

Description

The TD618 series combine an AlGaAs infrared emitting diode as the emitter which is optically coupled to a photo diode in a plastic DIP4 package with different lead forming options. With the robust coplanar double mold structure, TD618 series provide the most stable isolation feature.

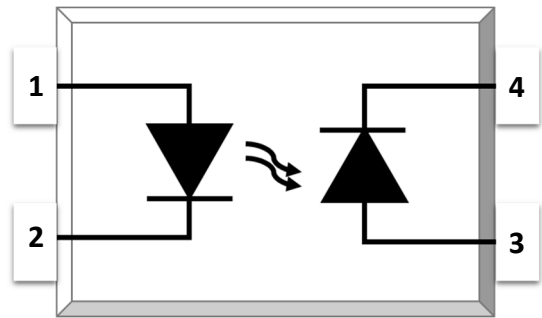
Features

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

Applications

- Low cost analog isolation
- Monitor motor supply voltage
- Digital telephone isolation
- Transducer isolation

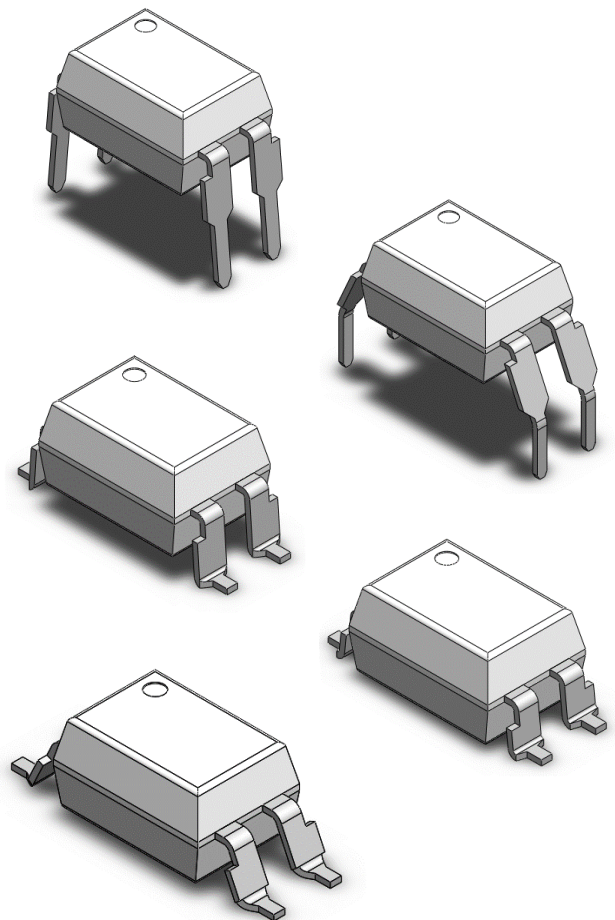
SCHEMATIC



PIN DEFINITION

- 1. LED Anode**
- 2. LED Cathode**
- 3. PD Anode**
- 4. PD Cathode**

PACKAGE OUTLINE





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				
Output Photodiode Voltage	V_{PD}	80	V	
COMMON				
Total Power Dissipation	P_{tot}	200	mW	
Isolation Voltage	V_{iso}	5000	V _{rms}	2
Operating Temperature	T_{opr}	-55~110	°C	
Storage Temperature	T_{stg}	-55~150	°C	
Soldering Temperature	T_{sol}	260	°C	

Note 1. 100µs pulse, 100Hz frequency

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



ELECTRICAL OPTICAL CHARACTERISTICS 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	μA	VR=6V	
Input Capacitance	C _{in}	-	10	-	pF	V=0, f=1kHz	
OUTPUT							
Photo Diode Leakage Current	I _{LK}	-	0.5	25	nA	VPD=15V, IF=0	
Photo Diode Breakdown Voltage	BV _{RPD}	80	-	-	V	IR=0.1mA, IF=0	
TRANSFER CHARACTERISTICS							
Current Transfer Ratio	TD618	CTR	0.5	-	1	%	IF=10mA, 0V<VPD<15V
Photo Diode Capacitance	C _{PD}	-	22	-	pF	V=0, f=1kHz	
Isolation Resistance	R _{ISO}	10 ¹²	10 ¹⁴	-	Ω	DC500V, 40 ~ 60% R.H.	
Floating Capacitance	C _{IO}	-	0.4	1	pF	V=0, f=1MHz	



