

DIP4, DC Input, Photo Transistor Coupler

Description

The TD817 series combine an AlGaAs infrared emitting diode as the emitter which is optically coupled to a silicon planar phototransistor detector in a plastic DIP4 package with different lead forming options.

With the robust coplanar double mold structure, TD817 series provide the most stable isolation feature.

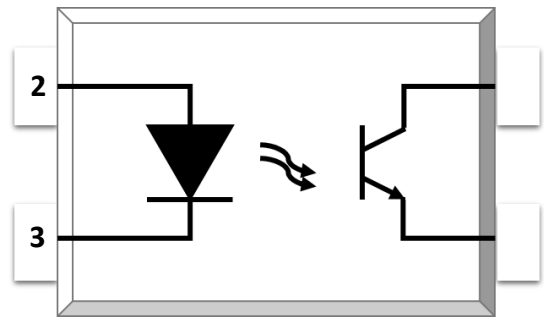
Features

- High isolation 5000 VRMS
- CTR flexibility available see order information
- DC input with transistor output
- Operating temperature range - 55 °C to 110 °C
- REACH compliance
- Halogen free
- MSL class 1
- Regulatory Approvals
 - UL - UL1577
 - VDE - EN60747-5-5(VDE0884-5)
 - CQC – GB4943.1, GB8898

Applications

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

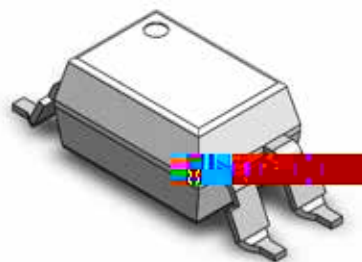
SCHEMATIC



PIN DEFINITION

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

PACKAGE OUTLINE



DIP4, DC Input, Photo Transistor Coupler**ABSOLUTE MAXIMUM RATINGS**

PARAMETER	SYMBOL	VALUE	UNIT	NOTE
INPUT				
Forward Current	I_F	60	mA	
Peak Forward Current	I_{FP}	1	A	1
Reverse Voltage	V_R	6	V	
Input Power Dissipation	P_I	100	mW	
OUTPUT				
Collector - Emitter Voltage	V_{CEO}	35	V	
Emitter - Collector Voltage	V_{ECO}	7	V	
Collector Current	I_C	50	mA	
Output Power Dissipation	P_O	150	mW	
COMMON				
Total Power Dissipation	P_{tot}	200	mW	
Isolation Voltage	V_{iso}	5000	Vrms	2
Operating Temperature	T_{opr}	-55~110	°C	
Storage Temperature	T_{stg}	-55~125	°C	
Soldering Temperature	T_{sol}	260	°C	

Note 1. 100 μ s pulse, 100Hz frequency

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

DIP4, DC Input, Photo Transistor Coupler

ELECTRICAL OPTICAL CHARACTERISTICS at Ta=25°C

PARAMETER	SYMBOL	MIN	TYP.	MAX.	UNIT	TEST CONDITION	NOTE
-----------	--------	-----	------	------	------	----------------	------

