

TOSHIBA Photocoupler GaAlAs IRED + Photo IC

TLP350F

Industrial Inverter

Inverter for Air Conditioner

IGBT/Power MOSFET Gate Drive

IH(Induction Heating)

The TOSHIBA TLP350F consists of a GaAlAs light-emitting diode and an integrated photodetector.

This unit is an 8-lead DIP package.

The TLP350F is suitable for gate driving IGBTs or power MOSFETs.

Absolute maximum ratings and electrical characteristics are the same as TLP350 technical datasheet.

- Peak output current: $I_O = \pm 2.5A$ (max)
- Guaranteed performance over temperature: -40 to $100^\circ C$
- Supply current: $I_{CC} = 2$ mA (max)
- Power supply voltage: $V_{CC} = 15$ to 30 V
- Threshold input current : $I_{FLH} = 5$ mA (max)
- Switching time (t_{pLH}/t_{pHL}) : 500 ns (max)
- Common mode transient immunity: 15 kV/ μs
- Isolation voltage: 3750 Vrms
- UL Recognized : UL1577, File No. E67349
- Option(D4)

VDE Approved : DIN EN 60747-5-2

Maximum Operating Insulation Voltage : 1140V_{PK}

Highest Permissible Over Voltage : 6000V_{PK}

**(Note): When an EN60747-5-2 approved type is needed,
Please designate "Option(D4)"**

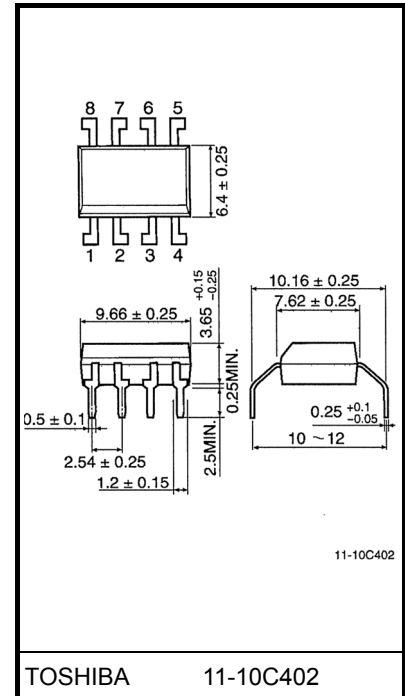
- Construction mechanical rating

	7.62mm pitch TLP350 type	10.16mm pitch TLP350F type
Creepage distance	6.4 mm (min)	8.0 mm (min)
Clearance	6.4 mm (min)	8.0 mm (min)
Insulation thickness	0.4 mm (min)	0.4 mm (min)

Truth Table

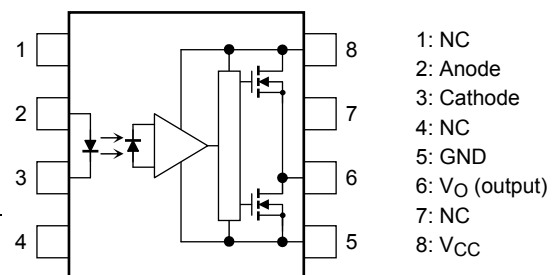
Input	LED	Tr1	Tr2	Output
H	ON	ON	OFF	H
L	OFF	OFF	ON	L

Unit: mm

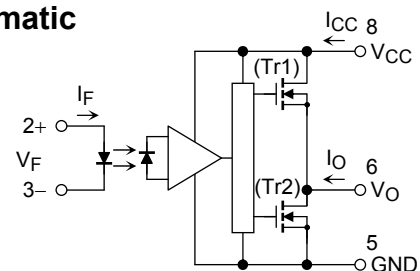


Weight: 0.54 g (typ.)