CHARACTERISTIC CURVES

Fig.1 Forward Current vs. Forward Voltage

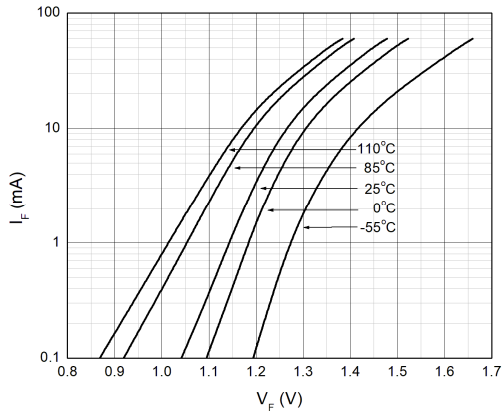


Fig.2 Photo Diode Leakage Current vs. Ambient Temperature

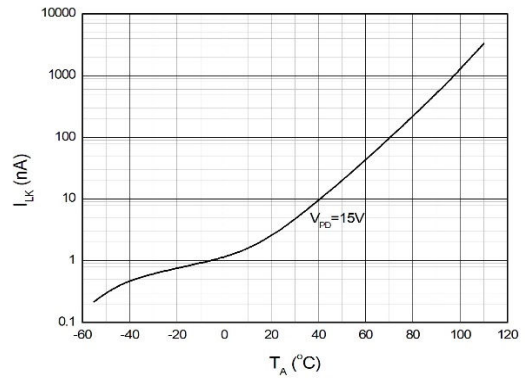


Fig.3 Normalized Current Transfer Ratio vs. Photo Diode Voltage

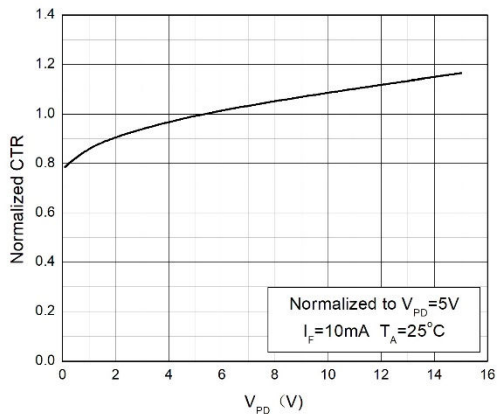


Fig.4 Normalized Current Transfer Ratio vs. Forward Current

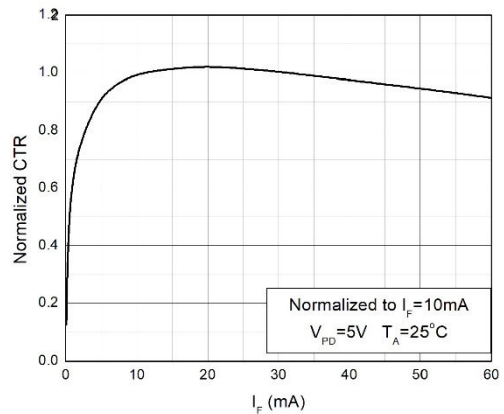
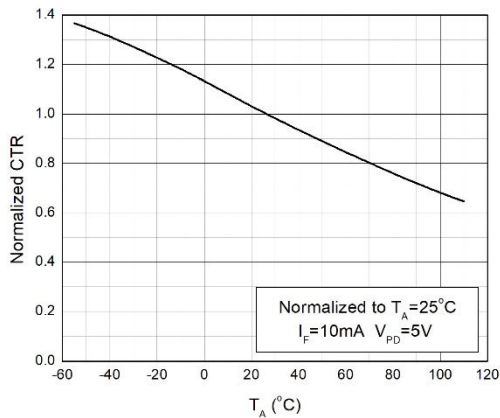
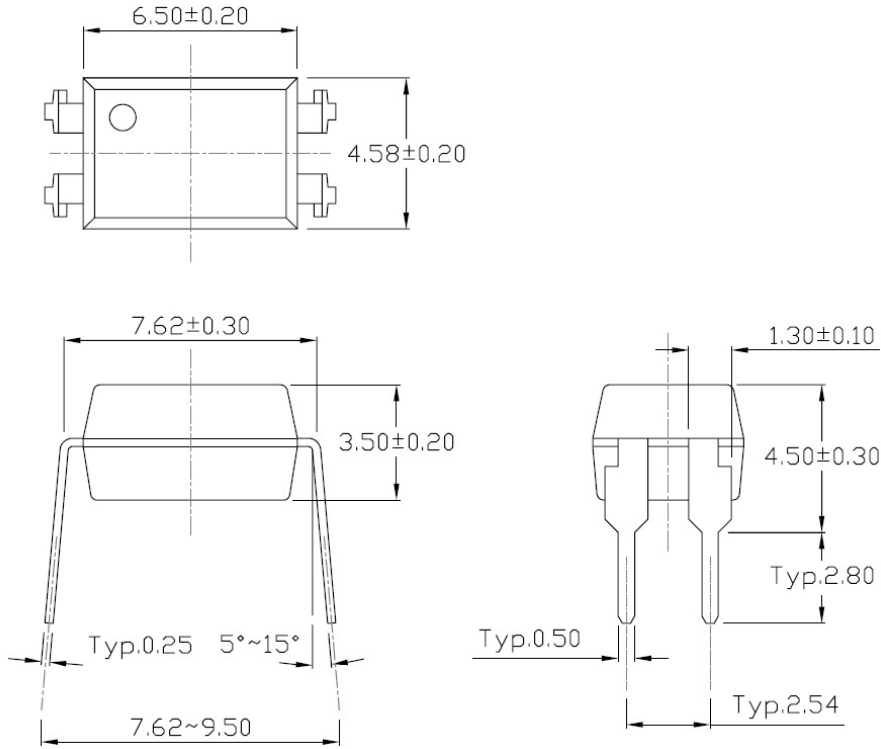


Fig.5 Normalized Current Transfer Ratio vs. Ambient Temperature

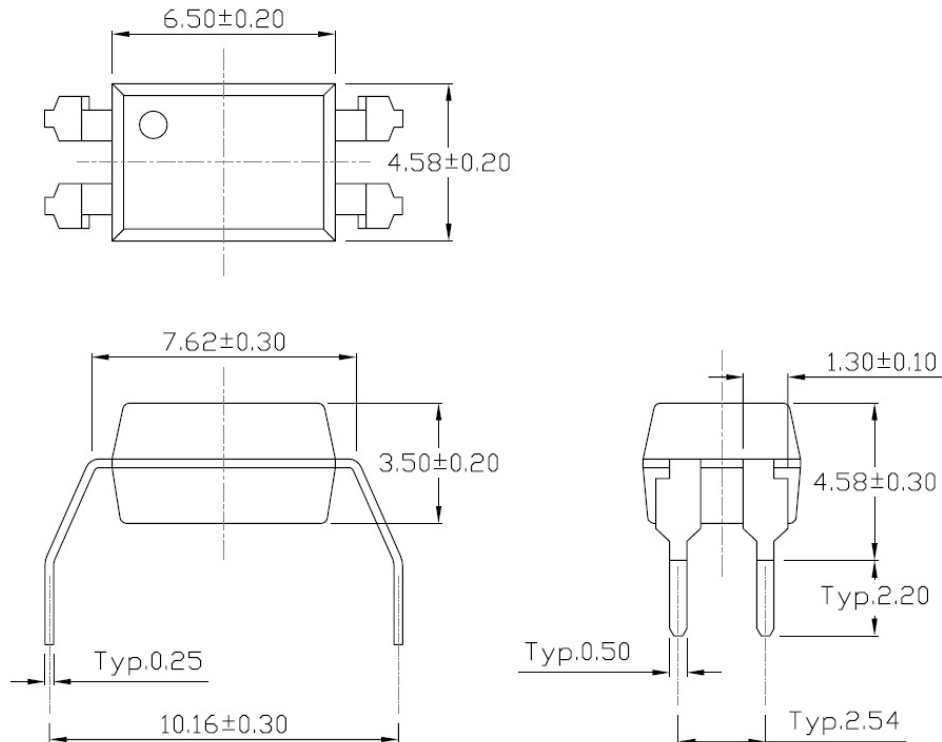


PACKAGE DIMENSIONS (Dimensions in mm unless otherwise stated)

