

Description

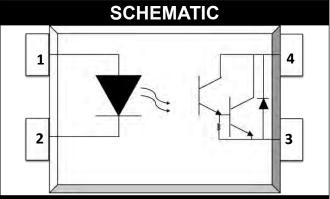
The TD852 series combine an AlGaAs infrared emitting diode as the emitter which is optically coupled to a silicon planar darlington phototransistor detector in a plastic DIP4 package with different lead forming options. With the robust coplanar double mold structure, TD852 series provide the most stable 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
 - cUL- CSA Component Acceptance
 Service Notice No. 5A

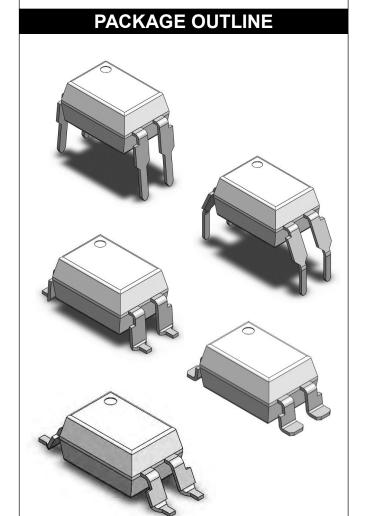
Applications

- Sequence controller
- Telephone/FAX
- System appliances, measuring instrument
- Programmable logic controller



PIN DEFINITION

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





ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL	VALUE	UNIT	NOTE	
INPUT					
Forward Current	I _F	60	mA		
Peak Forward Current	I _{FP}	1	Α	1	
Reverse Voltage	V _R	6	V		
Input Power Dissipation	Pı	100	mW		
OUTPUT					
Collector - Emitter Voltage	V _{CEO}	350	V		
Emitter - Collector Voltage	V _{ECO}	0.1	V		
Collector Current	Ic	150	mA		
Output Power Dissipation	Po	150	mW		
COMMON					
Total Power Dissipation	Ptot	200	mW		
Isolation Voltage	Viso	5000	Vrms	2	
Operating Temperature	Topr	-55~100	°C		
Storage Temperature	Tstg	-55~125	°C		
Soldering Temperature	Tsol	260	°C		

Note 1. 100μs pulse, 100Hz frequency

Note 2. AC For 1 Minute, R.H. = $40 \sim 60\%$



ELECTI	RICAL O	PTICA	L CH	ARAC	TERI	STICS at Ta=25°C	
PARAMETER	SYMBOL	MIN	TYP.	MAX.	UNIT	TEST CONDITION	NOTE
INPUT							
Forward Voltage	V_{F}	-	1.24	1.4	V	IF=10mA	
Reverse Current	I _R	-	-	10	μΑ	VR=6V	
Input Capacitance	Cin	-	10	-	pF	V=0, f=1kHz	
			OUT	PUT			
Collector Dark Current	I _{CEO}	-	-	200	nA	VCE=200V, IF=0	
Collector-Emitter Breakdown Voltage	BV _{CEO}	350	-	-	V	IC=0.1mA, IF=0	
Emitter-Collector Breakdown Voltage	BV _{ECO}	0.1	-	-	V	IE=0.1mA, IF=0	
TRANSFER CHARACTERISTICS							
Current Transfer Ratio	CTR	1000	-	15000	%	IF=1mA, VCE=2V	
Collector-Emitter Saturation Voltage	V _{CE(sat)}	_	_	1.2	V	IF=20mA, IC=100mA	
Isolation Resistance	Riso	10^12	10^14	-	Ω	DC500V, 40 ~ 60% R.H.	
Floating Capacitance	C _{IO}	-	0.6	1	pF	V=0, f=1MHz	
Response Time (Rise)	tr	-	20	500	μs	VCE=2V, IC=20mA	3
Response Time (Fall)	tf	-	90	500	μs	RL=100Ω	3
Cut-off Frequency	fc	-	80	-	kHz	VCE=2V, IC=2mA RL=100Ω,-3dB	4

