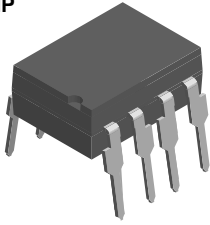
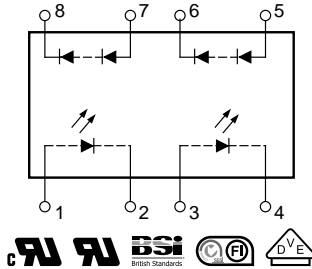
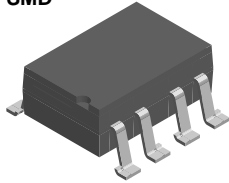


Dual Photovoltaic MOSFET Driver Solid-State Relay

DIP



SMD



FEATURES

- High open circuit voltage
- High short circuit current
- Isolation test voltage 5300 V_{RMS}
- Logic compatible input
- High reliability
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

APPLICATIONS

- High-side driver
- Solid-state relays
- Floating power supply
- Power control
- Data acquisition
- ATE
- Isolated switching

AGENCY APPROVALS

- [UL1577](#)
- [DIN EN](#)
- [BSI](#)
- [CQC](#)
- [FIMKO](#)

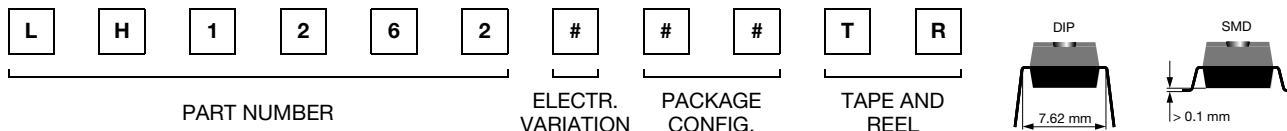
DESIGN SUPPORT TOOLS

[click logo to get started](#)


DESCRIPTION

The LH1262CB, LH1262CAC photovoltaic MOSFET driver consists of two LEDs optically coupled to two photodiode arrays. The photodiode array provides a floating source with adequate voltage and current to drive high-power MOSFET transistors. Optical coupling provides a high I/O isolation voltage. In order to turn the MOSFET off, an external resistance (gate-to-source) is required for gate discharge.

ORDERING INFORMATION



| PACKAGE | UL, VDE, BSI, CQC, FIMKO |
|----------------------|--------------------------|
| SMD-8 | LH1262CAC |
| SMD-8, tape and reel | LH1262CACTR |
| DIP-8 | LH1262CB |

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|--|------------------------|------------------|-------------|------|
| SSR | | | | |
| LED input ratings continuous forward current | | I _F | 50 | mA |
| LED input ratings reverse voltage | I _R ≤ 10 μA | V _R | 5.0 | V |
| Ambient operating temperature range | | T _{amb} | -40 to +85 | °C |
| Storage temperature range | | T _{stg} | -40 to +150 | °C |
| Pin soldering time | t = 7.0 s max. | T _s | 270 | °C |

Note

- Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of this document. Exposure to absolute maximum ratings for extended periods of the time can adversely affect reliability



| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | |
|--|--------------------------------|--------------|------|-------|------|---------------|
| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| LED forward voltage | $I_F = 10\text{ mA}$ | V_F | 1.15 | 1.26 | 1.45 | V |
| Detector forward voltage | $I_F = 10\text{ }\mu\text{A}$ | $V_{F(PDA)}$ | - | 14 | - | V |
| Detector reverse voltage | $I_R = 2.0\text{ }\mu\text{A}$ | $V_{R(PDA)}$ | - | 200 | - | V |
| Open circuit voltage (pins 5, 6 or 7, 8) | $I_F = 5.0\text{ mA}$ | V_{OC} | 10 | 12.95 | 15 | V |
| | $I_F = 10\text{ mA}$ | V_{OC} | - | 13.45 | - | V |
| | $I_F = 20\text{ mA}$ | V_{OC} | - | 13.92 | - | V |
| Short circuit current (pins 5, 6 or 7, 8) | $I_F = 5.0\text{ mA}$ | I_{SC} | 1.0 | 1.6 | 6.5 | μA |
| | $I_F = 10\text{ mA}$ | I_{SC} | 2.6 | 3.4 | 14 | μA |
| | $I_F = 20\text{ mA}$ | I_{SC} | - | 6.9 | - | μA |

