



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.

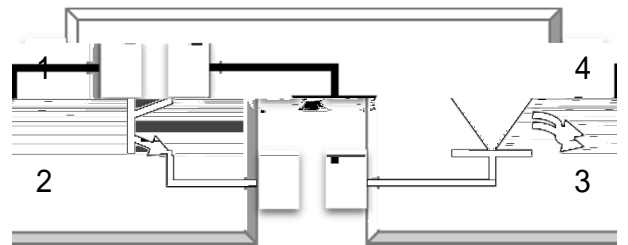
Features

- High isolation (000) * +S
- Temperature flexibility available see order information
- D, input with transistor output
- Operating temperature range . ((/ , to 110 / ,
- $I_{SO} \leq 1A$, , compliance
- +SL class 1
- Regulatory Approvals
 - 2L . 2L1(33)
 -)D1 . 14503!3.(. (6)D1077!. (8
 - , 9 , : G ; !< !=#1% G ; 77<7

Applications

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

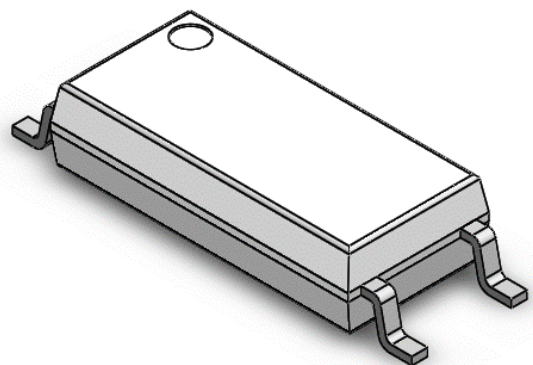
SCHEMATIC



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				
Forward , urrent	A _B	50	mA	
ea" Forward , urrent	A _B	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	/ ,	



ELECTRICAL CHARACTERISTICS at Ta=25°C

Symbol	Unit	Min	Typ	Max	Notes	Test Conditions	Notes
Forward Voltage (V _F)	V	1.1	1.5	1.8		I _F = 10 mA, I _R = 0	
Reverse Current (I _R)	µA	10	10	10	EA	V _R = 5 V	
Input Capacitance (C _{in})	pF	0	0	0		f = 1 MHz, V _{in} = 0 V	
Collector Current (I _C)	nA	0	0	100		V _{CE} = 5 V, I _B = 0	
Collector-Emitter Saturation Voltage (V _{CE(sat)})	V	0.7	0.7	0.7		I _C = 1 mA, I _B = 1 mA	
Emitter-Emitter Saturation Voltage (V _{EE(sat)})	V	0.3	0.3	0.3		I _E = 1 mA, I _B = 1 mA	
TRANSFER CHARACTERISTICS							
Current Transfer Ratio	TD1010	0	0	500	G	I _B = 1 mA, I _C = 1 mA	
	TD101(	0	0	100			
	TD1015	100	0	0			
	TD1013	70	0	150			
	TD1017	10	0	250			
	TD101<	200	0	100			
	TD1011	50	0	0			
	TD101?	5	0	100			
	TD101=	100	0	200			
	TD101!	150	0	20			
	TD101?	??	0	0			
	TD101=	=!	0	0			
	TD101!	(5	0	0			
Collector-Emitter Saturation Voltage (V _{CE(sat)})	V	0.1	0.1	0.1		I _C = 10 mA, I _B = 1 mA	
Isolation Resistance (R _{ISO})	Ω	10 ¹¹	10 ¹¹	0	I	V _{in} = 0 V, I _C = 50 µA	
Bloating Capacitance (C _{AO})	pF	0	0	1		f = 1 MHz, V _{in} = 0 V	
Cutoff Frequency (f _{cut-off})	MHz	0	70	0		f = 1 MHz, I _C = 1 mA, I _B = 1 mA	
Response Time (t _{rise})	ns	0	17	0	Es	I _C = 1 mA, I _B = 1 mA	!
Response Time (t _{fall})	ns	0	5	17	Es	I _C = 1 mA, I _B = 1 mA	!