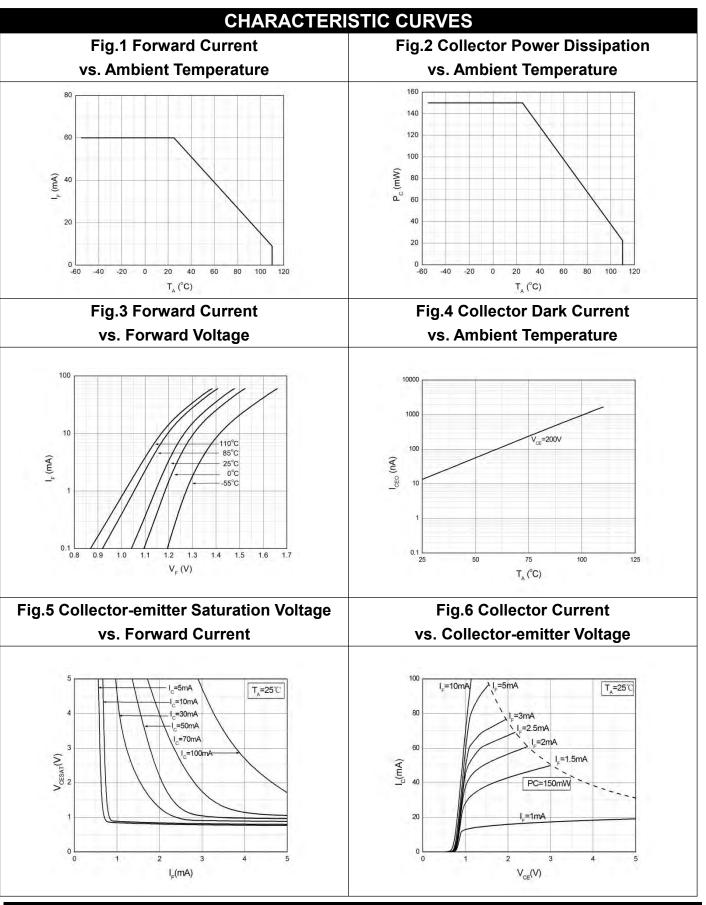
Note 3. Fig.12&13

Note 4. Fig.14



Document No: DWI-10153

DIP4, DC Input, Photo Darlington Transistor Coupler



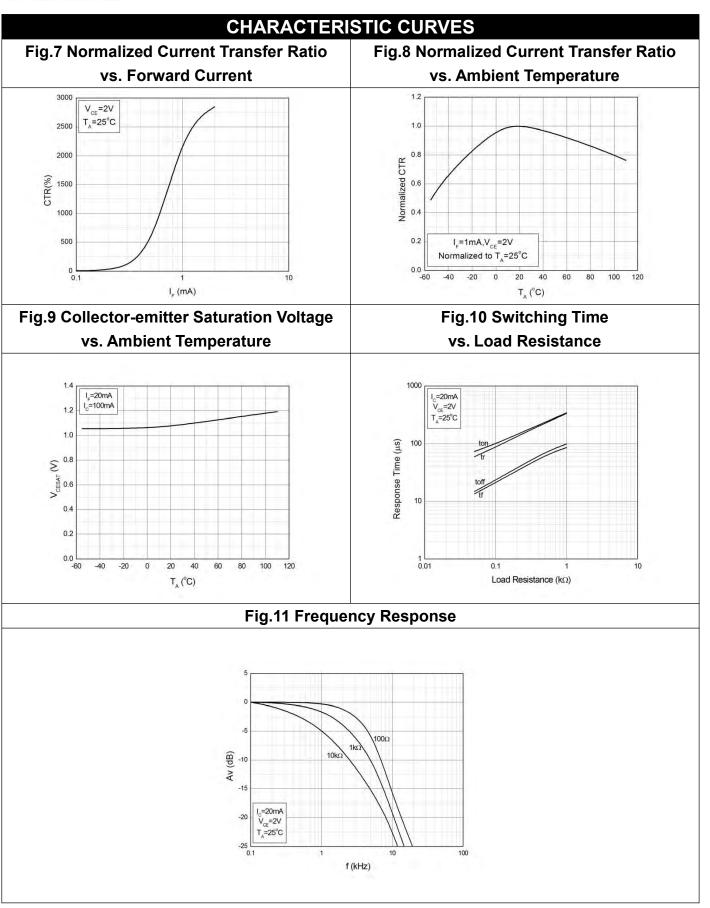
Rev: A00

Release Date: 2024/08/14



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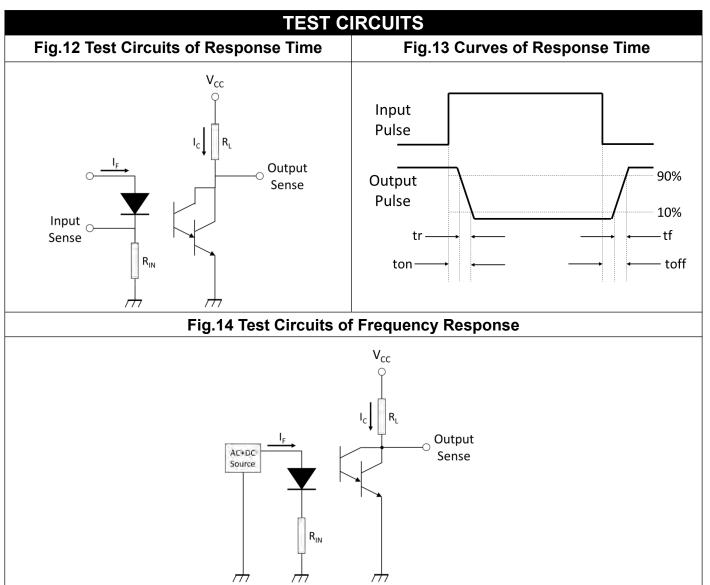
DIP4, DC Input, Photo Darlington Transistor Coupler