INPUT

CHARACTERISTIC CURVES

Fig.1 Forward Current vs. Ambient Temperature

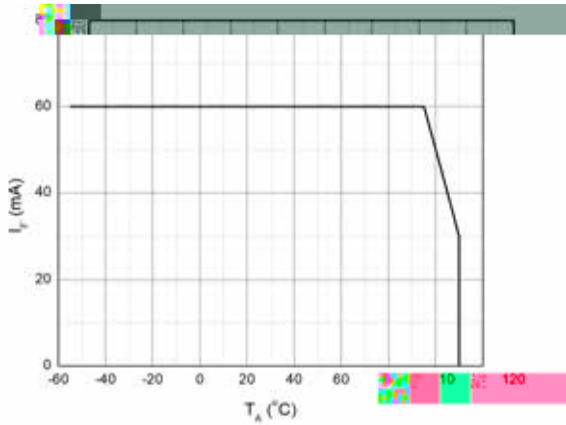


Fig.2 Collector Power Dissipation vs. Ambient Temperature

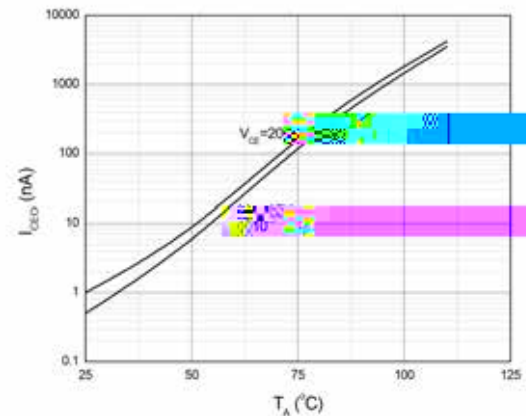


Fig.3 Forward Current vs. Forward Voltage

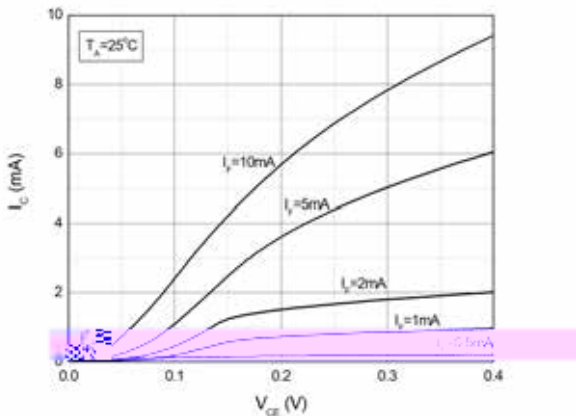


Fig.4 Collector Dark Current vs. Ambient Temperature

Fig.6 Collector Current vs. Collector-emitter Voltage

TD817 Series

TEST CIRCUITS

Fig.12 Test Circuits of Response Time

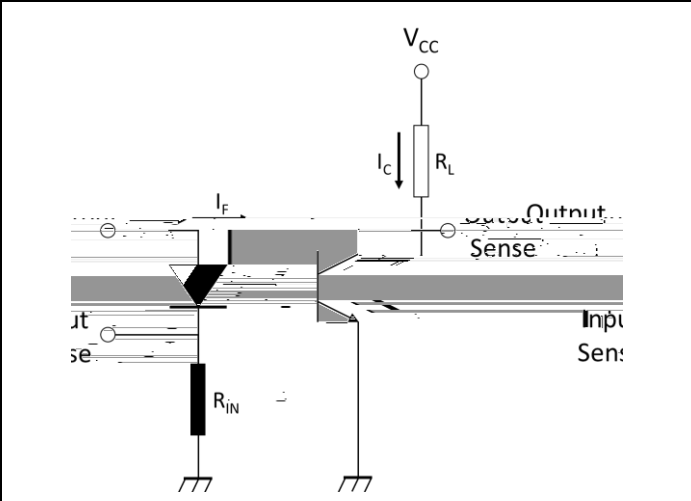


Fig.13 Curves of Response Time

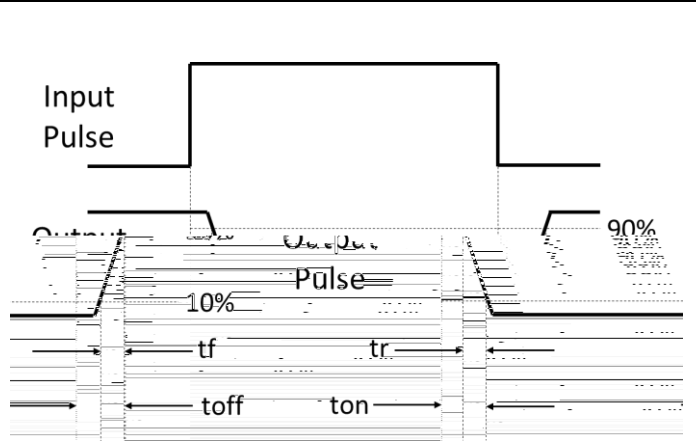
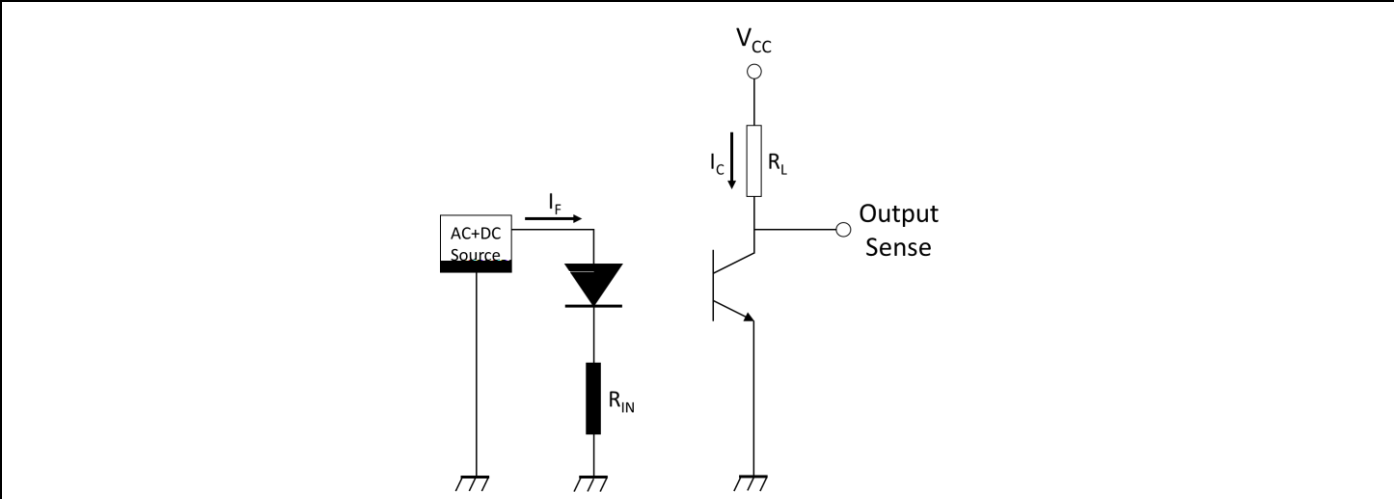


Fig.14 Test Circuits of Frequency Response



DIP4, DC Input, Photo Transistor Coupler

PACKAGE DIMENSIONS Dimensions in mm unless otherwise stated)

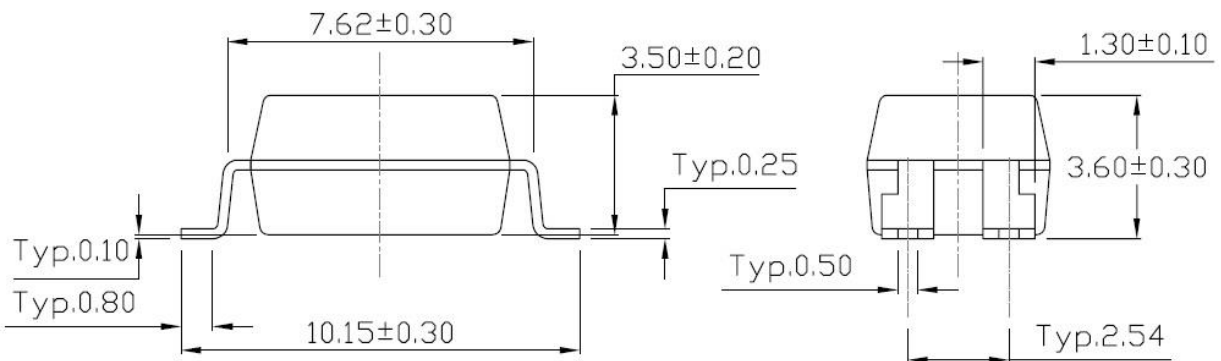
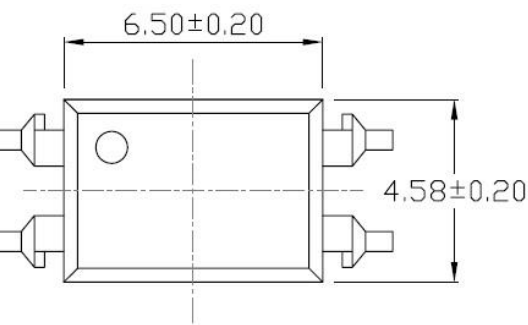
Standard DIP – Through Hole (DIP Type)

Gullwing (400mil) Lead Forming – Through Hole (M Type)

DIP4, DC Input, Photo Transistor Coupler

PACKAGE DIMENSIONS Dimensions in mm unless otherwise stated)

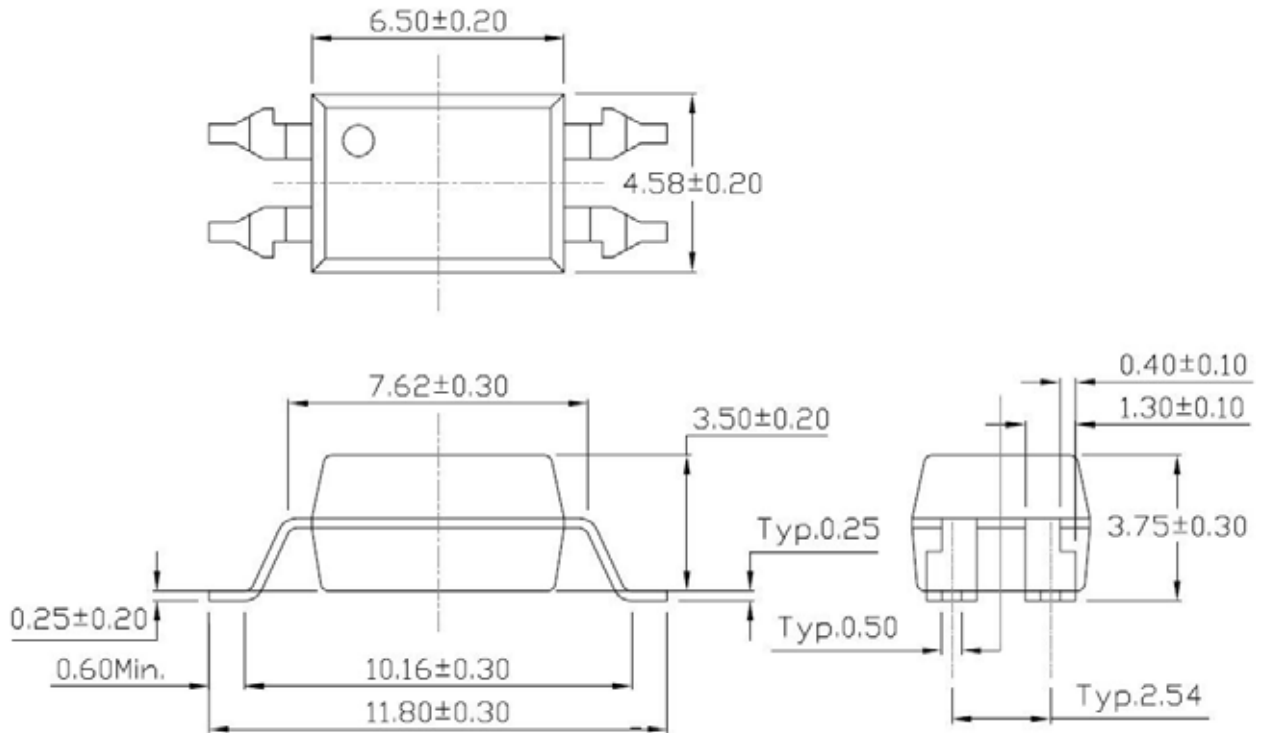
Surface Mount Lead Forming (S Type)