Standard DIP – Through Hole (DIP Type)

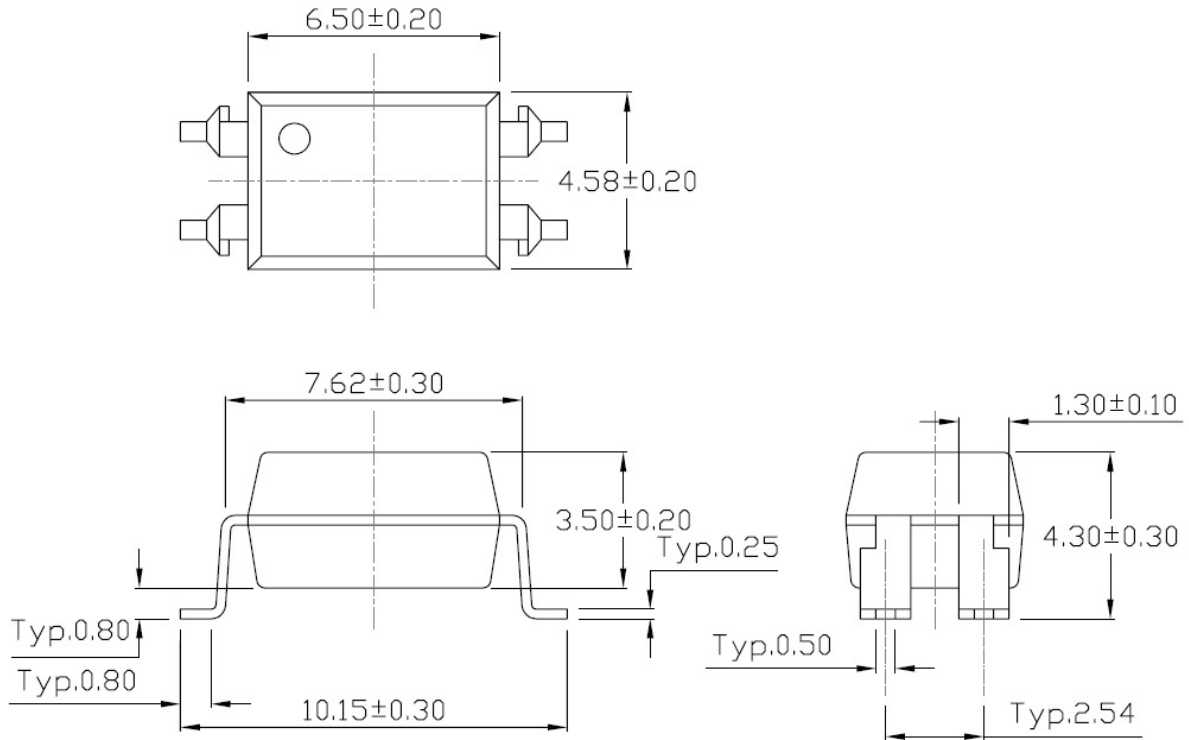


Gullwing (400mil) Lead Forming – Through Hole (M Type)

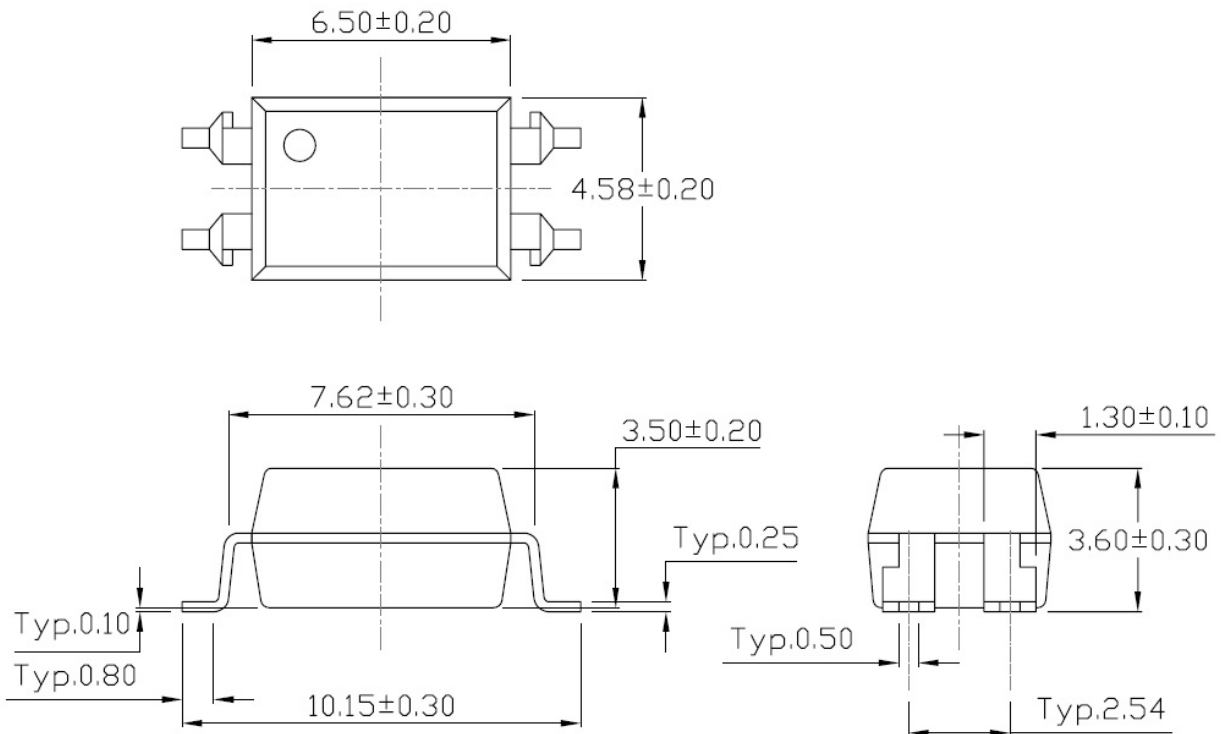


PACKAGE DIMENSIONS (Dimensions in mm unless otherwise stated)