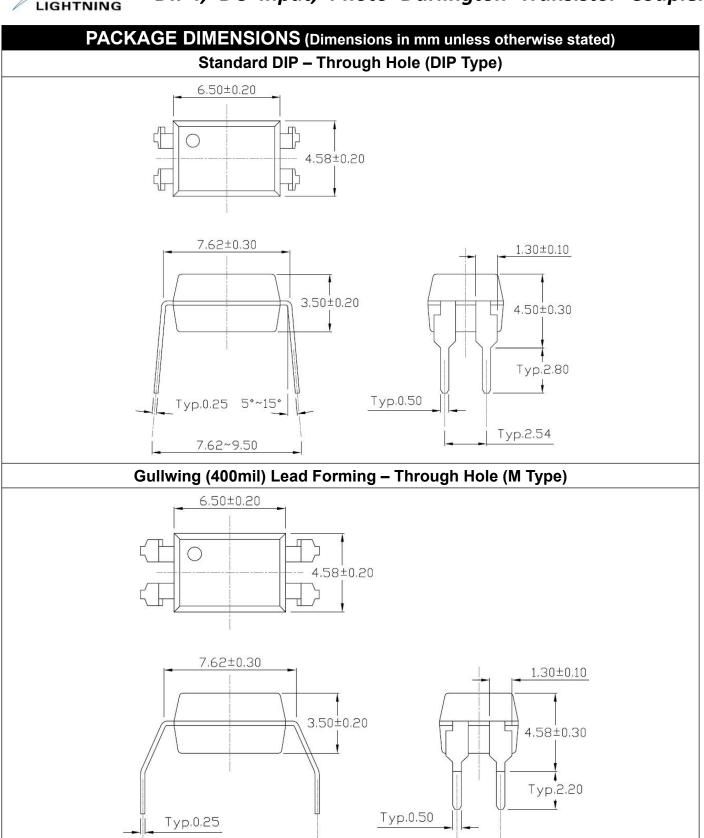
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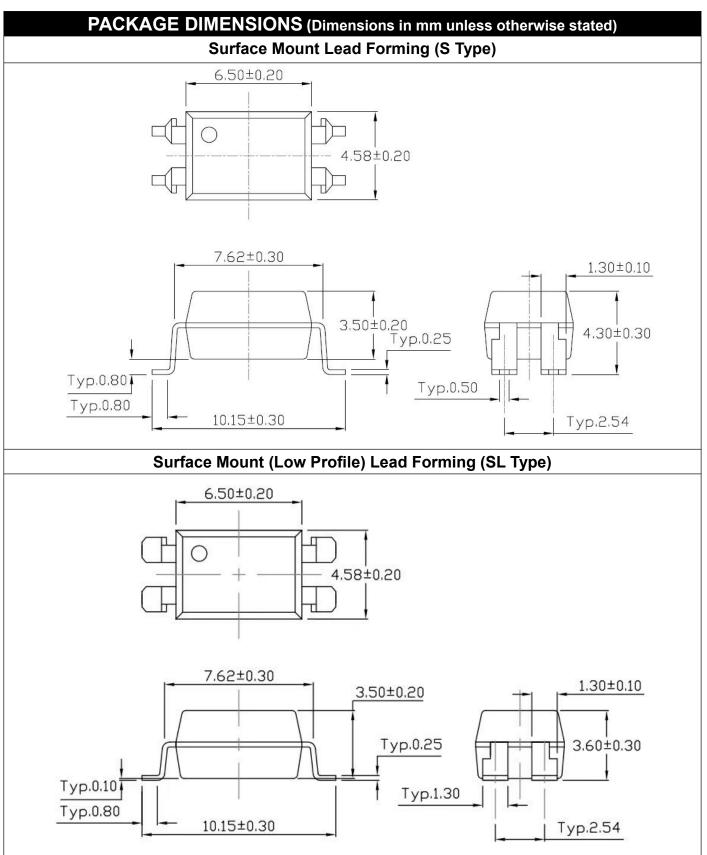