Pin Configuration (top view)



Schematic



A 0.1 μF bypass capacitor must be connected between pins 8 and 5. (See Note 6)

RESTRICTIONS ON PRODUCT USE

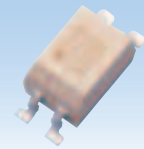
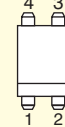
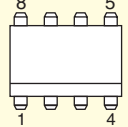
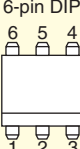
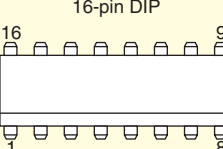
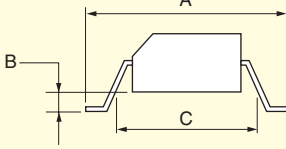
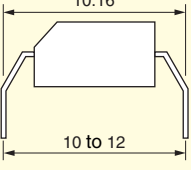
20070701-EN

- The information contained herein is subject to change without notice.
- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.
In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc.
- The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer's own risk.
- The products described in this document shall not be used or embedded to any downstream products of which manufacture, use and/or sale are prohibited under any applicable laws and regulations.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA for any infringements of patents or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any patents or other rights of TOSHIBA or the third parties.
- GaAs(Gallium Arsenide) is used in this product. The dust or vapor is harmful to the human body. Do not break, cut, crush or dissolve chemically.
- Please contact your sales representative for product-by-product details in this document regarding RoHS compatibility. Please use these products in this document in compliance with all applicable laws and regulations that regulate the inclusion or use of controlled substances. Toshiba assumes no liability for damage or losses occurring as a result of noncompliance with applicable laws and regulations.

7 Package Information

1 Lead Form Options for DIP Packages

The **DIP4**, **DIP8**, **DIP8** and **DIP16** packages offer three surface-mount lead form options and a wide-spaced lead form option. The electrical characteristics are identical, regardless of these options.

Lead Form	Surface-Mount			Wide-Spaced																																		
Appearance																																						
Lead Form Code	(LF1)	(LF4)	(LF5)	(LF2)																																		
Carrier Tape Code	(TP1)	(TP4)	(TP5)	Not available*																																		
Package Outlines	4-pin DIP  8-pin DIP  6-pin DIP  16-pin DIP   Dimensions Unit: mm <table><tr><th rowspan="2">Version Dimension</th><th colspan="2">(LF1)</th><th colspan="2">(LF4)</th><th colspan="2">(LF5)</th></tr><tr><th>Min</th><th>Max</th><th>Min</th><th>Max</th><th>Min</th><th>Max</th></tr><tr><td>A</td><td>—</td><td>10.0</td><td>—</td><td>12.0</td><td>—</td><td>10.0</td></tr><tr><td>B</td><td colspan="2">(0.35 typ.)</td><td colspan="2">(0.25 typ.)</td><td>—</td><td>0.2</td></tr><tr><td>C</td><td>6.4</td><td>—</td><td>8.0</td><td>—</td><td>6.4</td><td>—</td></tr></table> All other package dimensions are the same as for each standard package specification.			Version Dimension	(LF1)		(LF4)		(LF5)		Min	Max	Min	Max	Min	Max	A	—	10.0	—	12.0	—	10.0	B	(0.35 typ.)		(0.25 typ.)		—	0.2	C	6.4	—	8.0	—	6.4	—	
Version Dimension	(LF1)		(LF4)		(LF5)																																	
	Min	Max	Min	Max	Min	Max																																
A	—	10.0	—	12.0	—	10.0																																
B	(0.35 typ.)		(0.25 typ.)		—	0.2																																
C	6.4	—	8.0	—	6.4	—																																

* Tape-and-reel packing is not available with (LF2).

Example 1: Standard part: TLP621(F)

