


FEATURES

- Very High Current Transfer Ratio, 500% Min.
- Isolation Test Voltage, 5300 VAC_{RMS}
- High Isolation Resistance, 10¹¹ Ω Typical
- Low Coupling Capacitance
- Standard Plastic DIP Package
- Underwriters Lab File #E52744
-  VDE 0884 Available with Option 1

Maximum Ratings (Each Channel)

Emitter

| | |
|----------------------------|------------|
| Peak Reverse Voltage | 3 V |
| Continuous Forward Current | 60 mA |
| Power Dissipation at 25°C | 100 mW |
| Derate Linearly from 25°C | 1.33 mW/°C |

Detector

| | |
|-------------------------------------|-----------|
| Collector-Emitter Breakdown Voltage | 30 V |
| Collector (Load) Current | 125 mA |
| Power Dissipation at 25°C Ambient | 150 mW |
| Derate Linearly from 25°C | 2.0 mW/°C |

Package

| | |
|---|-------------------------------------|
| Isolation Test Voltage (between emitter and detector referred to standard climate 23°C/50%RH, DIN 50014) (t=1 sec.) | 5300 VAC _{RMS} |
| Creepage | 7 mm min. |
| Clearance | 7 mm min. |
| Comparative Tracking Index per DIN IEC 112/VDE303, part 1 | ≥175 |
| Isolation Resistance | |
| V _{IO} =500V, T _A =25°C | R _{IO} =10 ¹² Ω |
| V _{IO} =500V, T _A =100°C | R _{IO} =10 ¹¹ Ω |
| Total Dissipation at 25°C Ambient | |
| ILD32 | 400 mW |
| ILQ32 | 500 mW |
| Derate Linearly from 25°C | |
| ILD32 | 5.33 mW/°C |
| ILQ32 | 6.67 mW/°C |
| Storage Temperature | -55°C to +150°C |
| Operating Temperature | -55°C to +100°C |
| Lead Soldering Time at 260°C | 10 sec. |

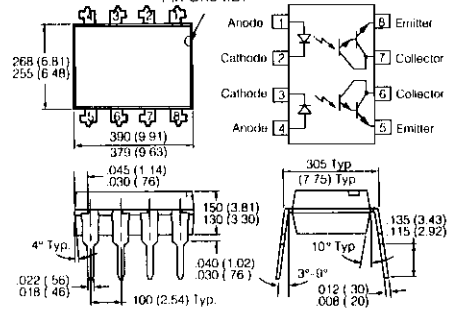
DESCRIPTION

The ILD32/ILQ32 are optically coupled isolators with a Gallium Arsenide infrared LED and a silicon photodarlington sensor. Switching can be achieved while maintaining a high degree of isolation between driving and load circuits. These optocouplers can be used to replace reed and mercury relays with advantages of long life, high speed switching and elimination of magnetic fields.

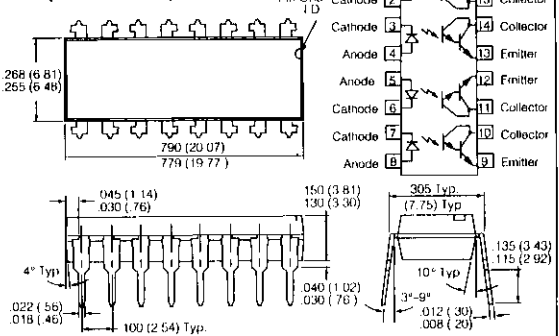
The ILD32 has two isolated channels in a DIP package, and the ILQ32 has four channels. These devices can be used to replace 4N32s or 4N33s in applications calling for several single channel optocouplers on a board.