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10.16±0.30

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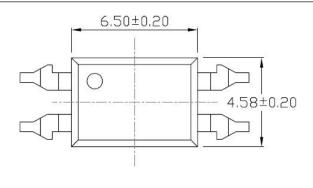


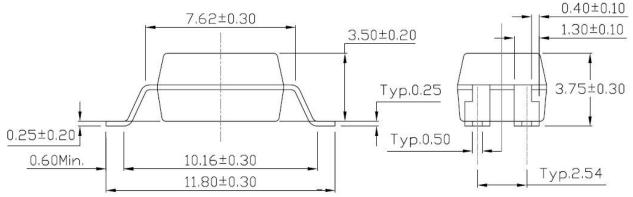




PACKAGE DIMENSIONS (Dimensions in mm unless otherwise stated)

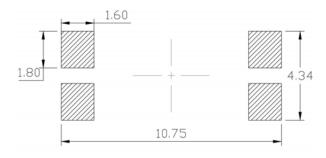
Surface Mount (Gullwing) Lead Forming (SLM Type)



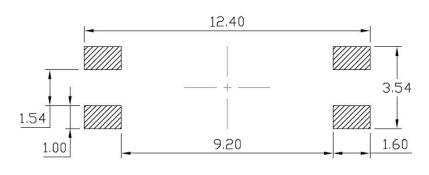


RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)