DIP4, DC Input, Photo Transistor Coupler

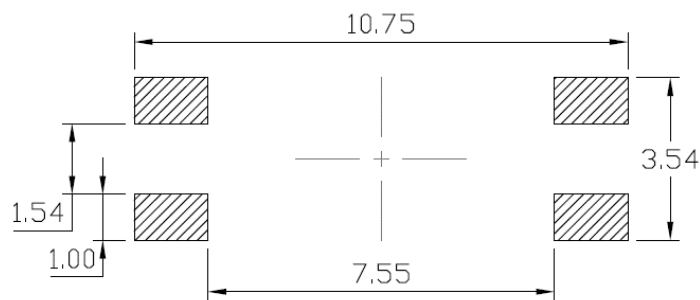
PACKAGE DIMENSIONS Dimensions in mm unless otherwise stated)

Surface Mount (Gullwing) Lead Forming (SLM Type)

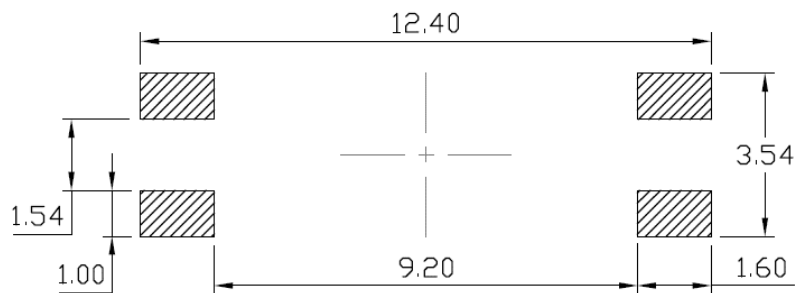


RECOMMENDED SOLDER MASK Dimensions in mm unless otherwise stated)

Surface Mount Lead Forming & Surface Mount (Low Profile) Lead Forming

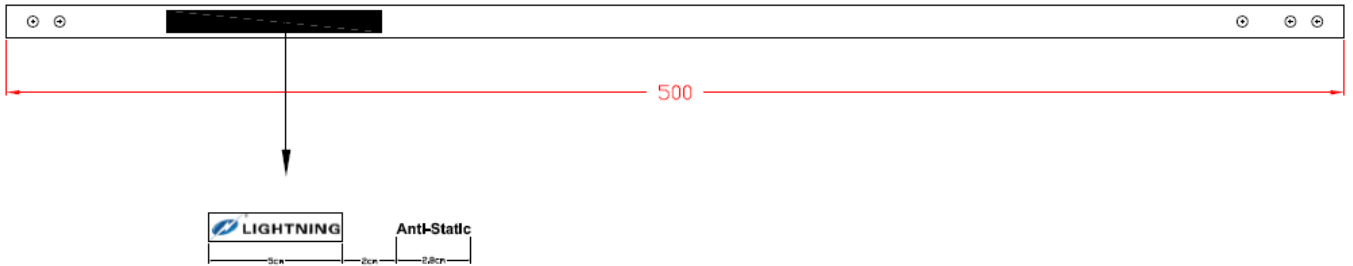
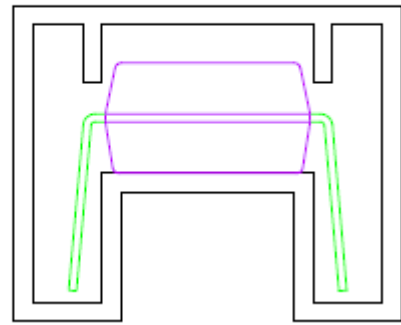
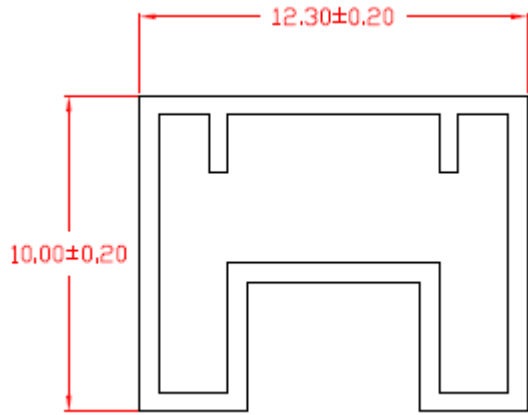


Surface Mount (Gullwing) Lead Forming

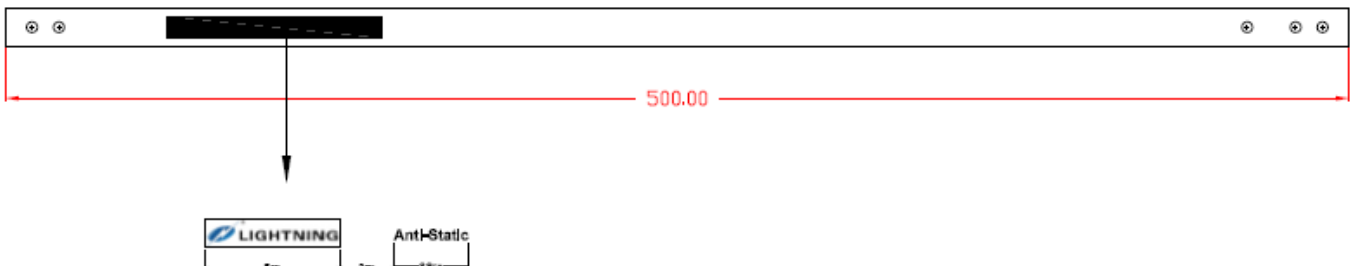
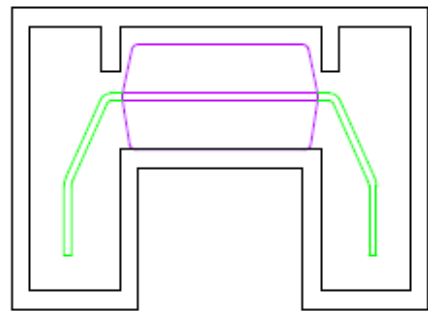
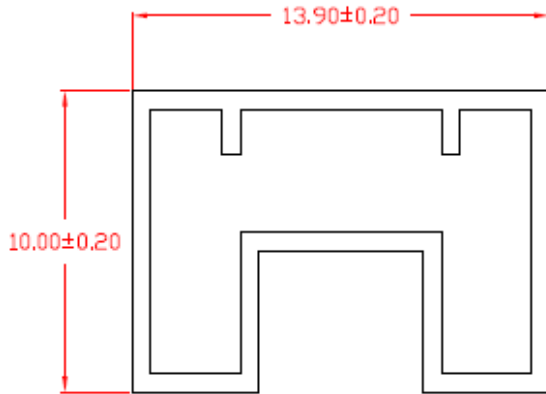