Note

- Minimum and maximum values are testing requirements. Typical values are characteristics of the device and are the result of engineering evaluations. Typical values are for information only and are not part of the testing requirements

| SWITCHING CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | |
|---|-------------------------------------|-----------|------|------|------|---------------|
| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Turn-on time | $I_F = 20\text{ mA}$ ⁽¹⁾ | t_{on} | - | 35 | - | μs |
| Turn-off time | $I_F = 20\text{ mA}$ ⁽¹⁾ | t_{off} | - | 90 | - | μs |

Note

- ⁽¹⁾ $f = 1.0\text{ kHz}$, pulse width = $100\text{ }\mu\text{s}$, load (R_L) = $1.0\text{ M}\Omega$, 15 pF ; measured at 90 % rated voltage (t_{on}), 10 % rated voltage (t_{off}). Actuation speed depends upon the external t_{on} and t_{off} circuitry and the capacitance of the MOSFET

| SAFETY AND INSULATION RATINGS | | | | |
|--|---|------------|----------------|--------------------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Climatic classification | According to IEC 68 part 1 | | 40 / 85 / 21 | |
| Pollution degree | According to DIN VDE 0109 | | 2 | |
| Comparative tracking index | Insulation group IIIa | CTI | 175 | |
| Maximum rated withstanding isolation voltage | According to UL1577, $t = 1\text{ min}$ | V_{ISO} | 5300 | V_{RMS} |
| Tested withstanding isolation voltage | According to UL1577, $t = 1\text{ s}$ | V_{ISO} | 4420 | V_{RMS} |
| Maximum transient isolation voltage | According to DIN EN 60747-5-5 | V_{IOTM} | 8000 | V_{peak} |
| Maximum repetitive peak isolation voltage | According to DIN EN 60747-5-5 | V_{IORM} | 890 | V_{peak} |
| Isolation resistance | $V_{IO} = 500\text{ V}$, $T_{amb} = 25\text{ }^{\circ}\text{C}$ | R_{IO} | $\geq 10^{12}$ | Ω |
| | $V_{IO} = 500\text{ V}$, $T_{amb} = 100\text{ }^{\circ}\text{C}$ | R_{IO} | $\geq 10^{11}$ | Ω |
| | $V_{IO} = 500\text{ V}$, $T_{amb} = T_S$ | R_{IO} | $\geq 10^9$ | Ω |
| Output safety power | | P_{SO} | 700 | mW |
| Input safety current | | I_{SI} | 300 | mA |
| Safety temperature | | T_S | 175 | $^{\circ}\text{C}$ |
| Creepage distance (DIP) | DIP-8 | | ≥ 7 | mm |
| Clearance distance (DIP) | | | ≥ 7 | mm |
| Creepage distance (SMD) | SMD-8 | | ≥ 8 | mm |
| Clearance distance (SMD) | | | ≥ 8 | mm |
| Insulation thickness | | DTI | ≥ 0.4 | mm |

Note

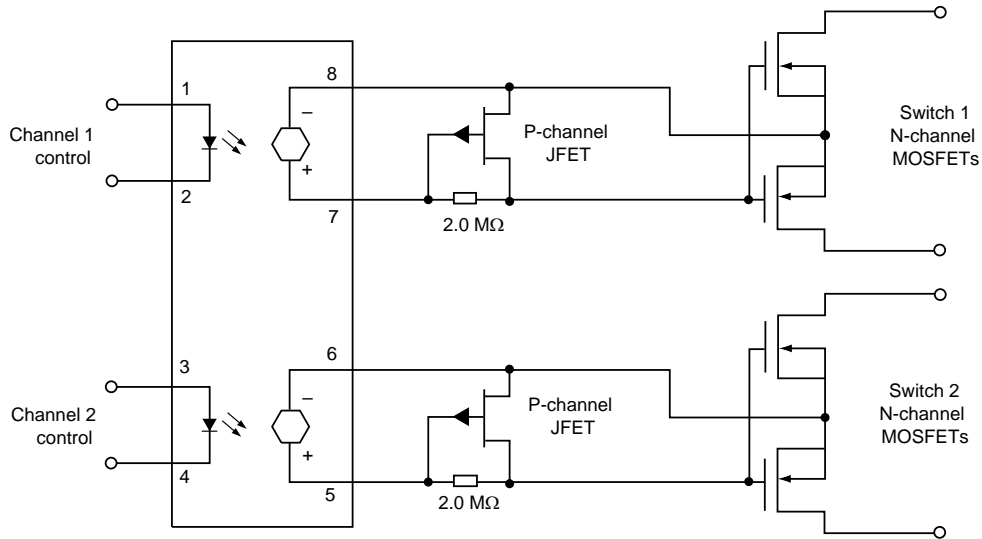
- As per IEC 60747-5-5, § 7.4.3.8.2, this optocoupler is suitable for "safe electrical insulation" only within the safety ratings. Compliance with the safety ratings shall be ensured by means of protective circuits



FUNCTIONAL DESCRIPTION

Figure 1 outlines the IV characteristics of the illuminated photodiode array (PDA). For operation at voltages below V_{OC} , the PDA acts as a nearly constant current source. The actual region of operation depends upon the load.

