ Part N&m1er > )an2  
**-**        @ -DE O%tion  
**A**        @ Fi\$cal Aear  
**A**        @ Man&7act&rin. Code  
**B B**     @ Bor2 Bee2

**O)DE)IN! INFO)MATION**

**#A 'E# INFO)MATION**

**TD1:1 (CD=3! -**

TD : , ompany Abbr#  
 101X : \* an" 60J1J?J=J!J(J5J3J7J<8  
 K : Tape and \* eel Option 6T1JT?8  
 G : Green  
 ) : )D1 Option 6) or 4one8



**福建天电光电有限公司**  
FUJIAN LIGHTNING OPTOELECTRONIC CO., LTD.

Part No : XXXXXXXXXXXXX      Bin Code : X



Lot No : XXXXXXXXXXXX

Date Code : XXXX

Q'ty : XXXX pcs





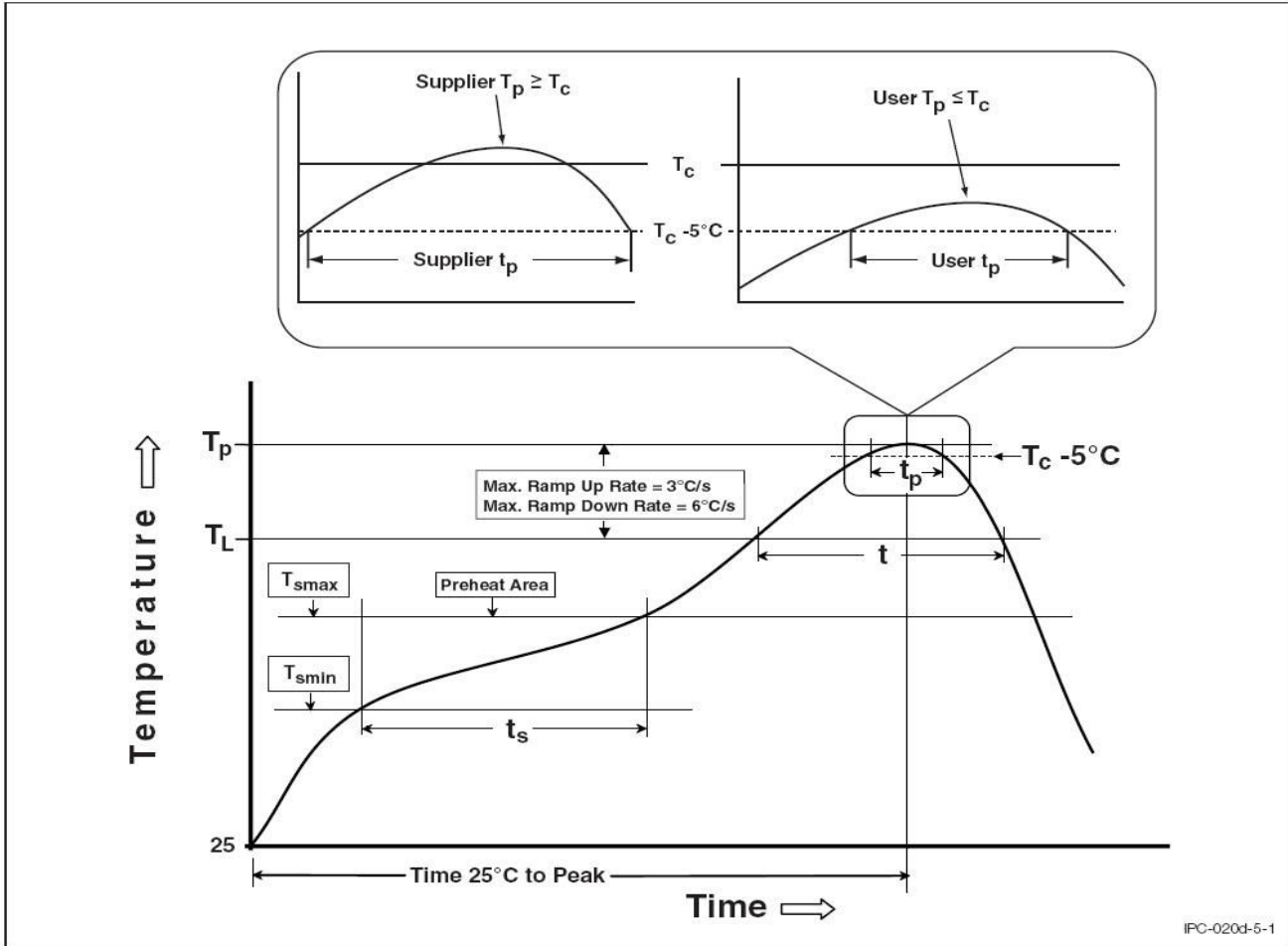
**PAC IN! E" ANTITA**

O%tion	E&antit<	E&antit< F Inner 1o?	E&antit< F O&ter 1o?
T1	=000 2nitsJ * eel	= * eelsJanner bo-	( Anner bo-JOuter bo- D ! (" 2nits
T?	=000 2nitsJ * eel	= * eelsJanner bo-	( Anner bo-JOuter bo- D ! (" 2nits



**)EF#OB INFO)MATION**

**)EF#OB P)OFI#E**



Profile Feature	Sn3P1 Assembly Profile	P13Free Assembly Profile
Temperature +in# 6Tsmi8	100	1 (0/ ,
Temperature +a-# 6Tsm8	1 (0	?00/ ,
Time 6ts8 from 6Tsmi to Tsm8	50.1?0 seconds	50.1?0 seconds
* amp.up * ate 6tL to t 8	=/ , Jsecond ma-#	=/ , Jsecond ma-#
Liquidous Temperature 6TL8	17=/ ,	?13/ ,
Time 6tL8 + aintained Abo&e 6TL8	50 : 1 (0 seconds	50 : 1 (0 seconds
ea" ;ody ac"age Temperature	?=( / , L0/ , J.( / ,	?50/ , L0/ , J.( / ,
Time 6t 8 within ( / , of ?50/ ,	?0 seconds	=0 seconds
* amp.down * ate 6T to TL8	5/ , Jsecond ma-	5/ , Jsecond ma-
Time ?( / , to ea" Temperature	5 minutes ma-#	7 minutes ma-#



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