TUBE SPECIFICATIONS Dimensions in mm unless otherwise stated)

Standard DIP



Option M



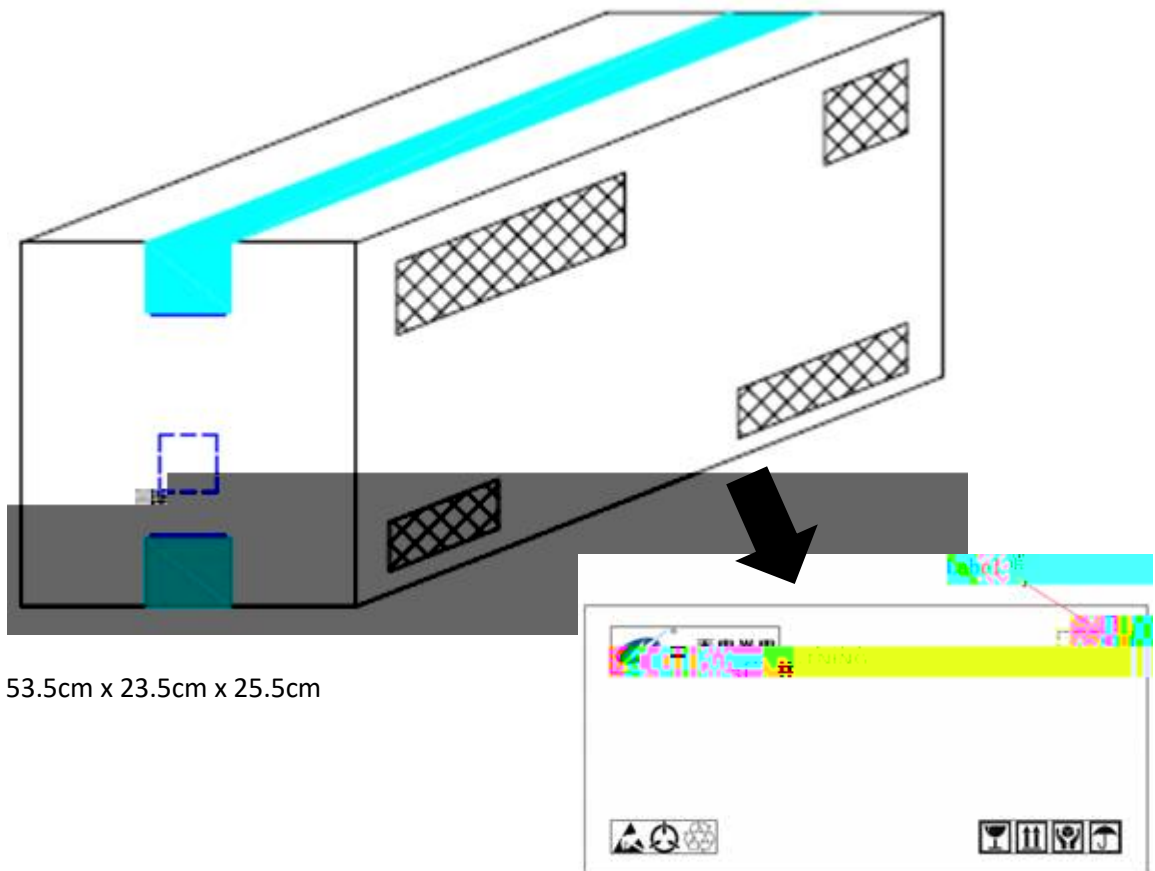
BOX SPECIFICATIONS Tube Type)