The amount of current applied to the LED (pins 1 and 2 or 3 and 4) determines the amount of light produced for the PDA. For high temperature operation, more LED current may be required.



ih1262cb_08

Fig. 1 - Typical Dual Form A Solid-State Relay Application

PACKAGE DIMENSIONS (in millimeters)

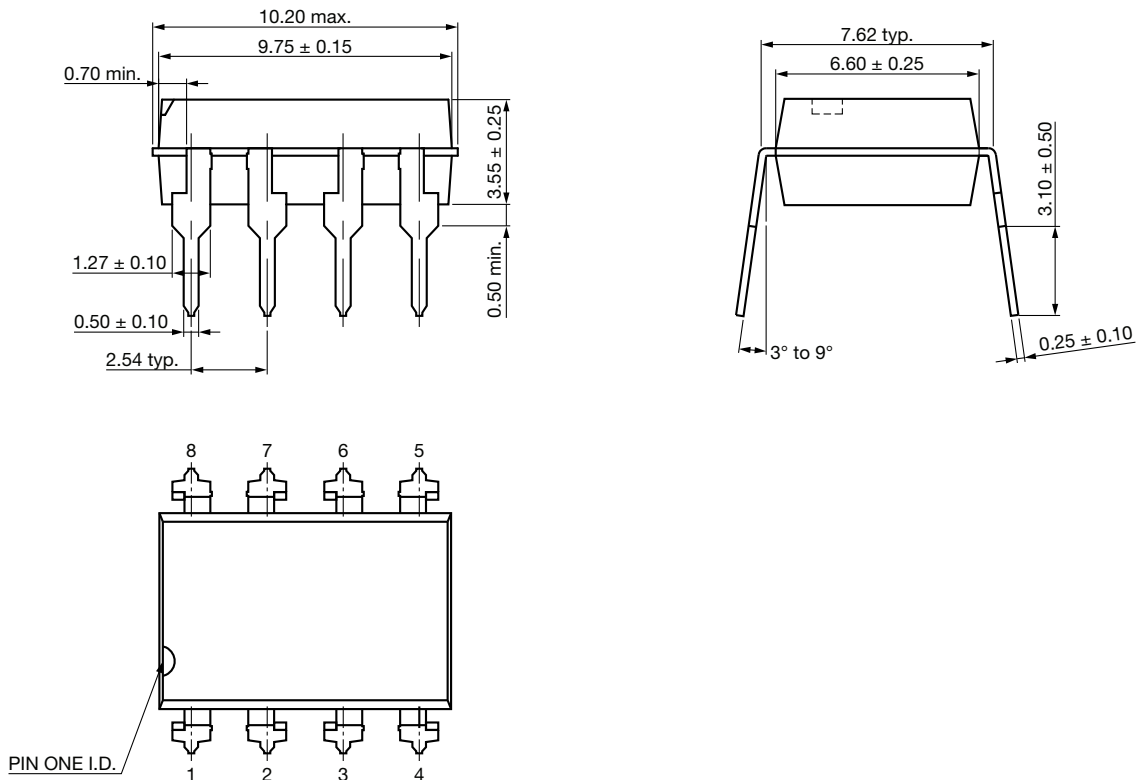


Fig. 2 - DIP-8 Package Drawing

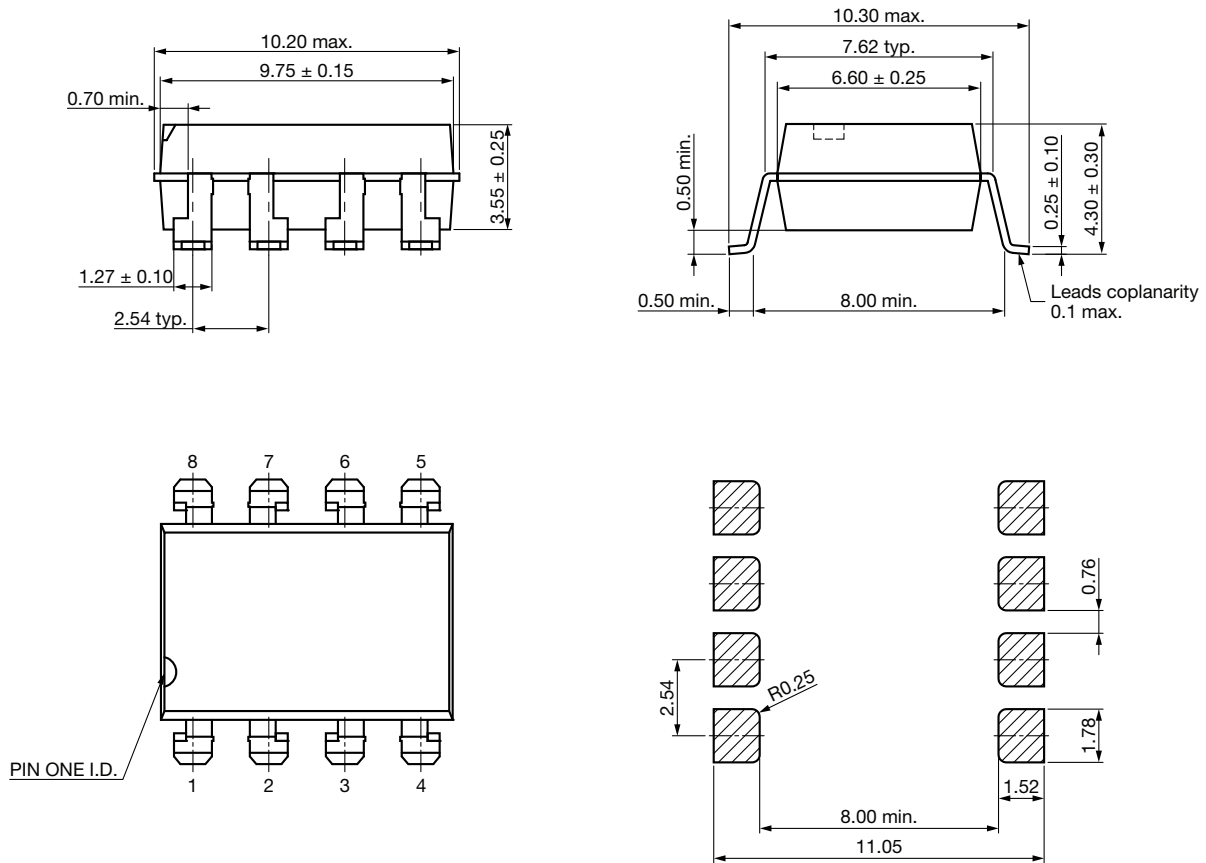


Fig. 3 - SMD-8 Package Drawing

PACKAGE MARKING (example)