Surface Mount Lead Forming (S Type)

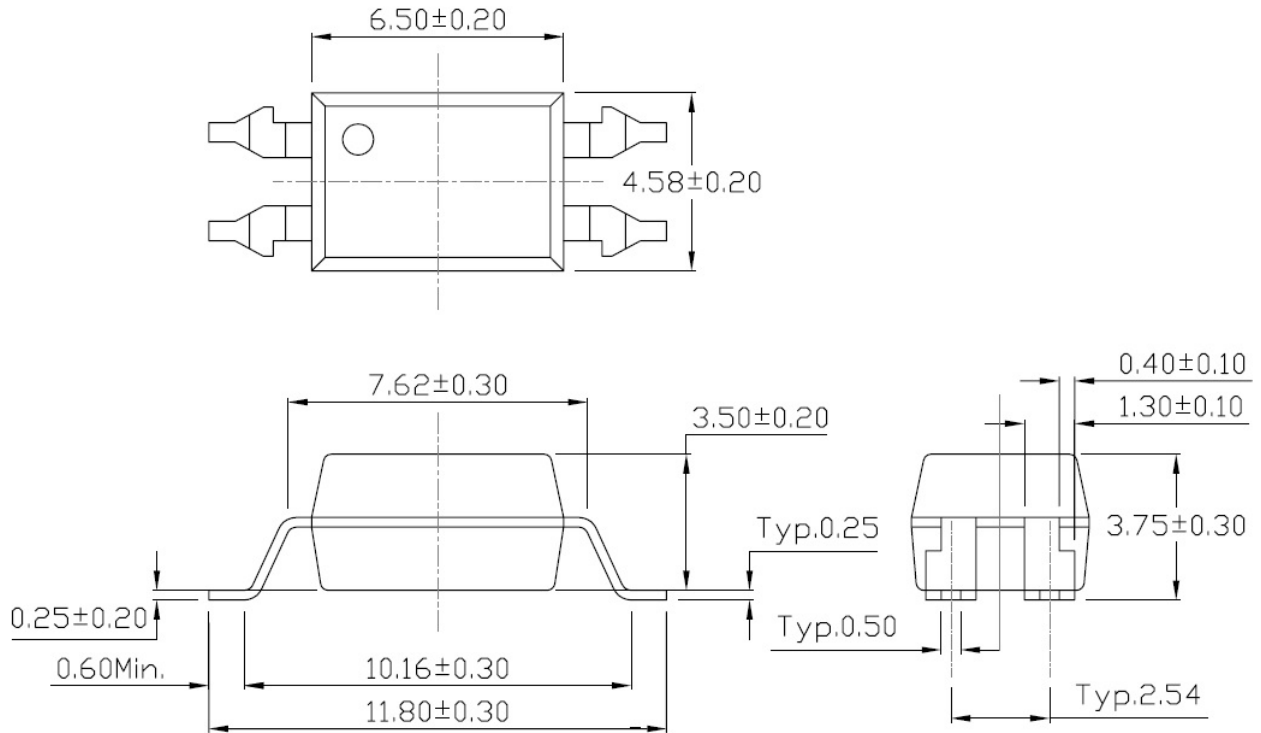


Surface Mount (Low Profile) Lead Forming (SL Type)



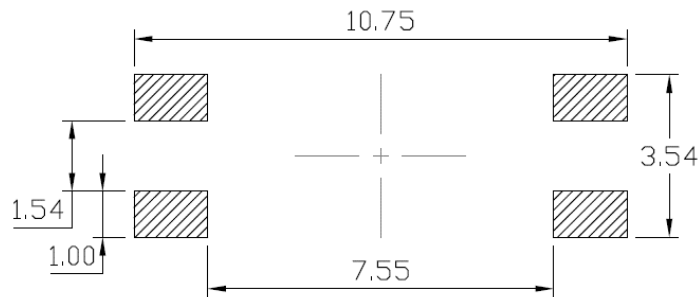
PACKAGE DIMENSIONS (Dimensions in mm unless otherwise stated)

Surface Mount (Gullwing) Lead Forming (SLM Type)

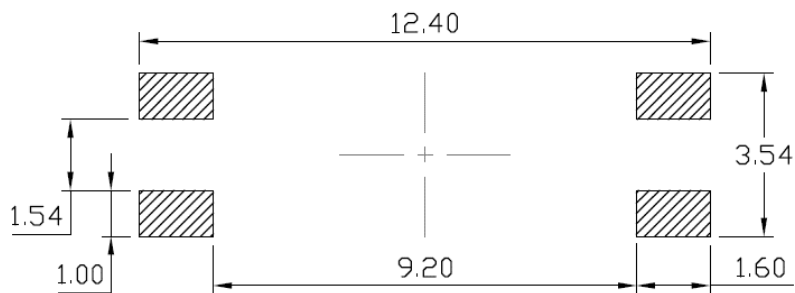


RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)