Inner Box



L x W x H = 52.5cm x 10.7cm x 4.7cm

Outer Box

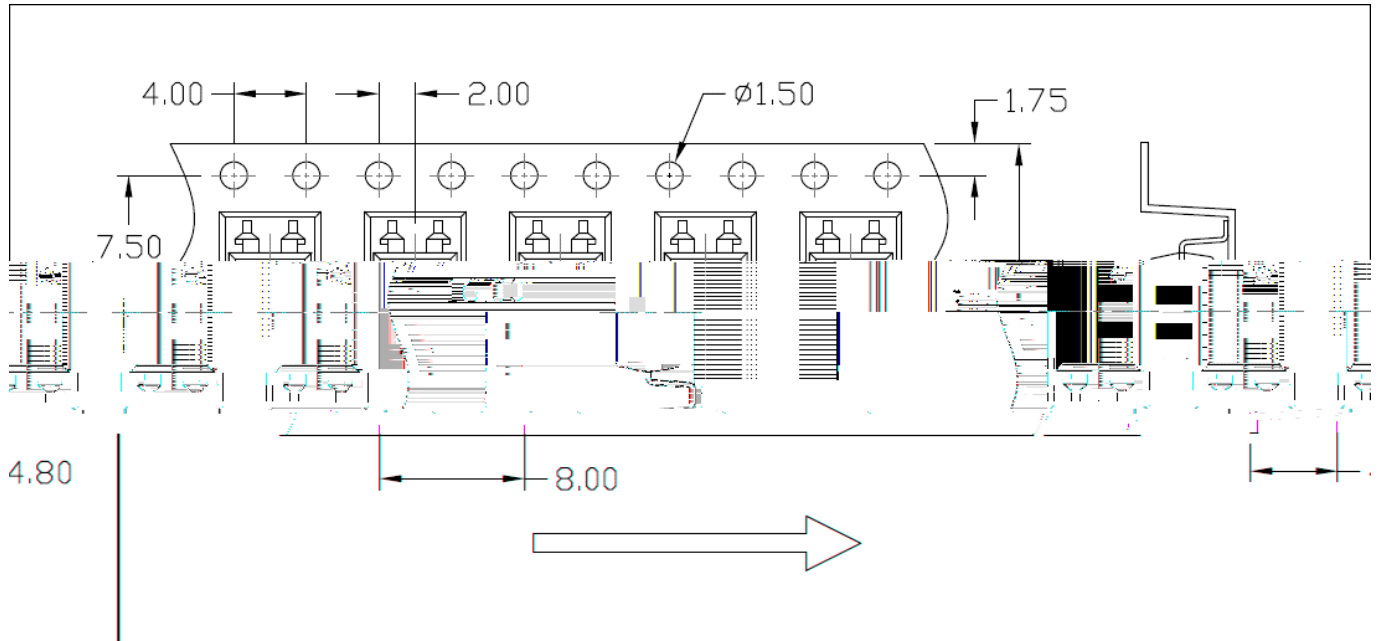


L x W x H = 53.5cm x 23.5cm x 25.5cm

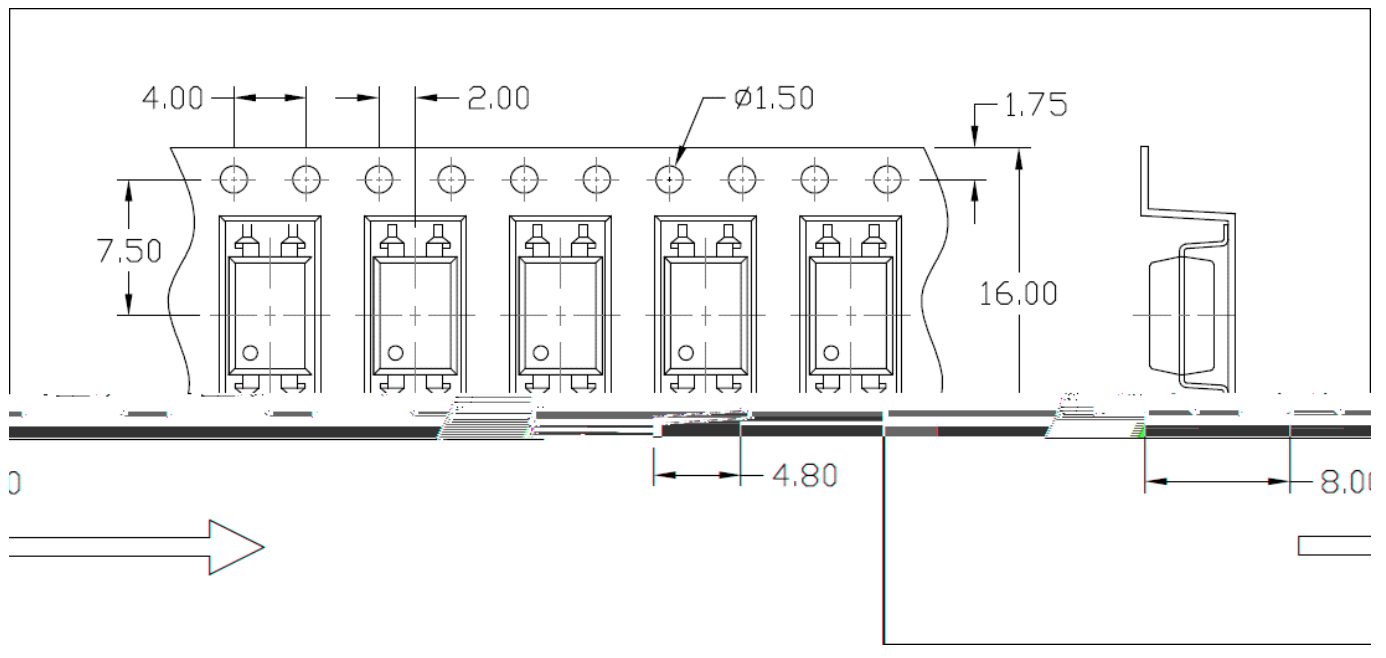
DIP4, DC Input, Photo Transistor Coupler

CARRIER TAPE SPECIFICATIONS Dimensions in mm unless otherwise stated)

Option S(T1) & SL(T1)

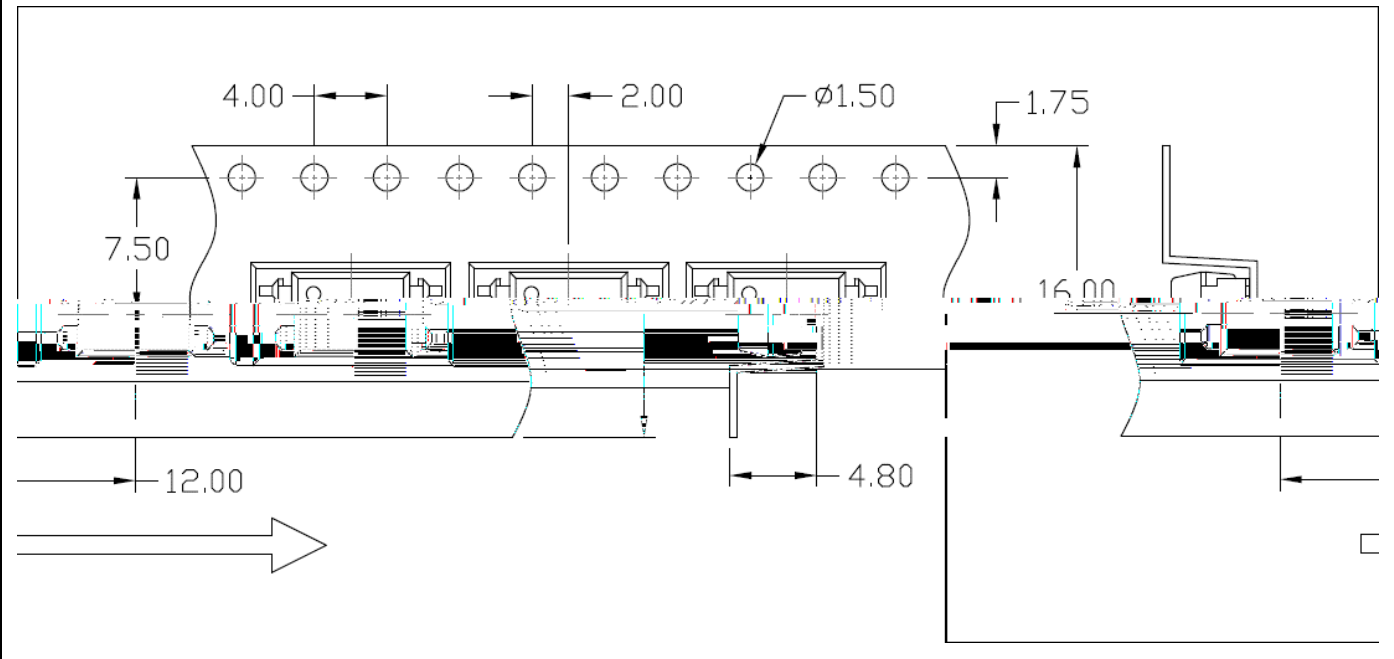


Option S(T2) & SL(T2)