CHARACTERISTICS - ES

Fi..1 For / ard C&rrent 0\$. Am1ient Tem%erat&re	Fi..2 Collector Po / er Di\$\$i%ation 0\$. Am1ient Tem%erat&re
Fi..3 For / ard C&rrent 0\$. For / ard -olta .e	Fi..4 Collector Dar2 C&rrent 0\$. Am1ient Tem%erat&re

Fi..+ Collector C&rrent
0\$. Collector3emitter -olta .e

Fi..4 Collector C&rrent



CHARACTERISTIC CURVES

Fig. 5 Normalized Current Transfer Ratio vs. Base Current

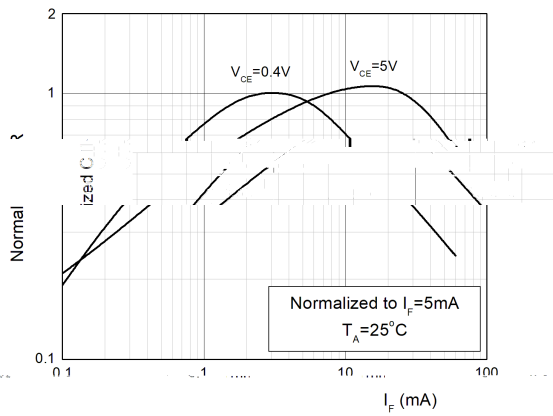


Fig. 8 Normalized Current Transfer Ratio vs. Ambient Temperature

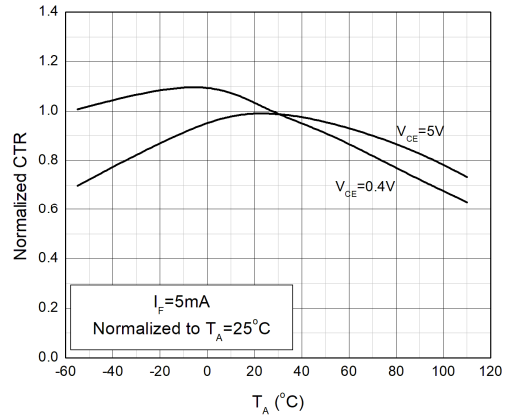


Fig. 9 Collector-Emitter Saturation Voltage vs. Ambient Temperature

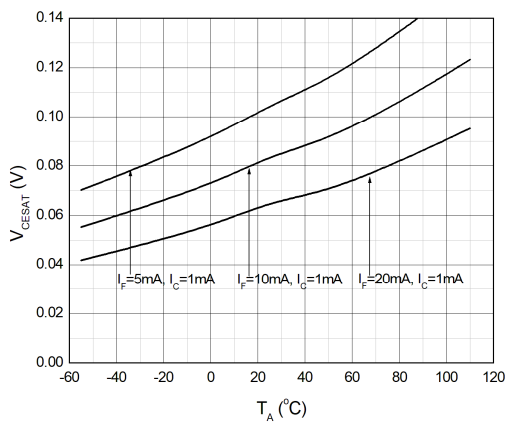


Fig. 10 Switching Time vs. Load Resistance

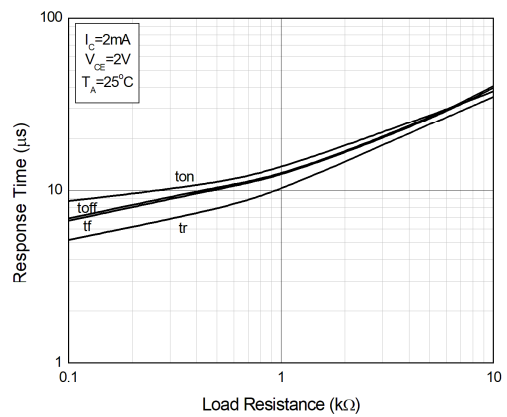
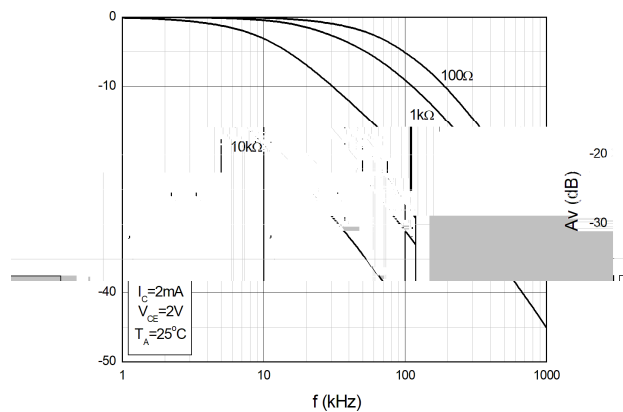