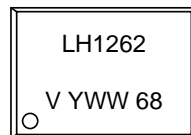


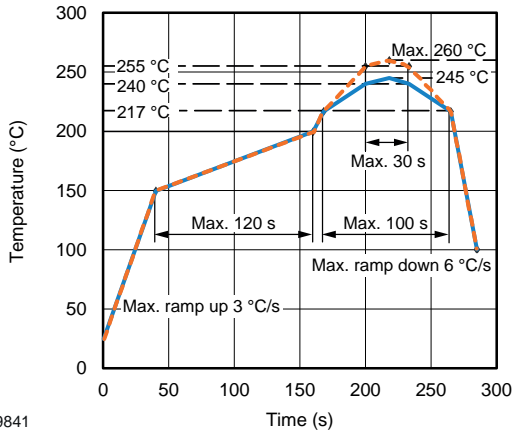
Fig. 4 - LH1262

Notes

- VDE logo is only marked on option 1 parts
- Tape and reel suffix (T) is not part of the package marking

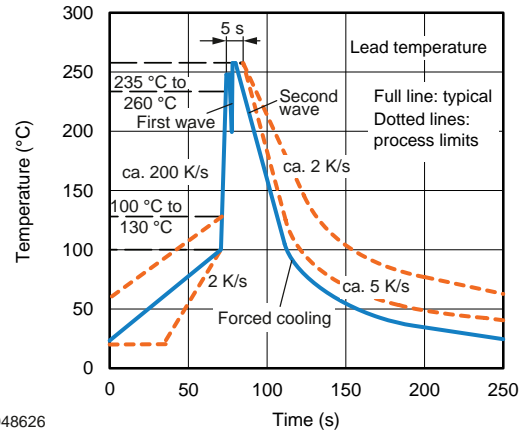


SOLDER PROFILES



19841

Fig. 5 - Lead (Pb)-free Reflow Solder Profile According to J-STD-020 for SMD Devices



948626

Fig. 6 - Wave Soldering Double Wave Profile According to J-STD-020 for DIP Devices



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