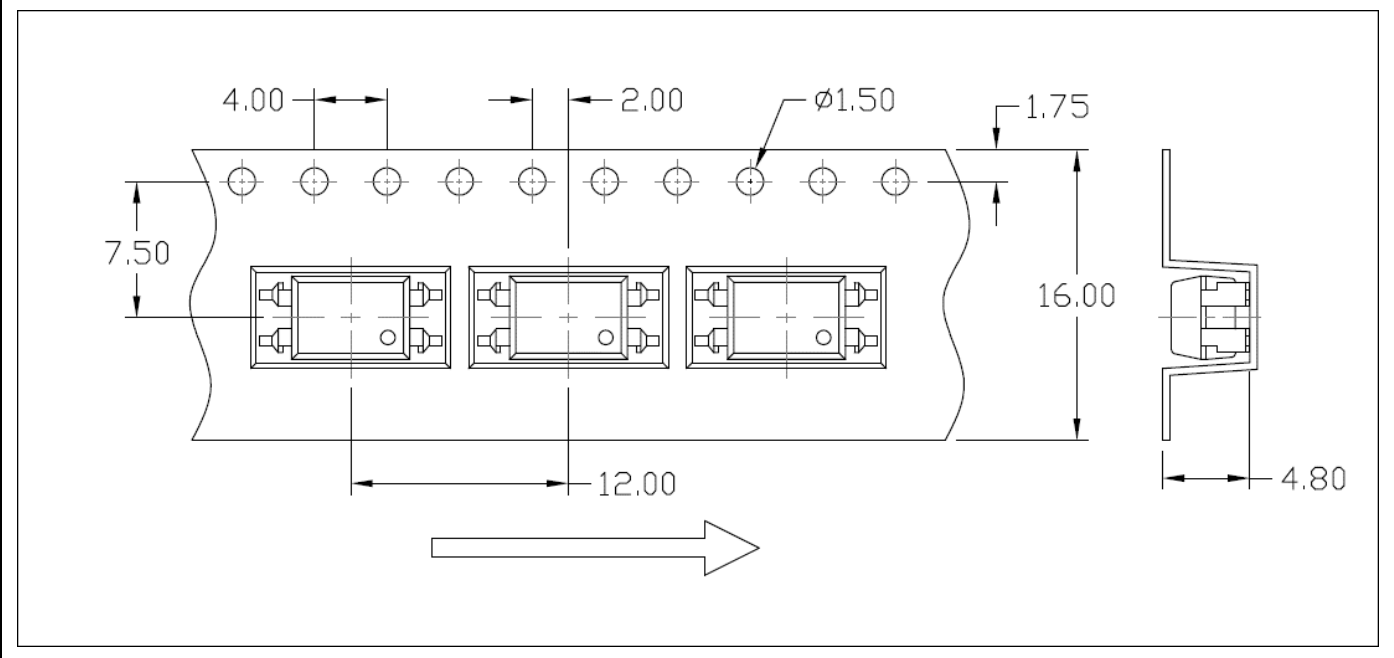


CARRIER TAPE SPECIFICATIONS Dimensions in mm unless otherwise stated)

Option S(T3) & SL(T3)

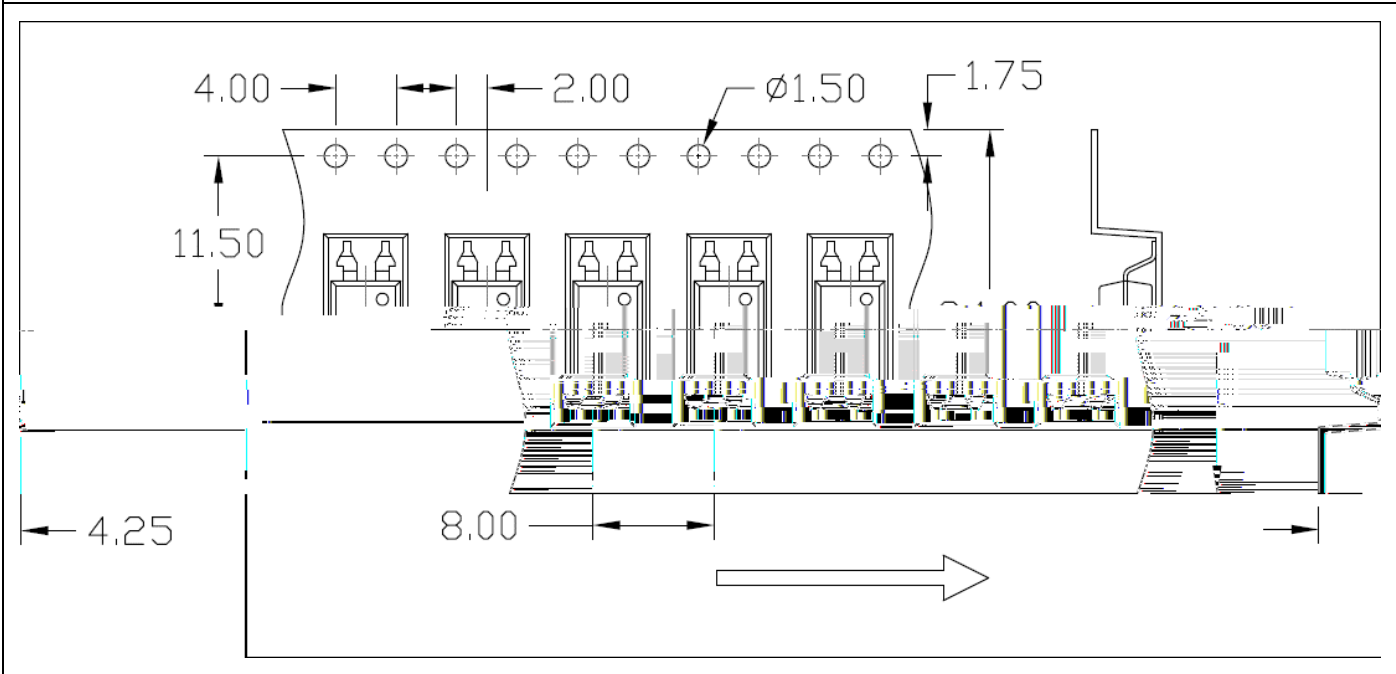


Option S(T4) & SL(T4)

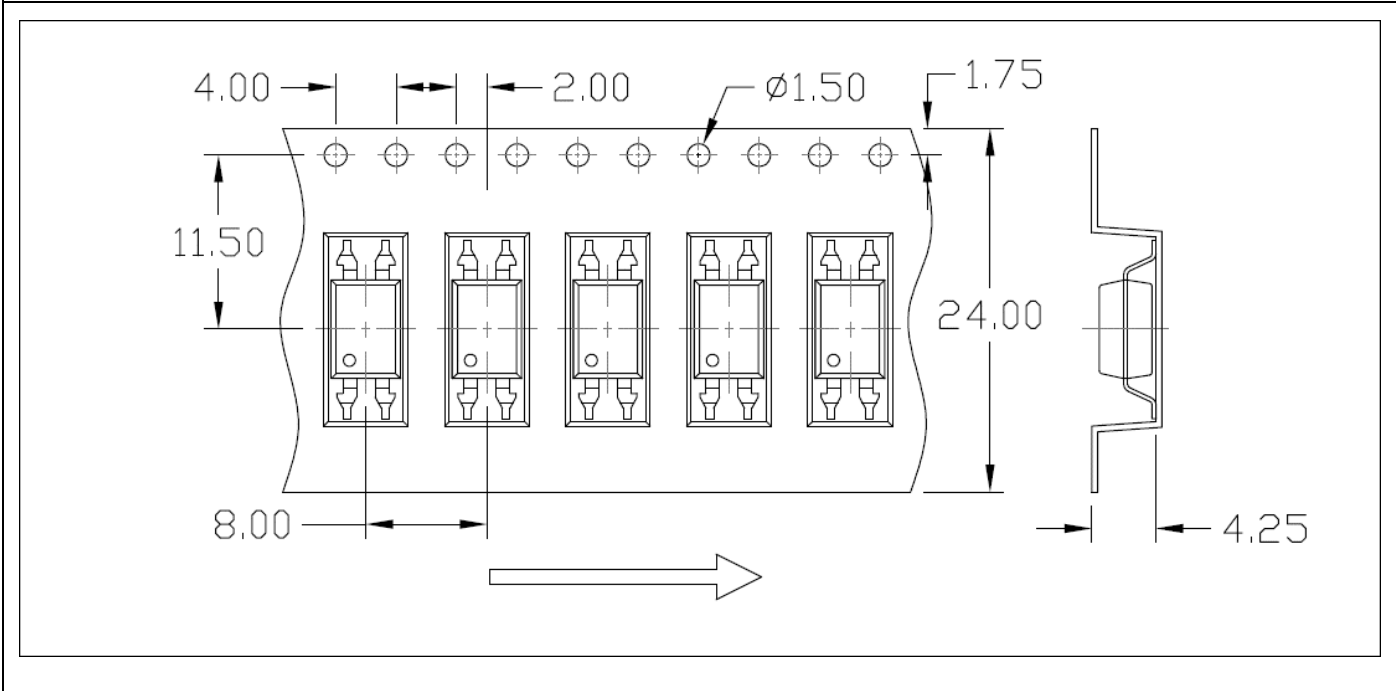


CARRIER TAPE SPECIFICATIONS Dimensions in mm unless otherwise stated)