Fig. 11 Frequency Response



TEST CIRCUITS

Fig. 12 Test Circuit of Forward Time

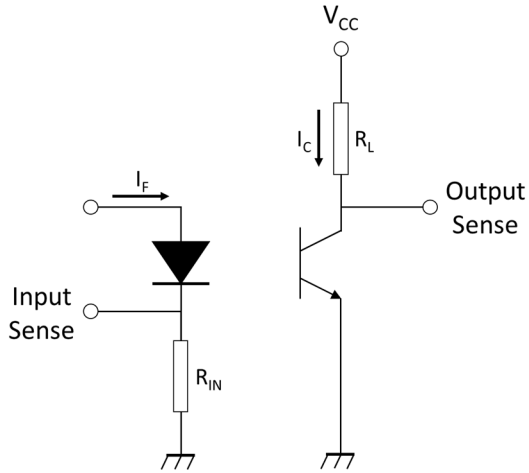


Fig. 13 Characteristic of Forward Time

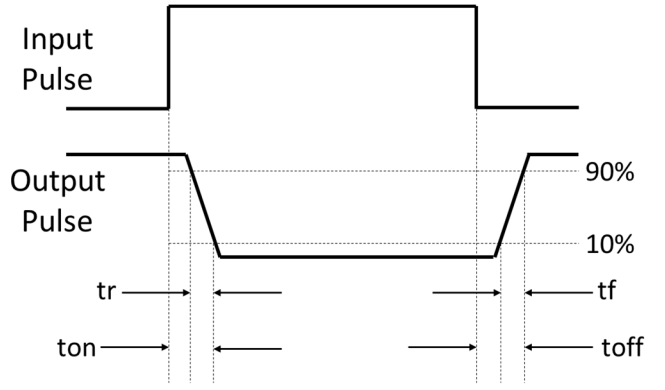
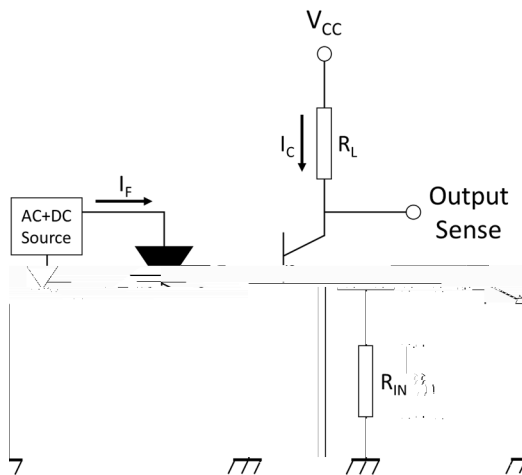
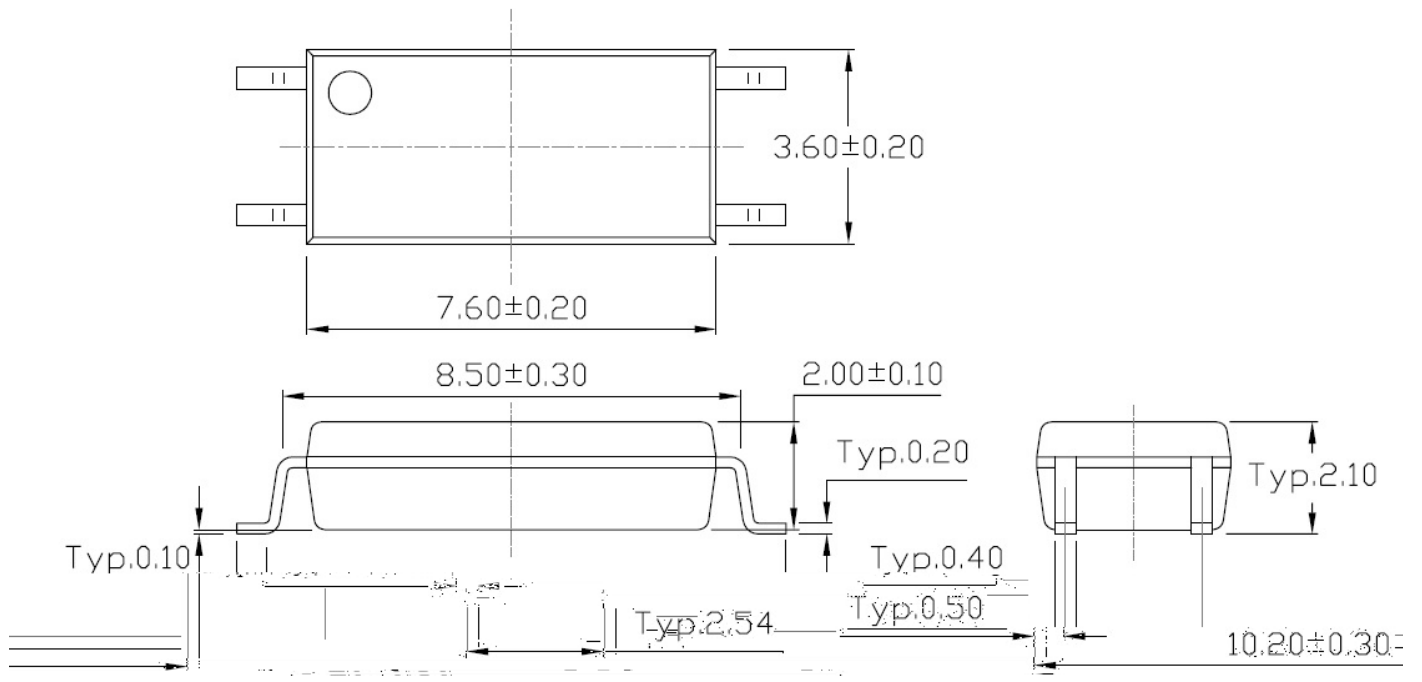