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

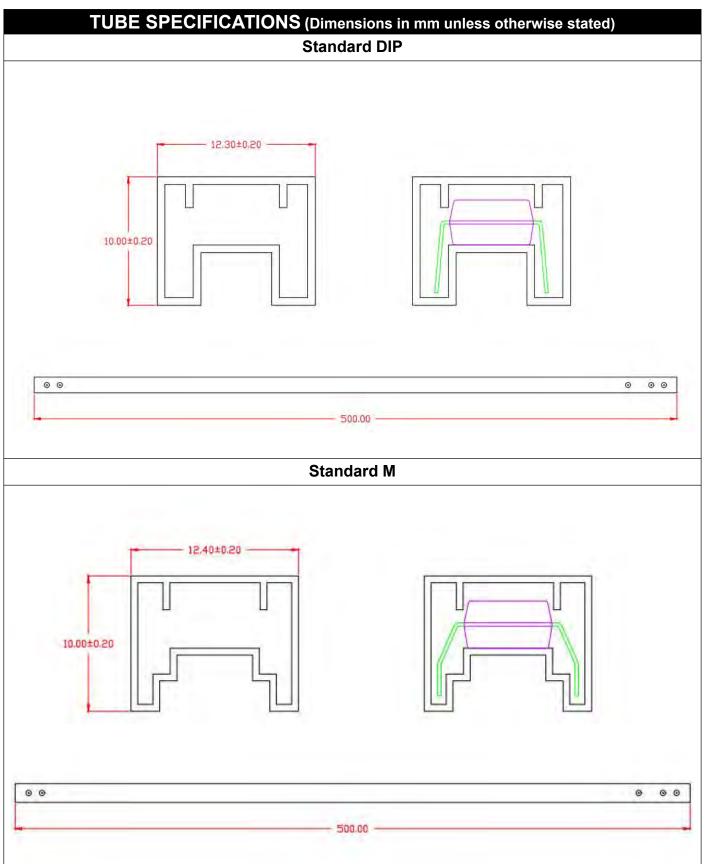


Surface Mount (Gullwing) Lead Forming

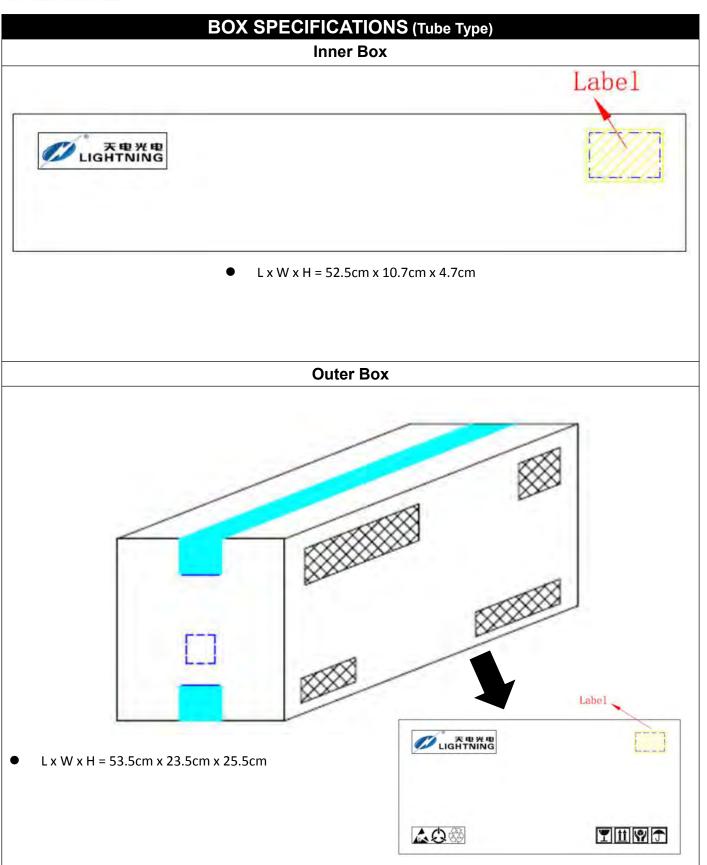




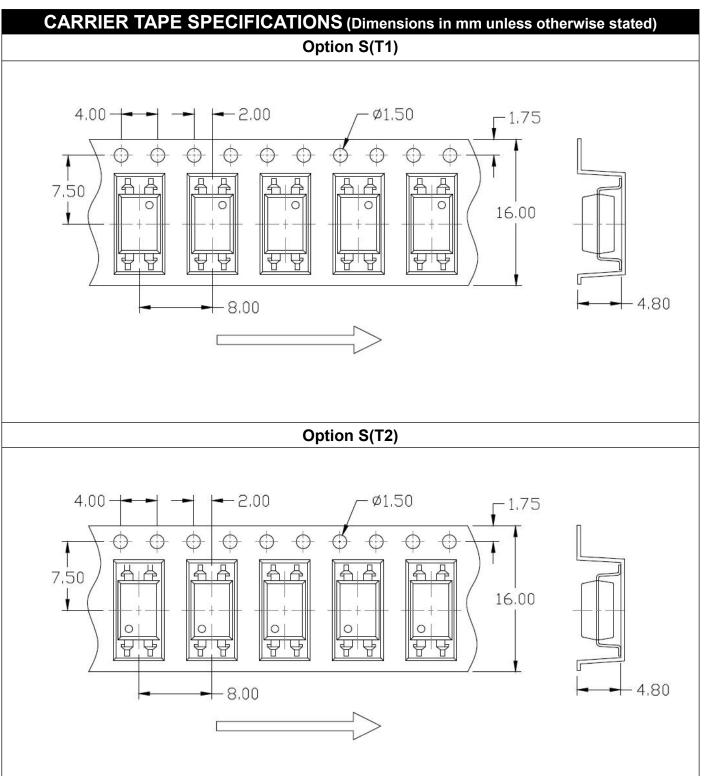
<u>MWW.tdled.com</u> TD852 Series DIP4, DC Input, Photo Darlington Transistor Coupler