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

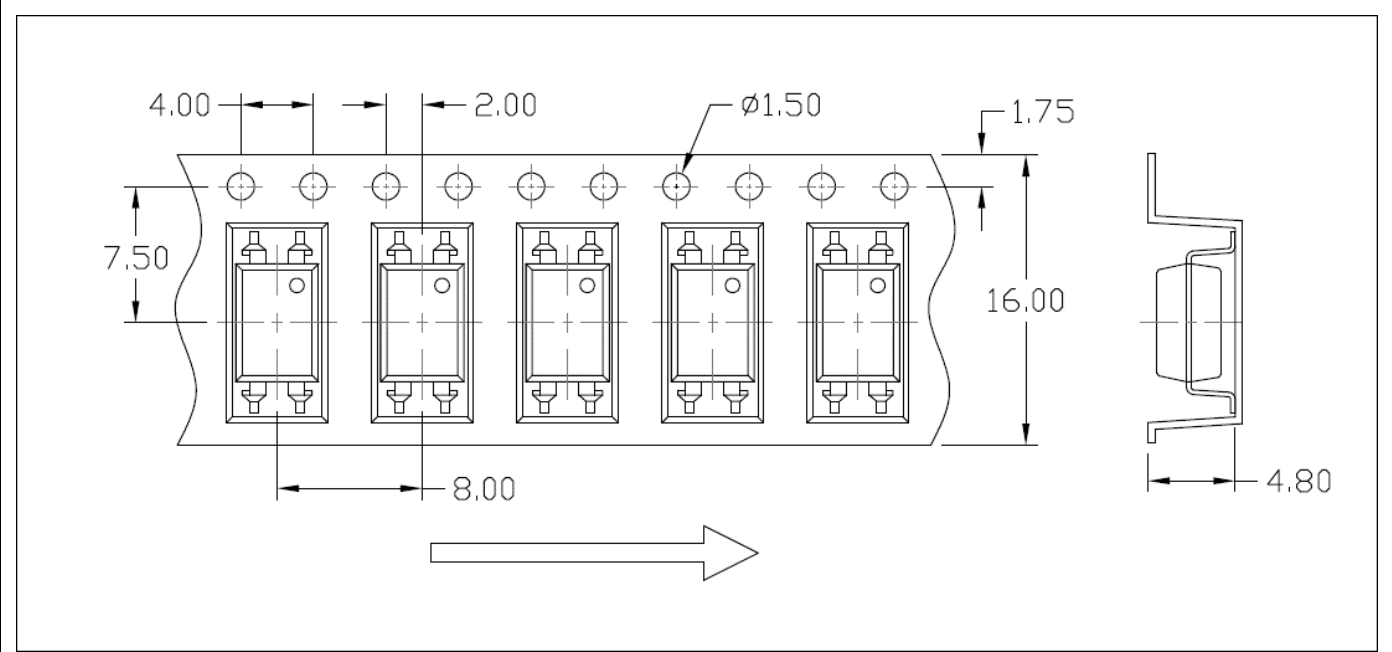


Surface Mount (Gullwing) Lead Forming

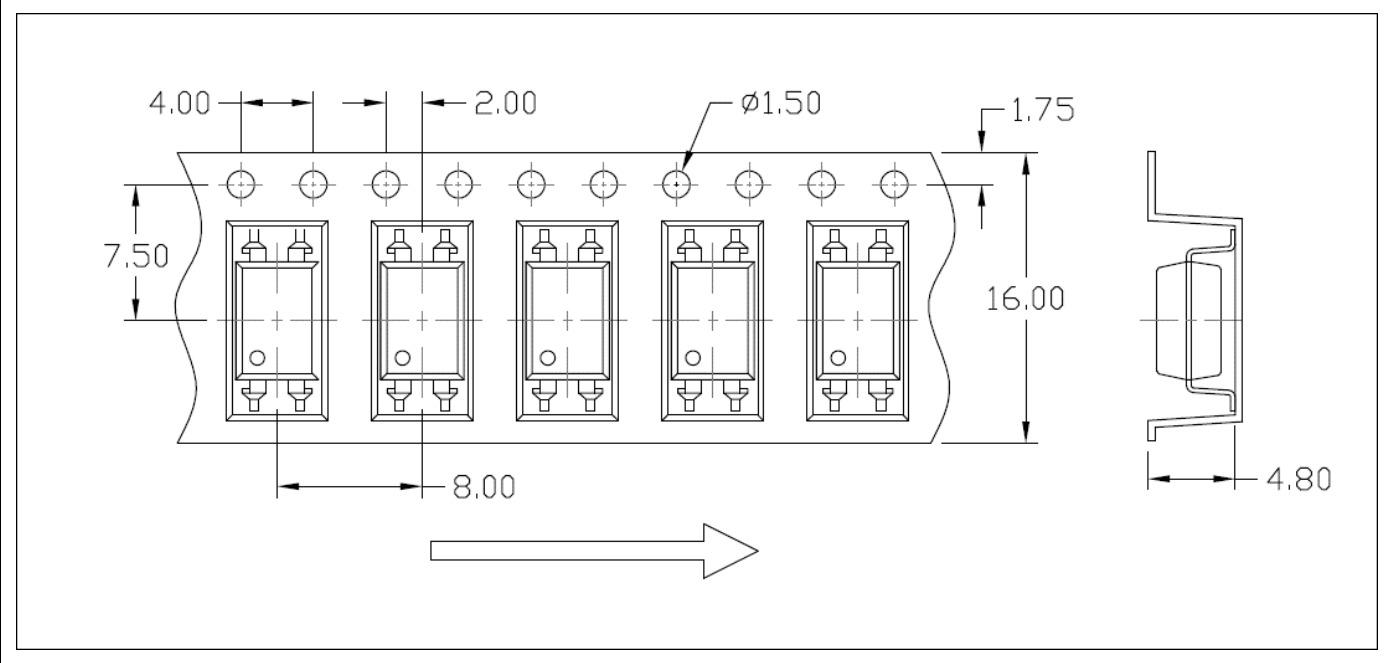


CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Option S(T1) & SL(T1)