Option SLM(T1)



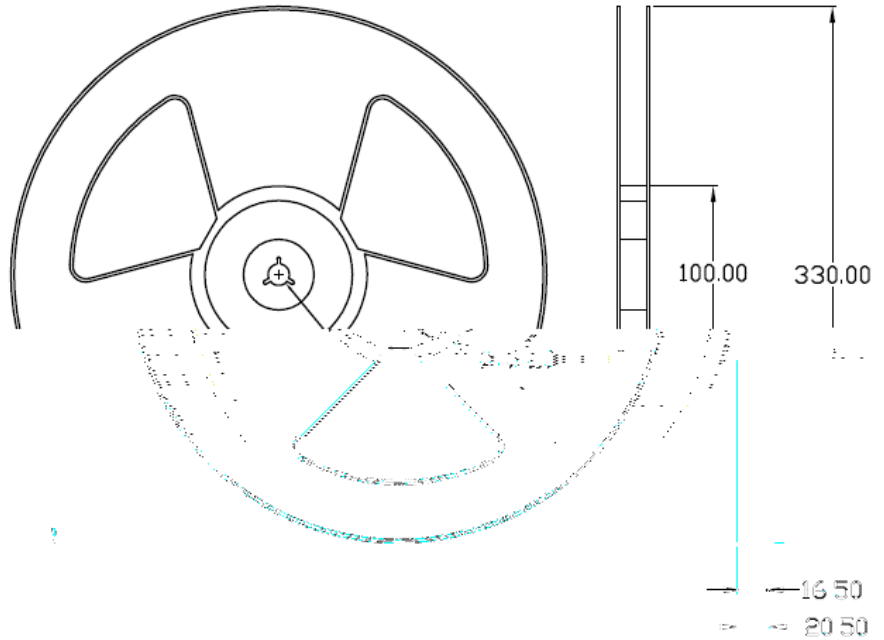
Option SLM(T2)



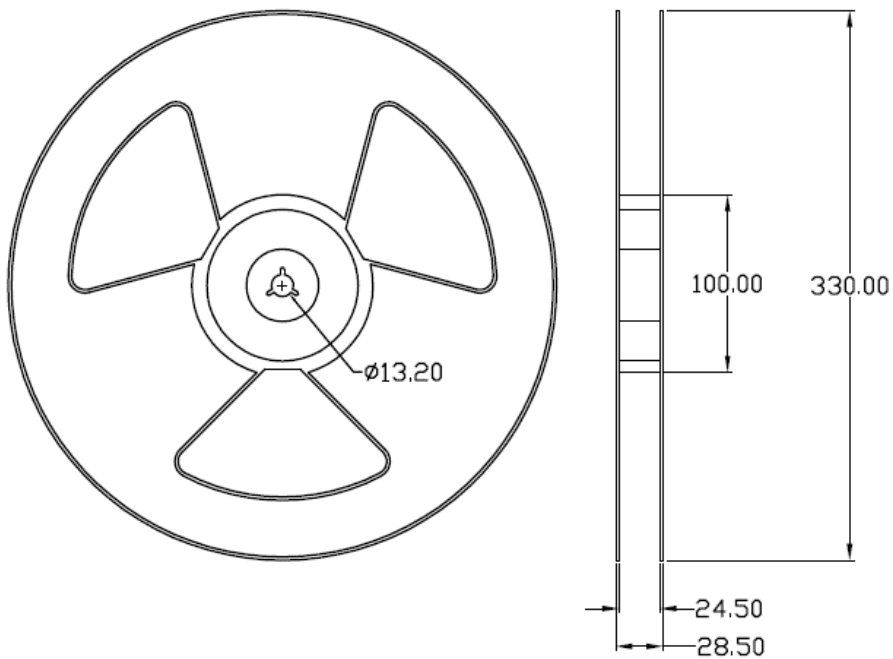
DIP4, DC Input, Photo Transistor Coupler

REEL SPECIFICATIONS Dimensions in mm unless otherwise stated)

Option S & Option SL



Option SLM

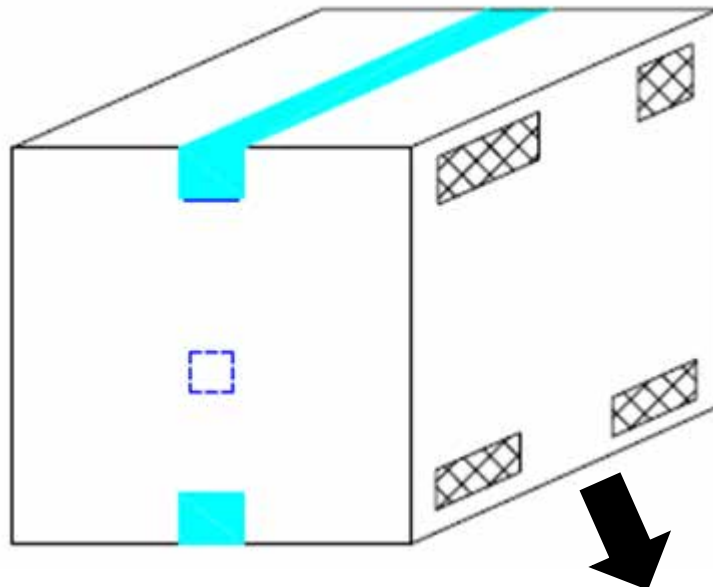


BOX SPECIFICATIONS (Reel Type)