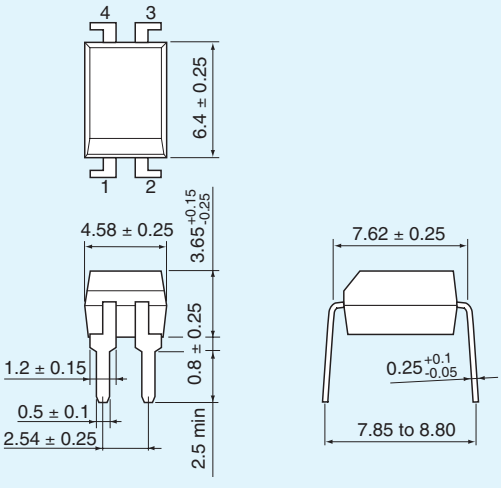
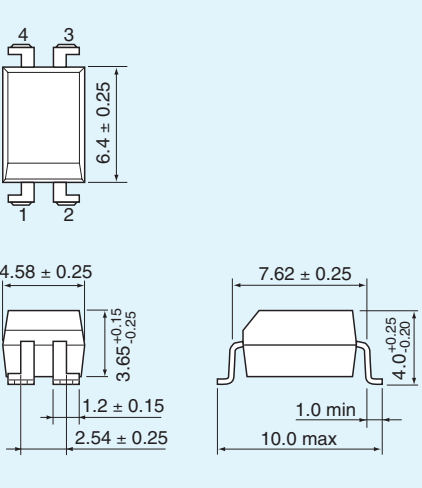
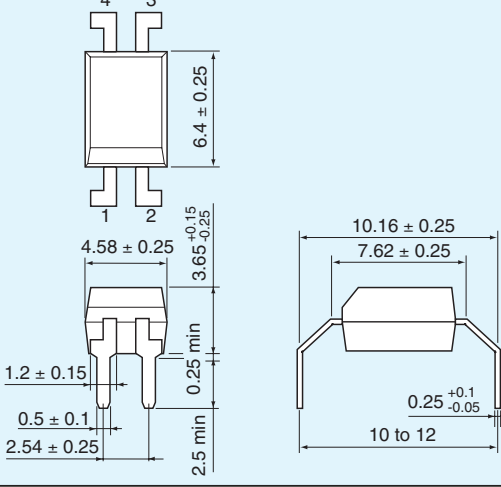
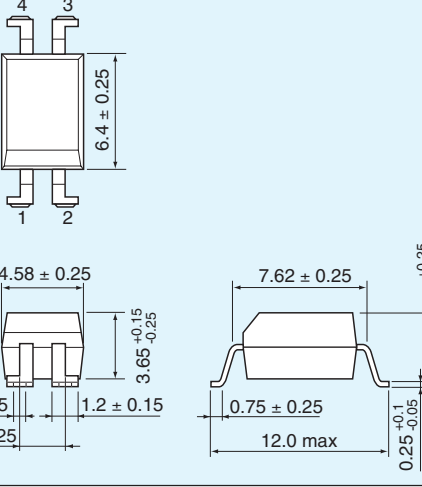
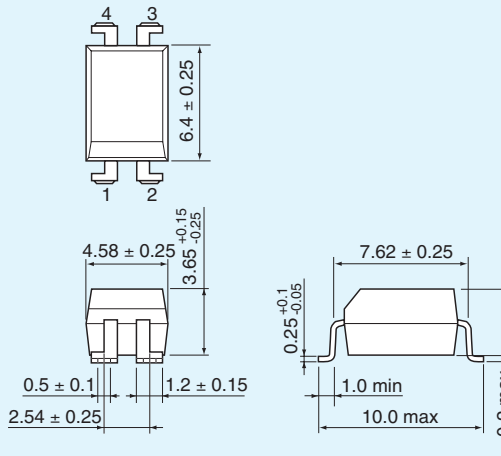
Surface-mount option: TLP621(LF1,F): Packed in stick magazines (see page 50).

Surface-mount and tape-and-reel options: TLP621(TP1,F): Packed in tape-and-reel (see page 52).

- Standard part names should be used when applying for safety standard approval.
- The package dimensions and lead form options of the TLP781 differ from those shown above. See the TLP781 datasheet.

7 Package Information

2 Package Dimensions (4-Pin DIP)

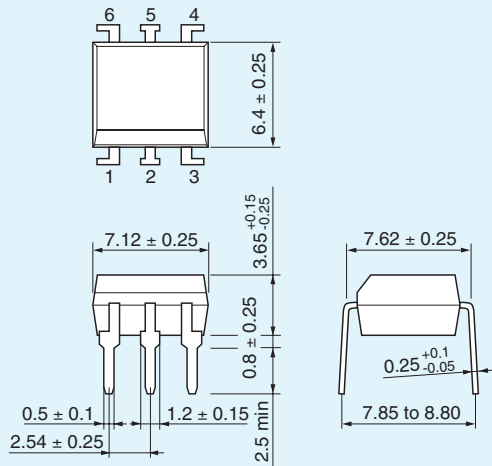
Standard DIP4	DIP4 (LF1) / (TP1)
Unit: mm 	Unit: mm 
DIP4 (LF2)	DIP4 (LF4) / (TP4)
Unit: mm 	Unit: mm 
DIP4 (LF5) / (TP5)	
Unit: mm 	