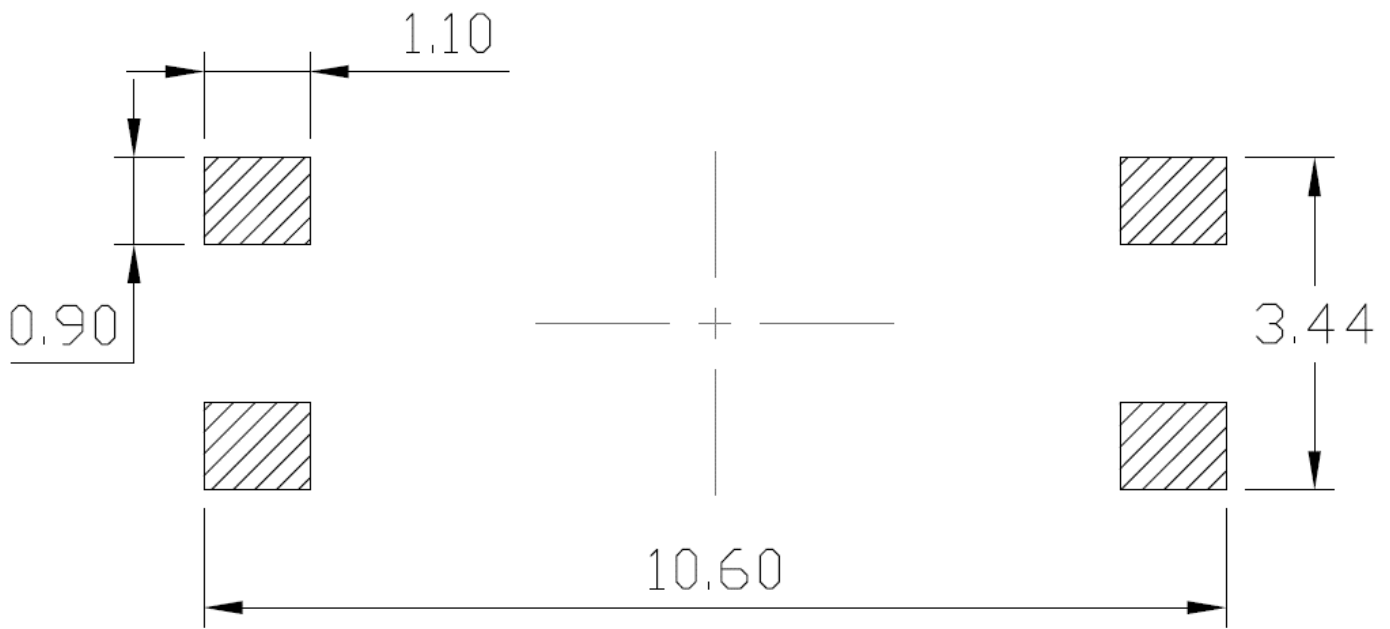
Fig. 14 Test Circuit of Frequency



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

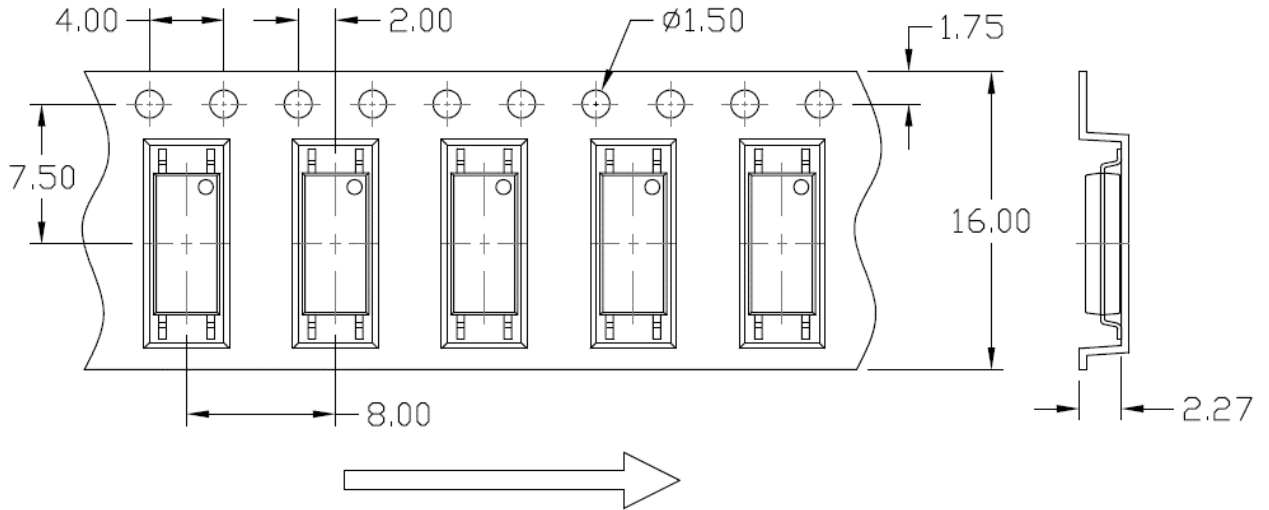


) ECOMMENDED SO#DE) MAS (Dimension\$ in mm & nle\$\$ other / i\$e \$tated=

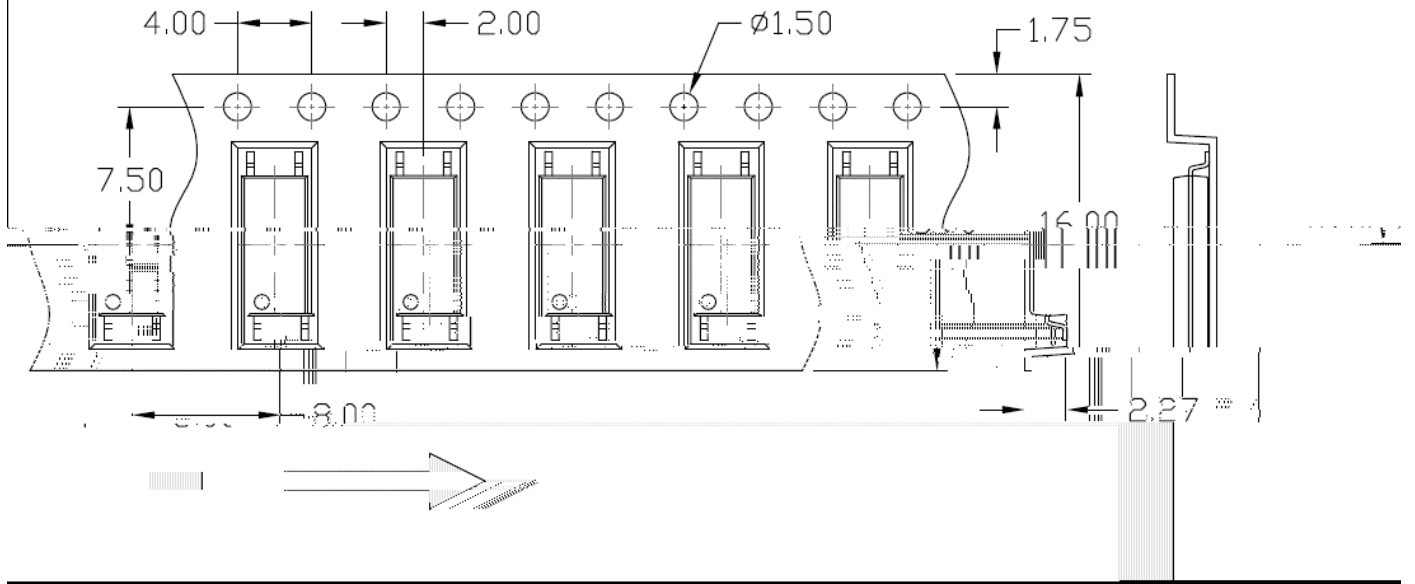