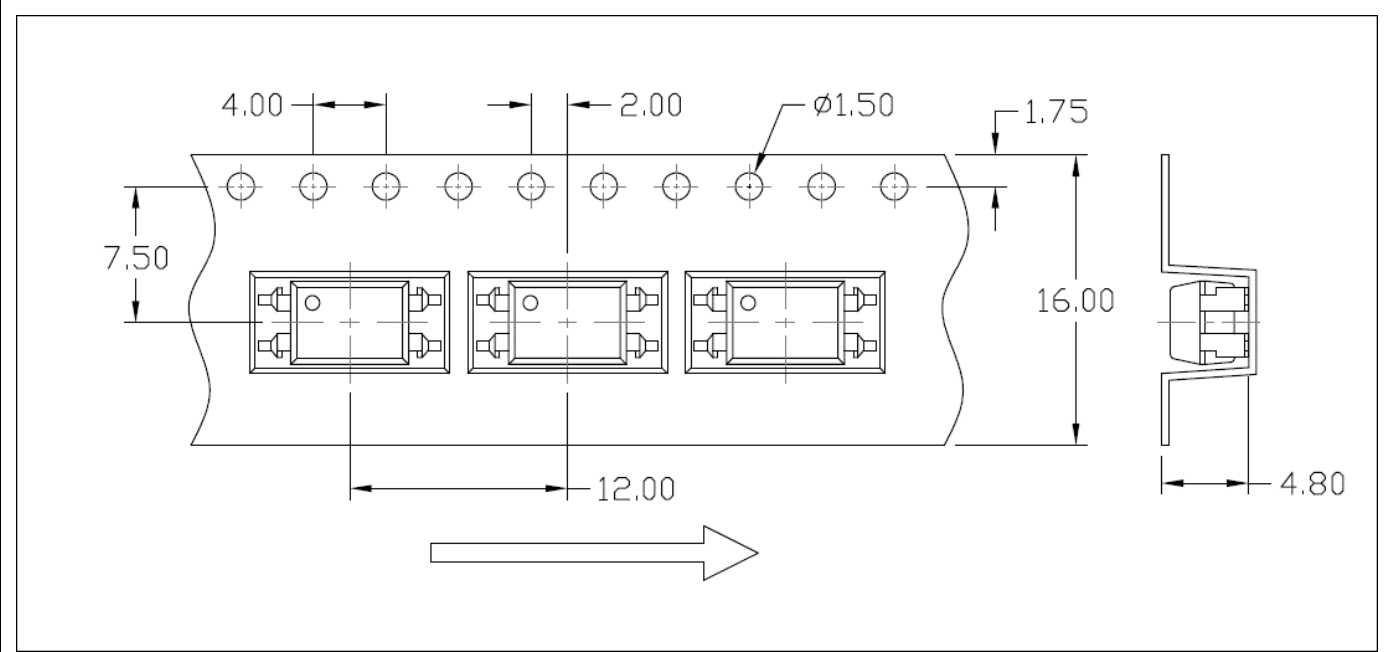


Option S(T2) & SL(T2)

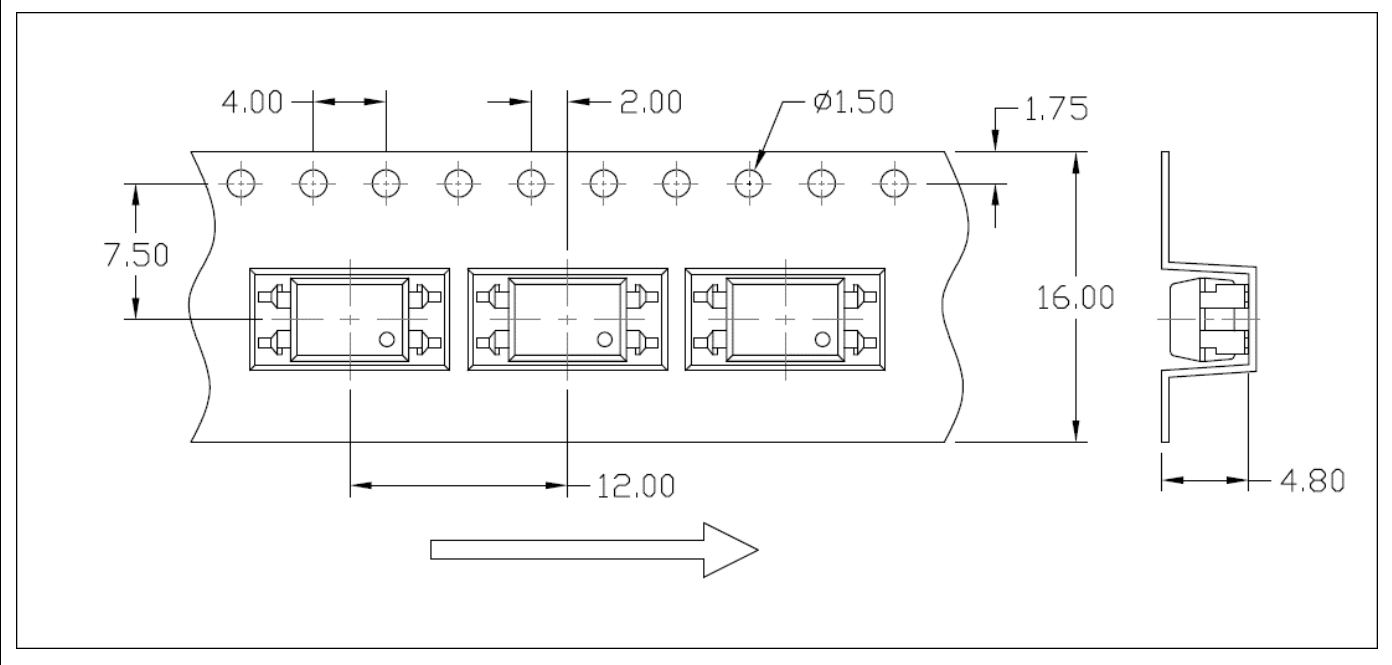


CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Option S(T3) & SL(T3)