Inner Box

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

Outer Box



L x W x H = 45cm x 38cm x 38cm

DIP4, DC Input, Photo Transistor Coupler

ORDERING AND MARKING INFORMATION

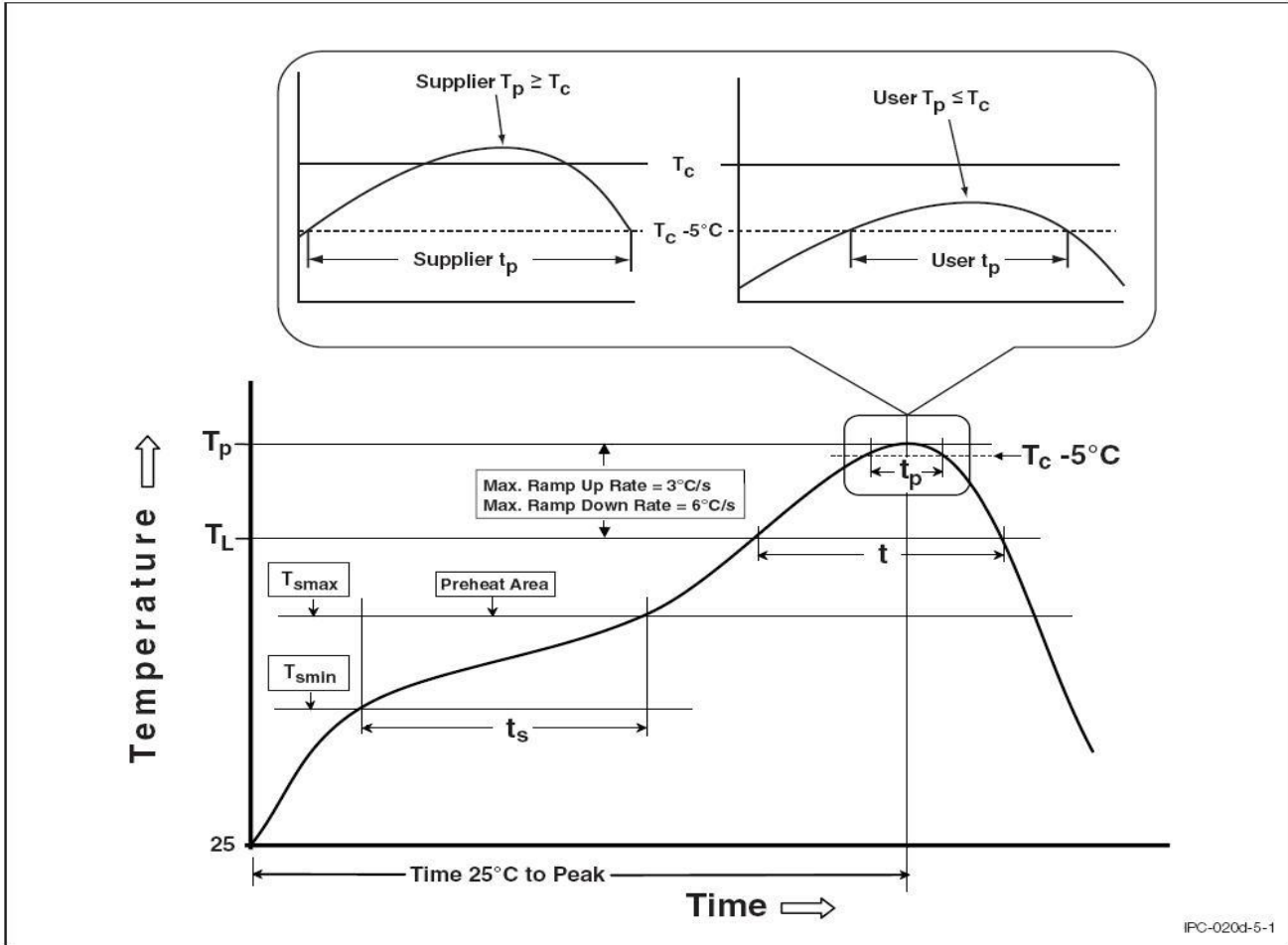
MARKING INFORMATION

TD : Company Abbr.
F : Leadframe Option
817 : Part Number
X : CTR Rank
V

DIP4, DC Input, Photo Transistor Coupler

REFLOW INFORMATION

REFLOW PROFILE

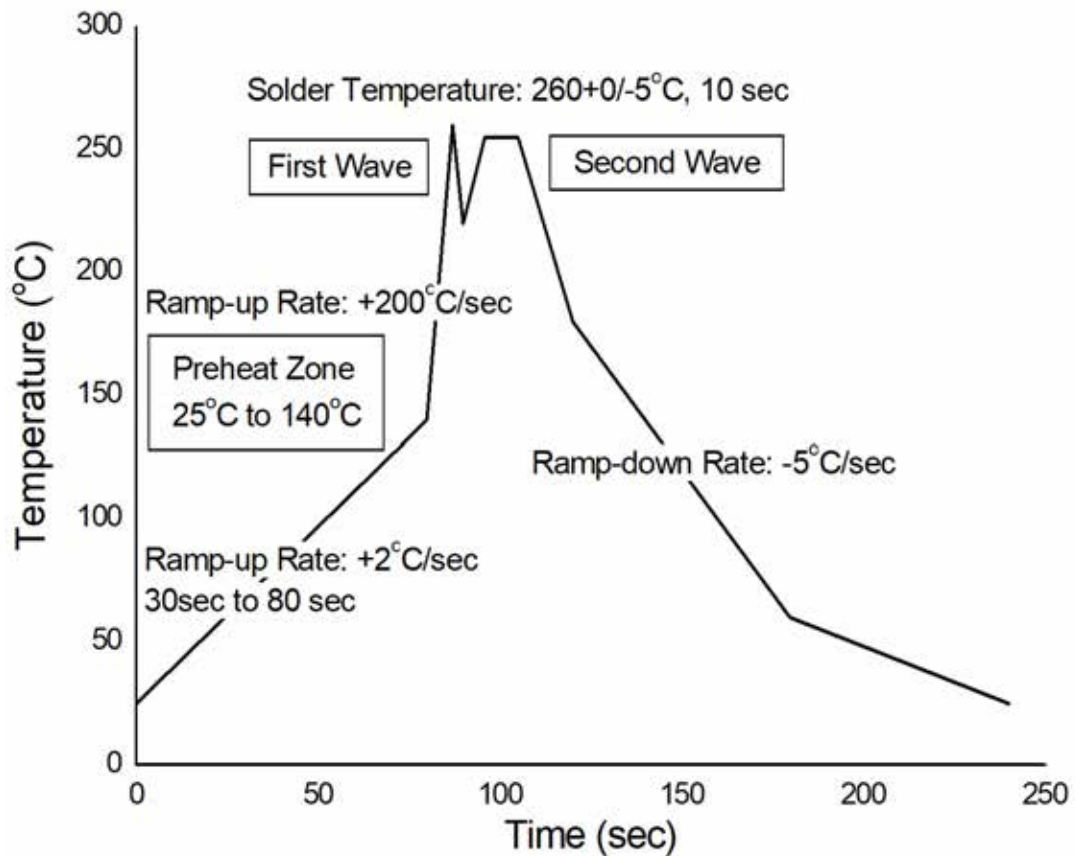


Profile Feature	Sn-Pb Assembly Profile	Pb-Free Assembly Profile
Temperature Min. (Tsmmin)	100	150°C
Temperature Max. (Tsmmax)	150	200°C
Time (ts) from (Tsmmin to Tsmmax)	60-120 seconds	60-120 seconds
Ramp-up Rate (tL to tP)	3°C/second max.	3°C/second max.
Liquidous Temperature (TL)	183°C	217°C
Time (tL) Maintained Above (TL)	60 – 150 seconds	60 – 150 seconds
Peak Body Package Temperature	235°C +0°C / -5°C	260°C +0°C / -5°C
Time (tP) within 5°C of 260°C	20 seconds	30 seconds
Ramp-down Rate (TP to TL)	6°C/second max	6°C/second max
Time 25°C to Peak Temperature	6 minutes max.	8 minutes max.

DIP4, DC Input, Photo Transistor Coupler

TEMPERATURE PROFILE OF SOLDERING

WAVE SOLDERING (JESD22-A111 COMPLIANT)



HAND SOLDERING BY SOLDERING IRON

Soldering Temperature	380+0/-5°C
Soldering Time	3 sec max.

- One time soldering is recommended for all soldering method.
- Do not solder more than three times for IR reflow soldering.

DISCLAIMER

LIGHTNING is continually improving the quality, reliability, function and design. LIGHTNING reserves the right to make changes without further notices.

The characteristic curves shown in this datasheet are representing typical performance which are not guaranteed.

LIGHTNING makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, LIGHTNING disclaims (a) any and all liability arising out of the application or use of any product, (b) any and all liability, including without limitation special, consequential or incidental damages, and (c) any and all implied warranties, including warranties of fitness for particular

The products shown in this publication are designed for the general use in electronic applications such as office automation, equipment, communications devices, audio/visual equipment, electrical