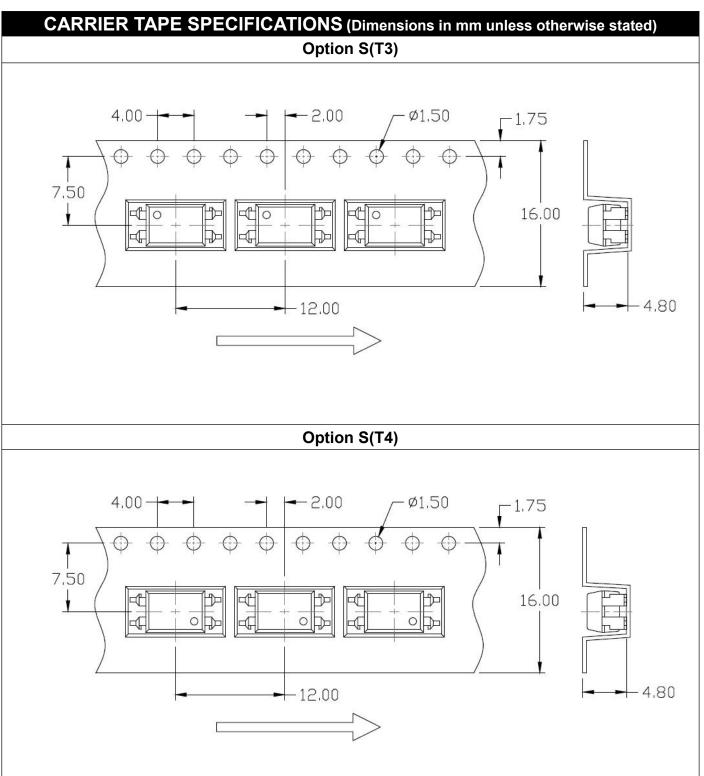




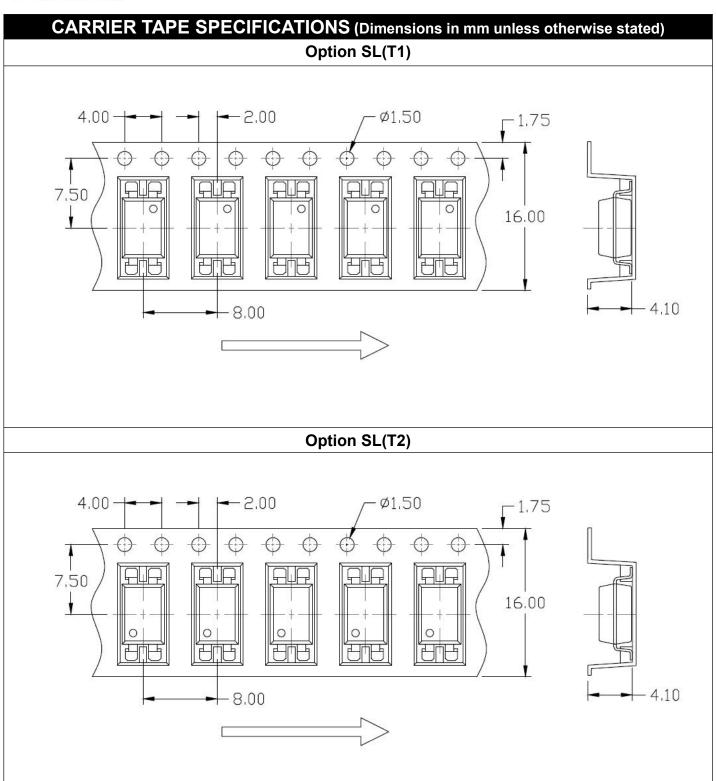




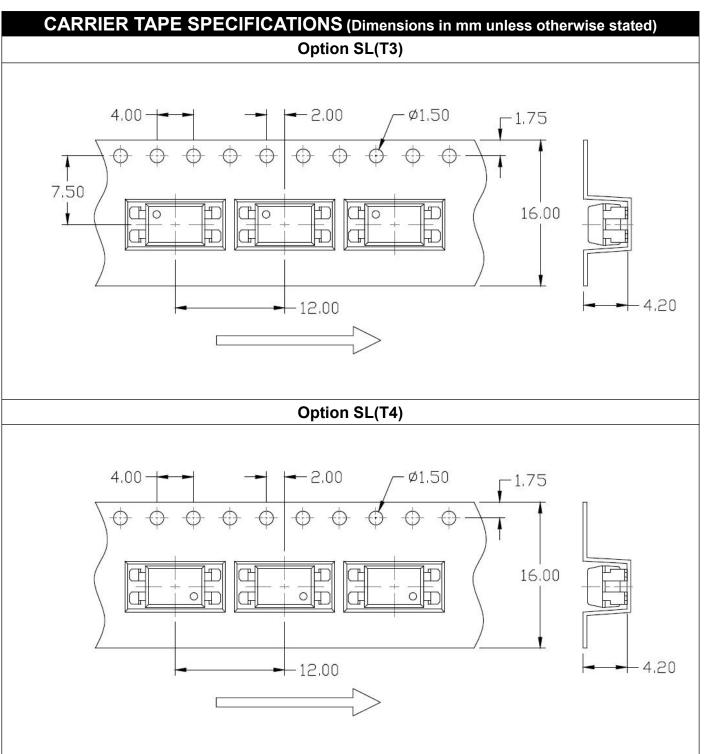




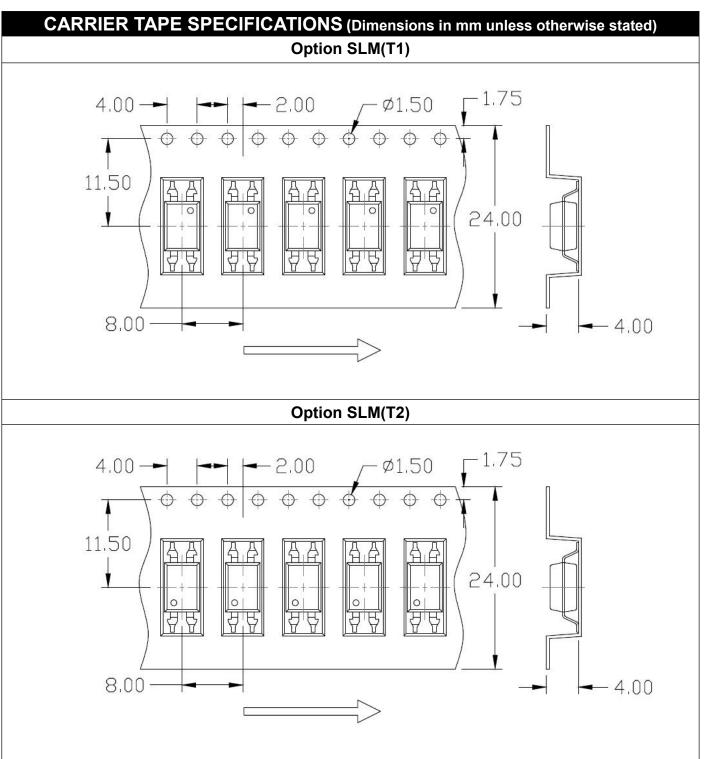