2 Package Dimensions (6-Pin DIP)

Standard

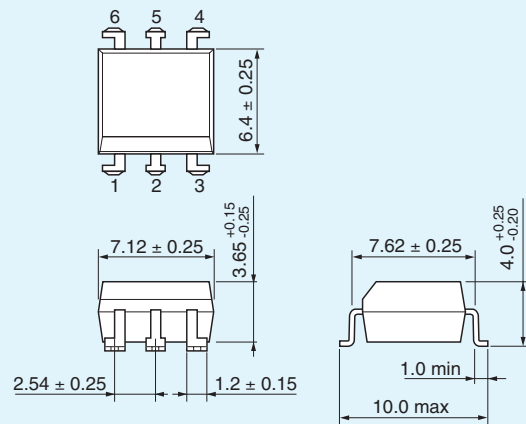
DIP6

Unit: mm



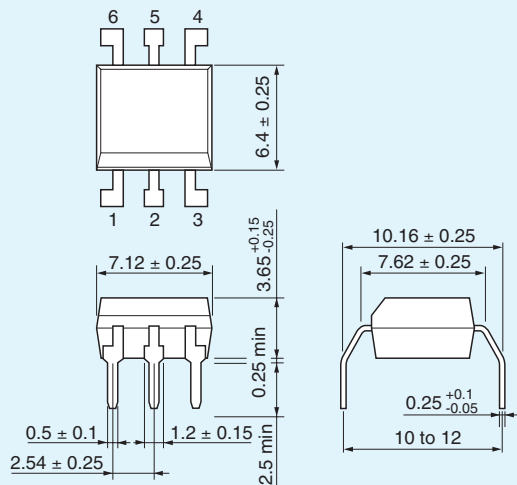
DIP6 (LF1) / (TP1)

Unit: mm



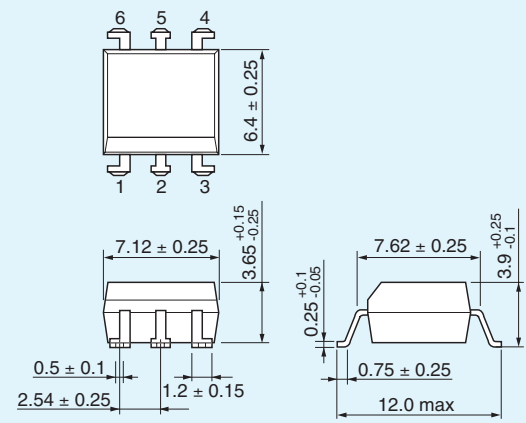
DIP6 (LF2)

Unit: mm



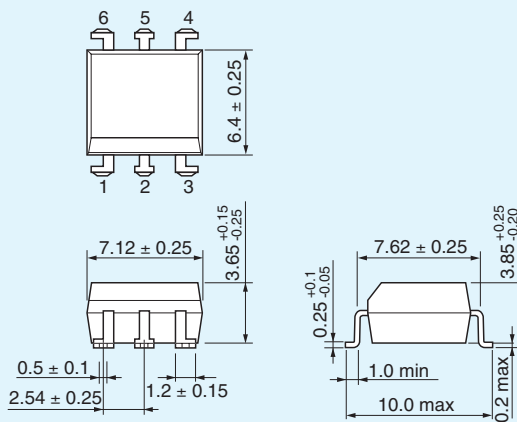
DIP6 (LF4) / (TP4)

Unit: mm



DIP6 (LF5) / (TP5)