CA) IE) TAPE SPECIFICATIONS (Dimension\$ in mm & nle\$\$ other / i\$e \$tated=

O%tion T1



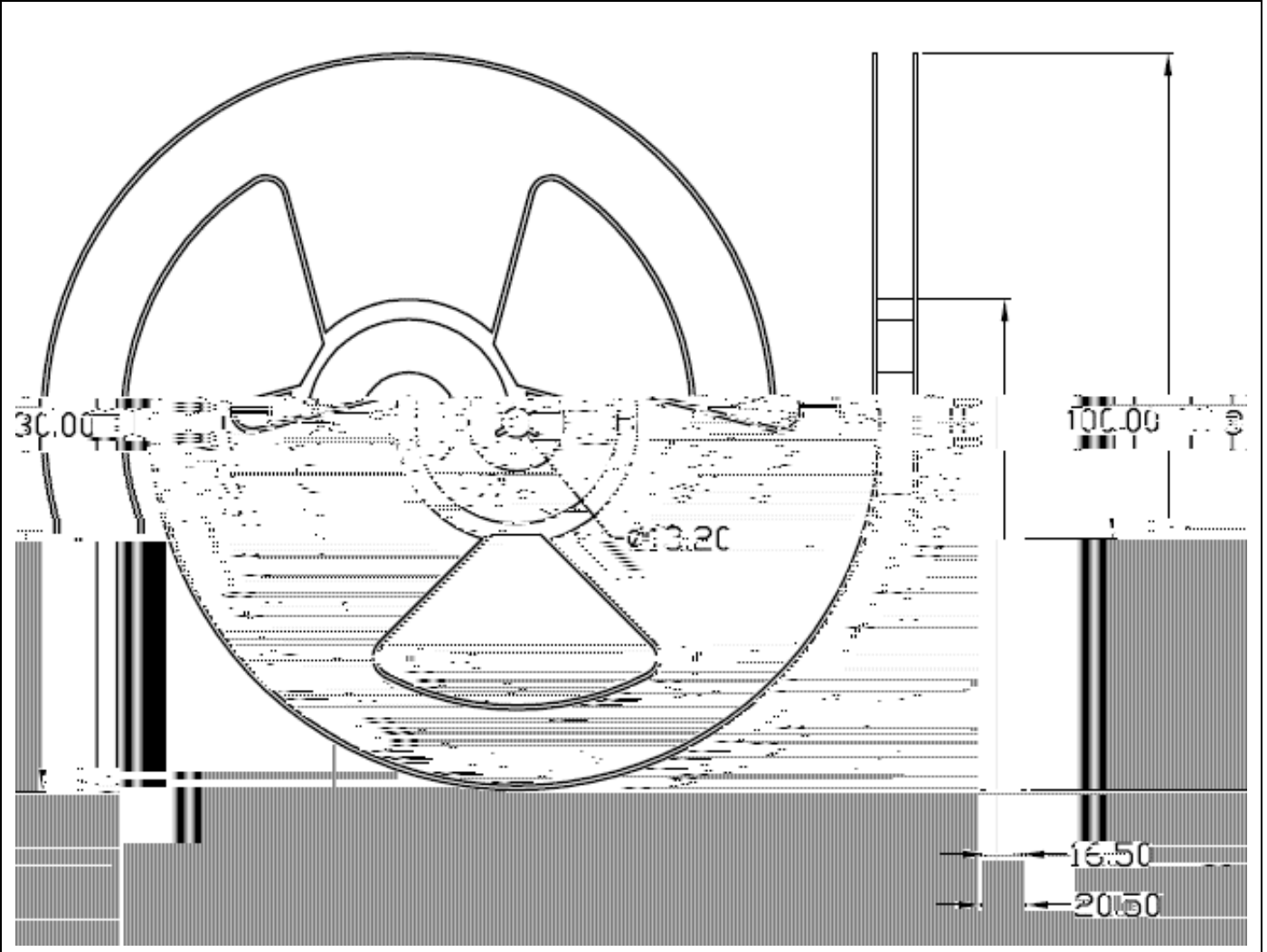
O%tion T2





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

O%tion T1 > T2





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

Inner ' o?



OPTION AND MAIN INFORMATION

MAIN INFORMATION




TD @ Company Abbr#
1:1 @ Part Number
- @ -DE Option
A @ Fiscal Year
A @ Manufacturing Code
BB @ Board Bee2

OPTION INFORMATION

FEATURE INFORMATION


TD1:1 (CD=3! -

TD : , company 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.