Package Dimensions in Inches (mm)

ILD32 (Dual Channel)



ILQ32 (Quad Channel)



Electrical Characteristics (T_A=25°C)

| | Symbol | Min. | Typ. | Max. | Unit | Condition |
|--------------------------------------|--------------------|------|------|------|------|---|
| Emitter | | | | | | |
| Forward Voltage | V _F | 1.25 | 1.5 | | V | I _F =10 mA |
| Reverse Current | I _R | 0.1 | 100 | | μA | V _R =3.0 V V _F =0 V |
| Capacitance | C _D | | 25 | | pF | V _R =0 V |
| Detector | | | | | | |
| Breakdown Voltage | | | | | | |
| Collector-Emitter | BV _{CEO} | 30 | | | V | I _C =100 μA, I _F =0 |
| Emitter-Collector | BV _{ECCO} | 5 | 10 | | V | I _F =100 μA |
| Collector-Emitter Leakage Current | I _{CFO} | 1.0 | 100 | | nA | V _{CE} =10 V, I _F =0 |
| Package | | | | | | |
| Current Transfer Ratio | CTR | | 500 | | % | I _F =10 mA, V _{CE} =10 V |
| Collector-Emitter Saturation Voltage | V _{CEsat} | | | 1.0 | V | I _C =2 mA, I _F =8 mA |
| Isolation Capacitance | C _{ISOL} | | 0.5 | | pF | |
| Turn-On Time | t _{on} | | 15 | | μs | V _{CC} =10 V I _F =5 mA, |
| Turn-Off Time | t _{off} | | 30 | | μs | R _L =100 Ω |

Figure 1. Forward voltage versus forward current

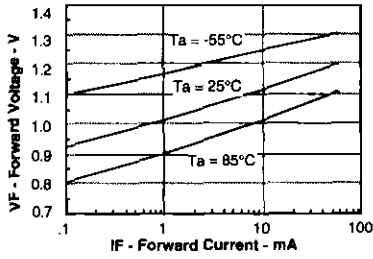


Figure 2. Normalized non-saturated and saturated CTR_{ce} at T_A = 25°C versus LED current

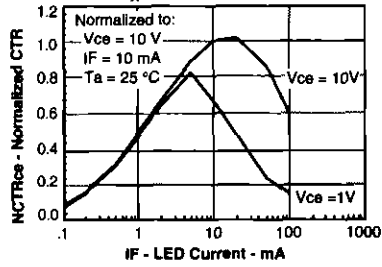


Figure 3. Normalized non-saturated and saturated collector-emitter current versus LED current

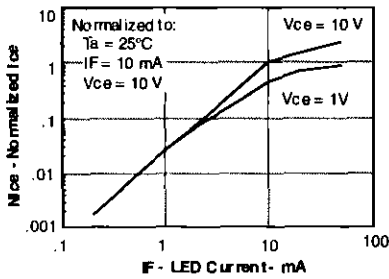


Figure 4. Low to high propagation delay versus collector load resistance and LED current

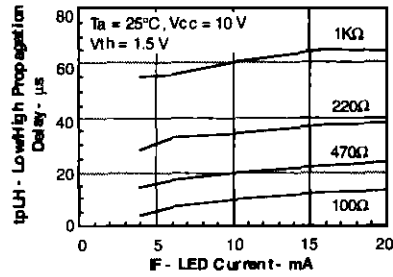


Figure 5. High to low propagation delay versus collector load resistance and LED current

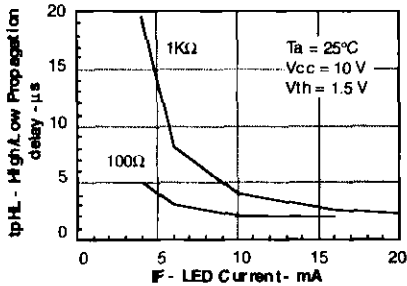


Figure 6. Switching timing

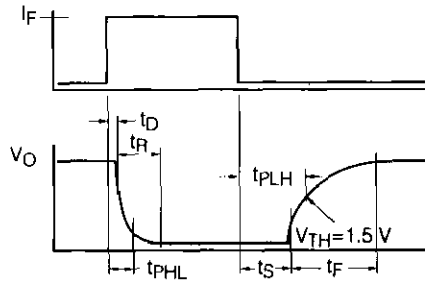


Figure 7. Switching schematic