Unit: mm

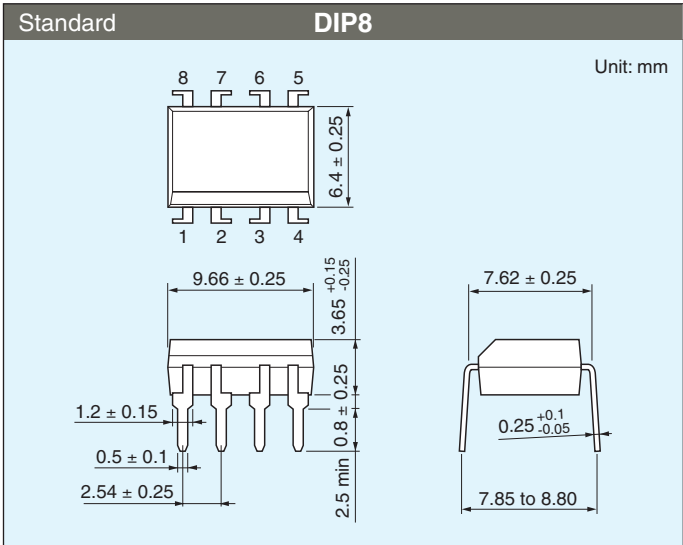


2 Package Dimensions (8-Pin DIP)

Standard	DIP8
----------	------

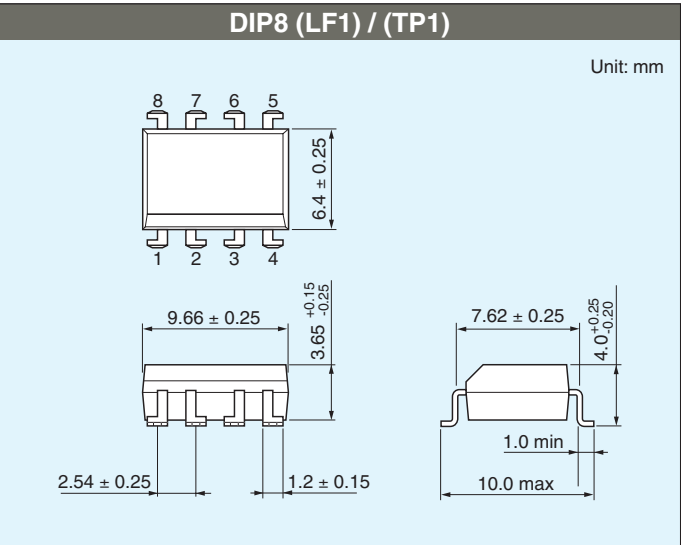
Standard	DIP8
----------	------

Standard	DIP8
----------	------



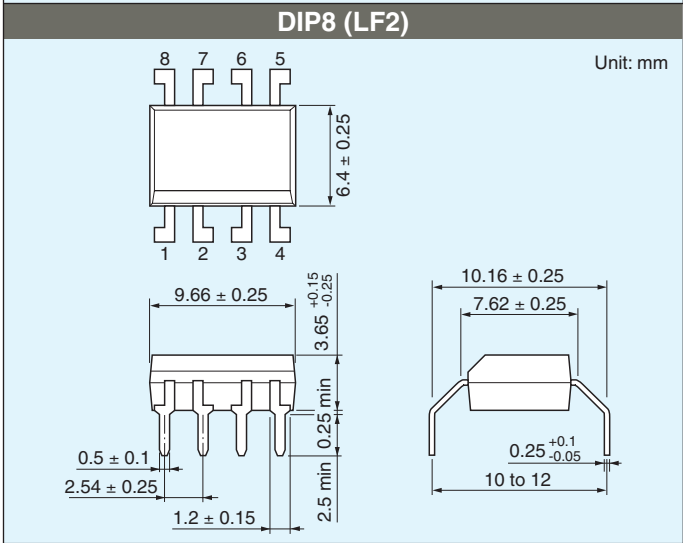
DIP8 (LF1) / (TP1)

DIP8 (LF1) / (TP1)



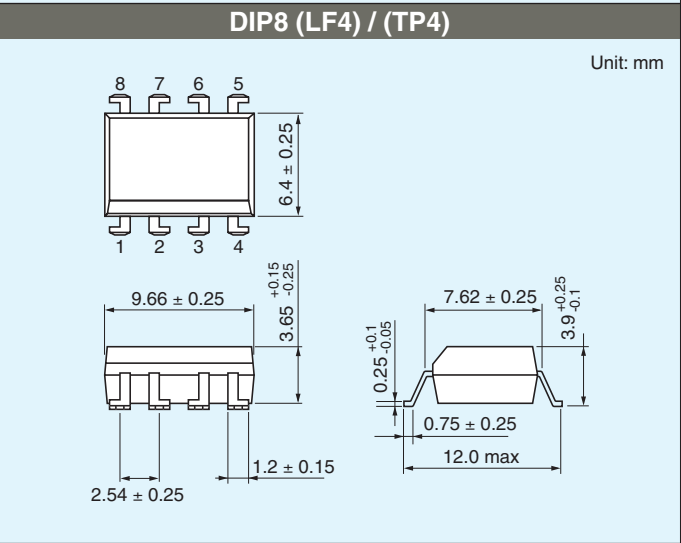
DIP8 (LF2)

DIP8 (LF2)



DIP8 (LF4) / (TP4)

DIP8 (LF4) / (TP4)



DIP8 (LF5) / (TP5)

DIP8 (LF5) / (TP5)