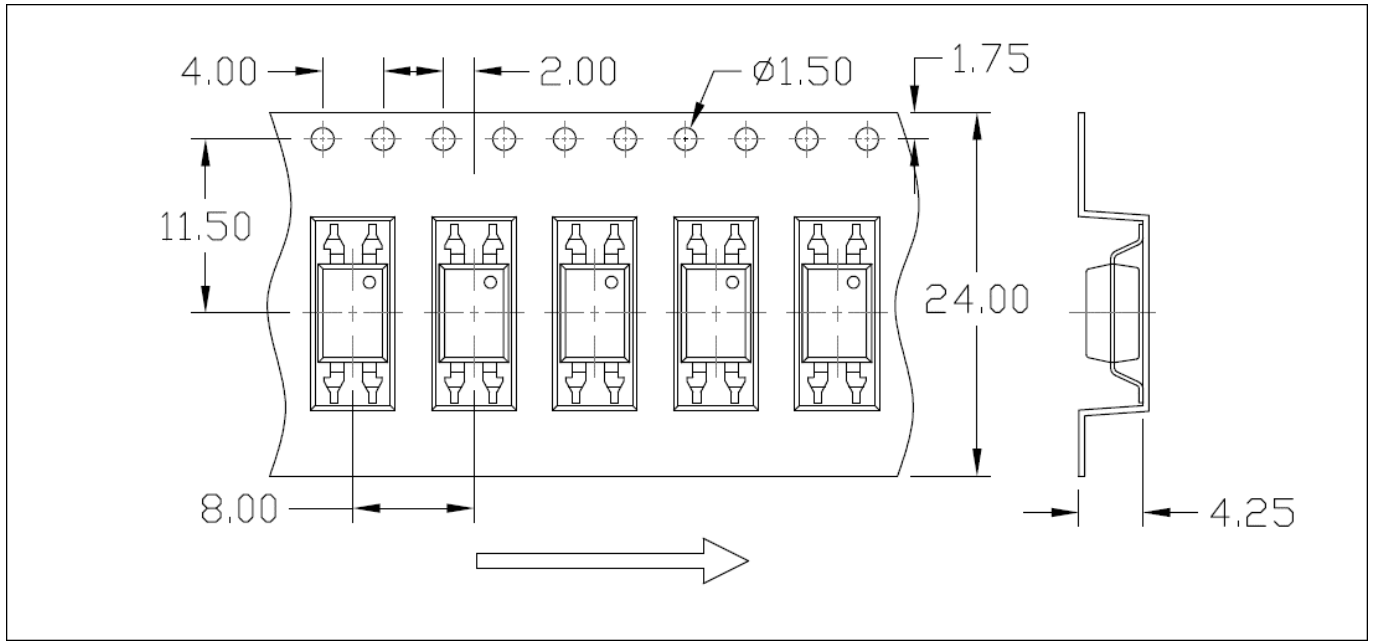


Option S(T4) & SL(T4)

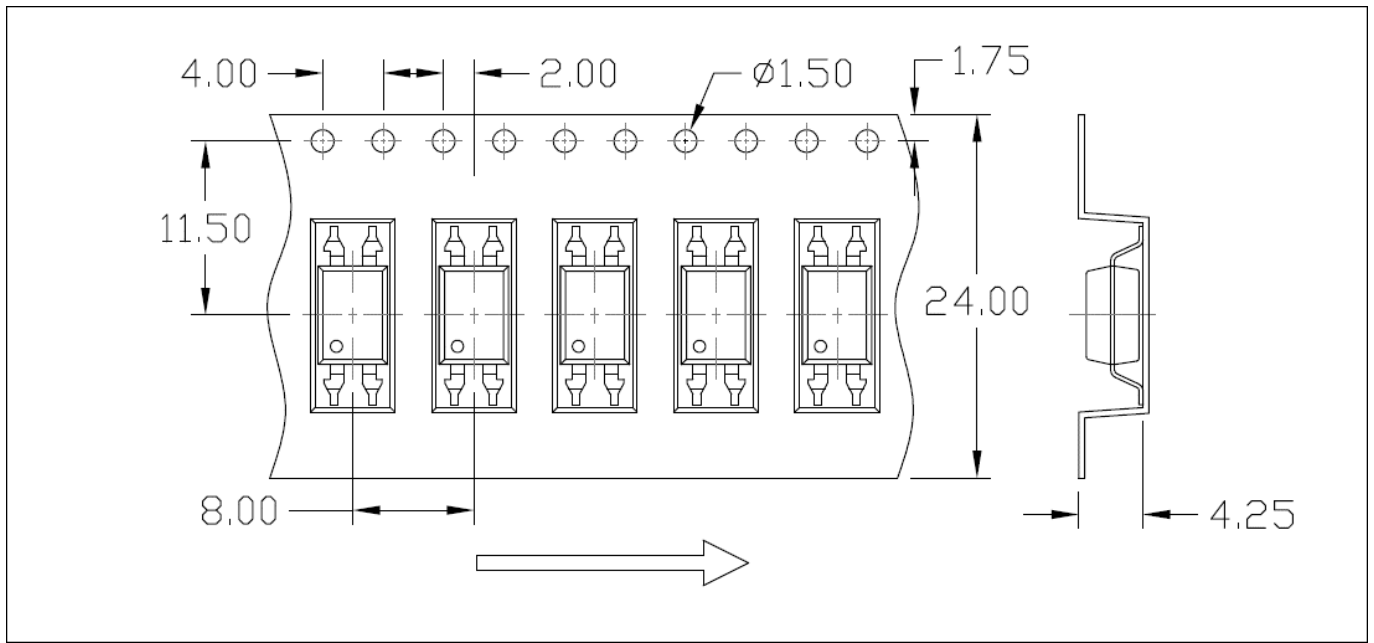


CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Option SLM(T1)



Option SLM(T2)





ORDERING AND MARKING INFORMATION

MARKING INFORMATION



TD : Company Abbr.
F : Leadframe Option
618 : Part Number
X : CTR Rank
V : VDE Option
Y : Fiscal Year
A : Manufacturing Code
WW : Work Week