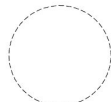

Part No : XXXXXXXXXXXXX Bin Code : X



Lot No : XXXXXXXXXXXX

Date Code : XXXX

Q'ty : XXXX pcs

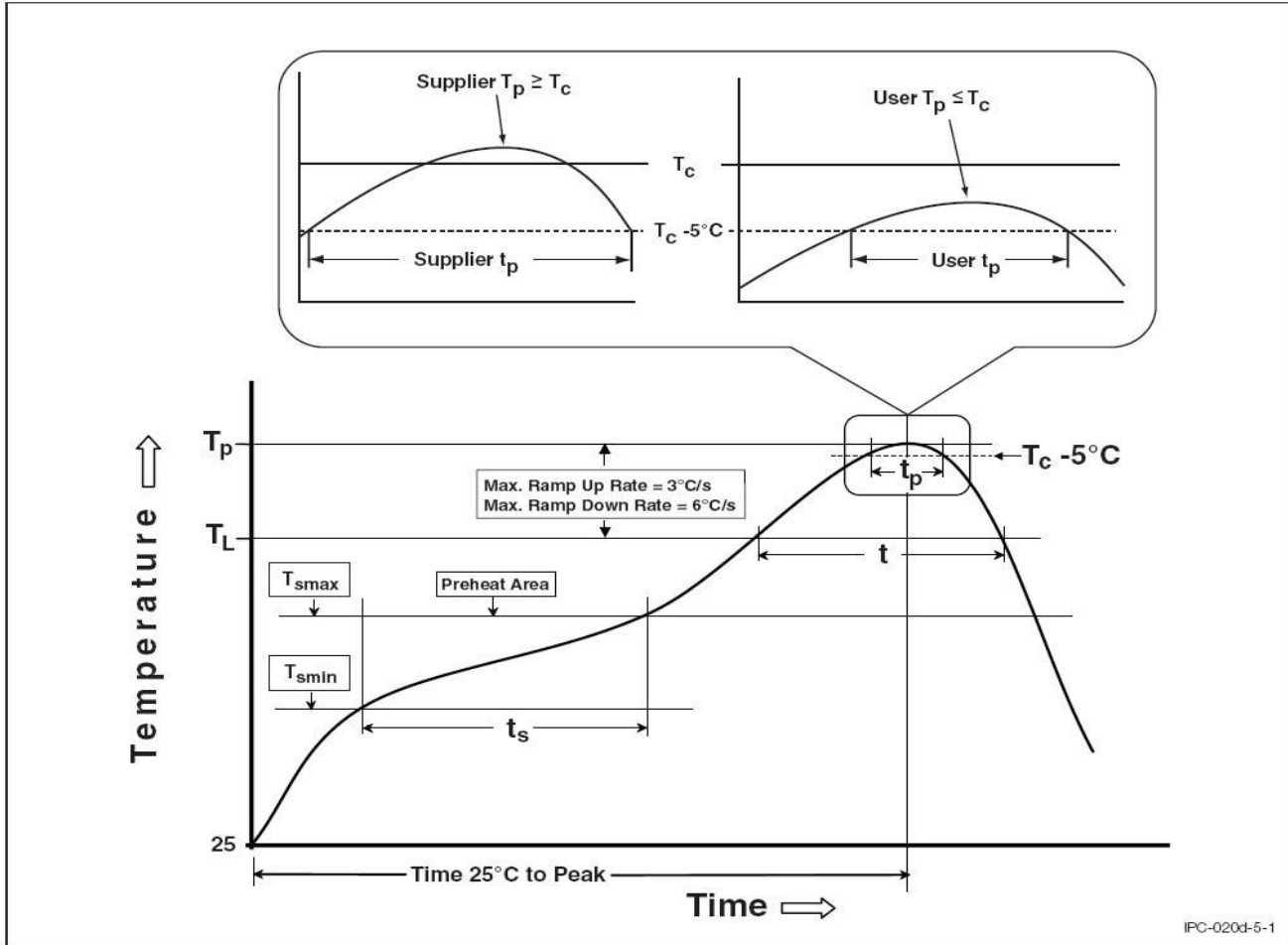




PACKING ANTIFES

Option	ESD Protection	ESD Protection Inner Box?	ESD Protection Outer Box?
T1	=000 2nits! *eel	= *eels! Anner bo-	(Anner bo-JOuter bo- D! (" 2nits
T?	=000 2nits! *eel	= *eels! Anner 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# T_{smin}	100	1 (0/ ,
Temperature +a-# T_{smax}	1 (0	?00/ ,
Time t_s from T_{smin} to T_{smax}	50.1?0 seconds	50.1?0 seconds
* amp.up * ate t_L to t_s	=/ , Jsecond ma-#	=/ , Jsecond ma-#
Liquidous Temperature T_L	17=/ ,	?13/ ,
Time t_L + aintained Abo&e T_L	50 : 1 (0 seconds	50 : 1 (0 seconds
ea" ;ody ac"age Temperature	?=(/ , L0/ , J.(/ ,	?50/ , L0/ , J.(/ ,
Time t_s within (/ , of ?50/ ,	?0 seconds	=0 seconds
* amp.down * ate T_p to T_L	5/ , Jsecond ma-	5/ , Jsecond ma-
Time ?(/ , to ea" Temperature	5 minutes ma-#	7 minutes ma-#



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