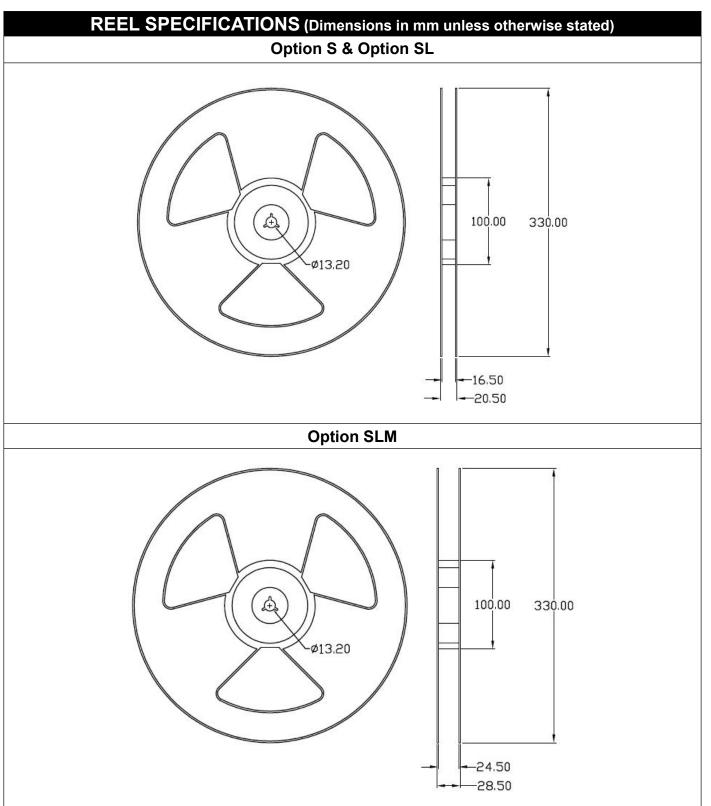




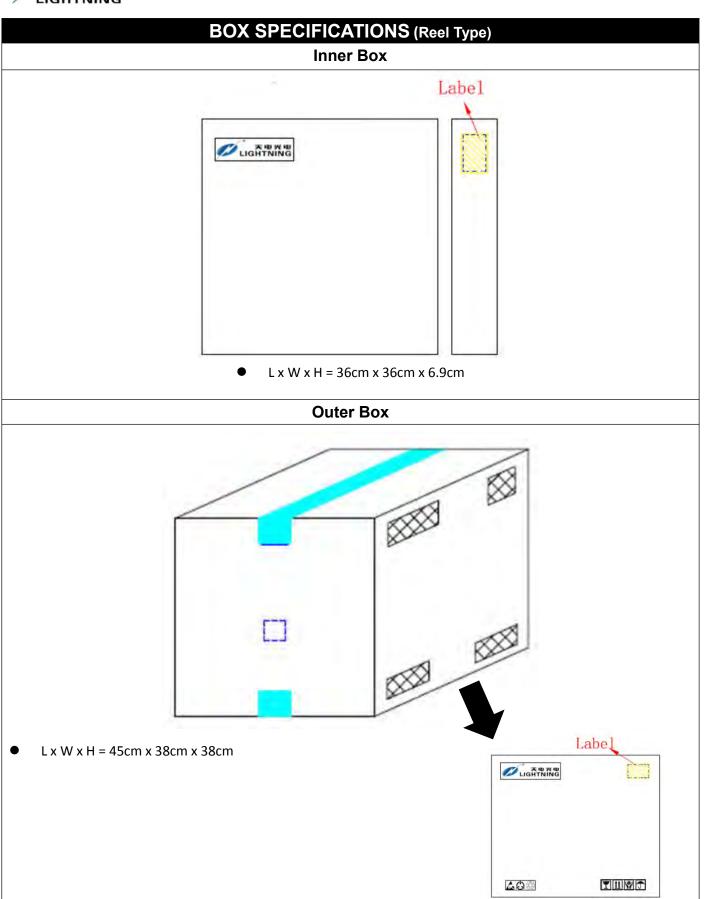














ORDERING AND MARKING INFORMATION

MARKING INFORMATION



TD : Company Abbr.