ORDERING INFORMATION

TD816XN(Y)(Z)-FGV

TD – Company Abbr.
 618 – Part Number

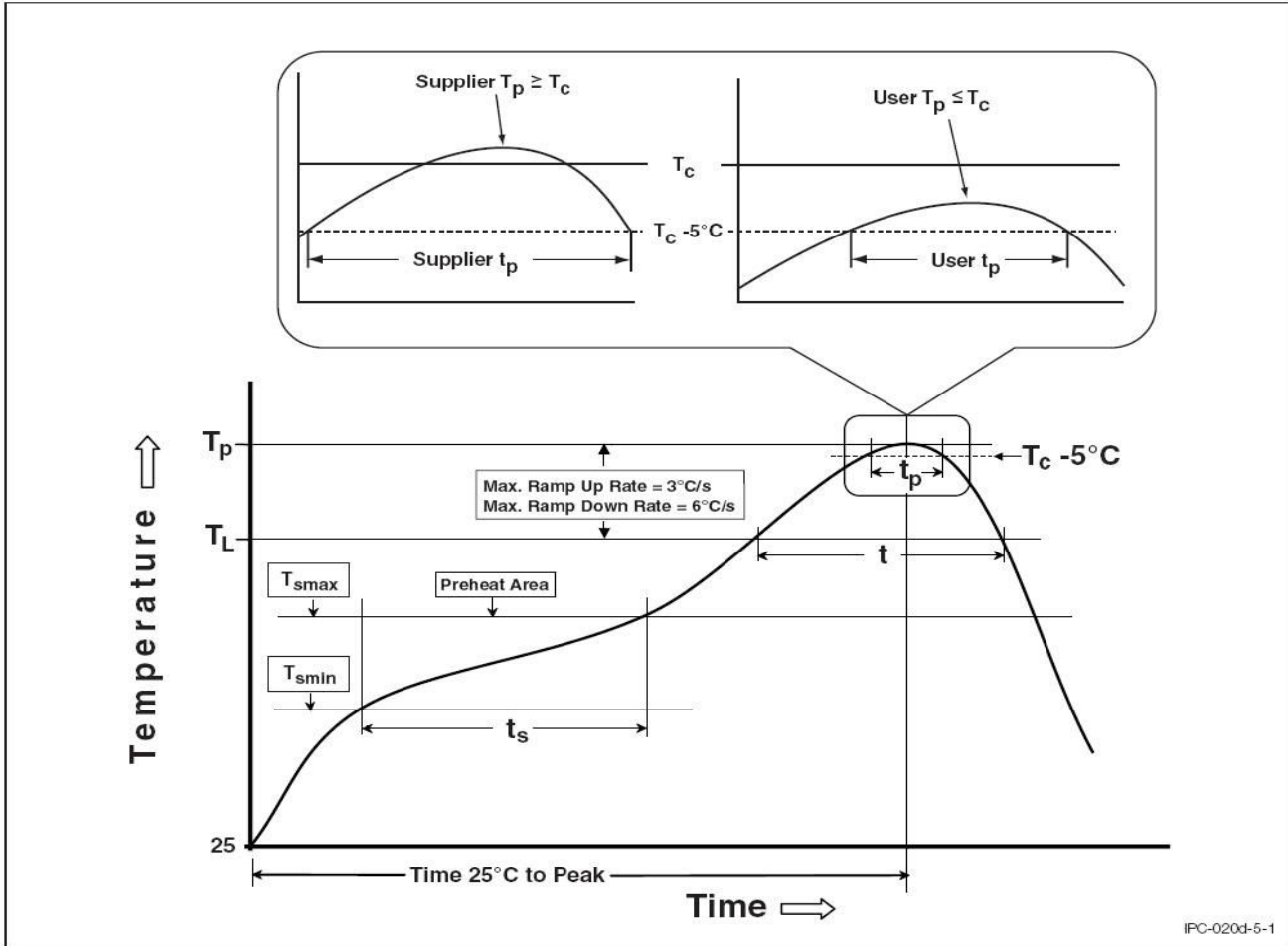
Y – Lead Form Option (M/S/SL/SLM/None)
 Z – Tape and Reel Option (T1/T2/T3/T4)
 F – Leadframe Option (F:Iron, None:Copper)
 G – Green
 V – VDE Option (V or None)

Packing Quantity

Option	Description	Quantity
None	Standard 4 Pin Dip	100 Units/Tube
M	Gullwing (400mil) Lead Forming	100 Units/Tube
S(T1)	Surface Mount Lead Forming – With Option 1 Taping	1500 Units/Reel
S(T2)	Surface Mount Lead Forming – With Option 2 Taping	1500 Units/Reel
S(T3)	Surface Mount Lead Forming – With Option 3 Taping	1000 Units/Reel
S(T4)	Surface Mount Lead Forming – With Option 4 Taping	1000 Units/Reel
SL(T1)	Surface Mount (Low Profile) Lead Forming– With Option 1 Taping	1500 Units/Reel
SL(T2)	Surface Mount (Low Profile) Lead Forming – With Option 2 Taping	1500 Units/Reel
SL(T3)	Surface Mount (Low Profile) Lead Forming– With Option 3 Taping	1000 Units/Reel
SL(T4)	Surface Mount (Low Profile) Lead Forming – With Option 4 Taping	1000 Units/Reel
SLM(T1)	Surface Mount (Gullwing) Lead Forming– With Option 1 Taping	1500 Units/Reel
SLM(T2)	Surface Mount (Gullwing) Lead Forming – With Option 2 Taping	1500 Units/Reel

REFLOW INFORMATION

REFLOW PROFILE



IPC-020d-5-1

Profile Feature	Sn-Pb Assembly Profile	Pb-Free Assembly Profile
Temperature Min. (T_{smin})	100	150°C
Temperature Max. (T_{smax})	150	200°C
Time (t_s) from (T_{smin} to T_{smax})	60-120 seconds	60-120 seconds
Ramp-up Rate (t_L to t_P)	3°C/second max.	3°C/second max.
Liquidous Temperature (T_L)	183°C	217°C
Time (t_L) Maintained Above (T_L)	60 – 150 seconds	60 – 150 seconds
Peak Body Package Temperature	235°C +0°C / -5°C	260°C +0°C / -5°C
Time (t_P) within 5°C of 260°C	20 seconds	30 seconds
Ramp-down Rate (T_P to T_L)	6°C/second max	6°C/second max
Time 25°C to Peak Temperature	6 minutes max.	8 minutes max.



DISCLAIMER

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