852 : Part Number

V : VDE Option

Y : Fiscal Year

A : Manufacturing Code

WW : Work Week

ORDERING INFORMATION

ORDERING INFORMATION

TD852(Y)(Z)-GV

TD - Company Abbr.

852 - Part Number

Y – Lead Form Option (M/S/SL/SLM/None)

Z – Tape and Reel Option (T1/T2/T3/T4)

G – Green

V – VDE Option (V or None)

LABEL INFORMATION



Packing (Juantity
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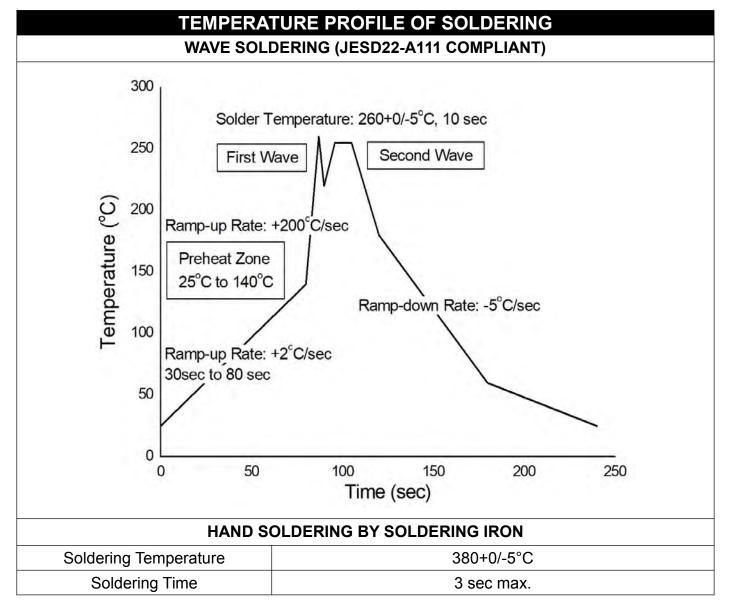
Option	Quantity	Quantity – Inner box	Quantity – Outer box		
None	100 Units/Tube	32 Tubes/Inner box	10 Inner box/Outer box = 32k Units		
М	100 Units/Tube	32 Tubes/Inner box	10 Inner box/Outer box = 32k Units		
S(T1)	1500 Units/Reel	3 Reels/Inner box	5 Inner box/Outer box = 22.5k Units		
S(T2)	1500 Units/Reel	3 Reels/Inner box	5 Inner box/Outer box = 22.5k Units		
S(T3)	1000 Units/Reel	3 Reels/Inner box	5 Inner box/Outer box = 15k Units		
S(T4)	1000 Units/Reel	3 Reels/Inner box	5 Inner box/Outer box = 15k Units		
SL(T1)	1500 Units/Reel	3 Reels/Inner box	5 Inner box/Outer box = 22.5k Units		
SL(T2)	1500 Units/Reel	3 Reels/Inner box	5 Inner box/Outer box = 22.5k Units		
SL(T3)	1000 Units/Reel	3 Reels/Inner box	5 Inner box/Outer box = 15k Units		
SL(T4)	1000 Units/Reel	3 Reels/Inner box	5 Inner box/Outer box = 15k Units		
SLM(T1)	1500 Units/Reel	2 Reels/Inner box	5 Inner box/Outer box = 15k Units		
SLM(T2)	1500 Units/Reel	2 Reels/Inner box	5 Inner box/Outer box = 15k Units		



REFLOW INFORMATION REFLOW PROFILE Supplier T_p ≥ T_c User Tp ≤Tc c -5°C Supplier tp Temperature 🕂 Tc -5°C Max. Ramp Up Rate = 3°C/s Max. Ramp Down Rate = 6°C/s T_L Tsmax Preheat Area T_{smin} Time 25°C to Peak Time ⇒ IPC-020d-5-1

Profile Feature	Sn-Pb Assembly Profile	Pb-Free Assembly Profile
Temperature Min. (Tsmin)	100	150°C
Temperature Max. (Tsmax)	150	200°C
Time (ts) from (Tsmin to Tsmax)	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.





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



DISCLAIMER

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- The characteristic curves shown in this datasheet are representing typical performance which are not guaranteed.
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- Please contact LIGHTNING sales agent for special application request.
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