



| ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | |
|---|---|------------|-------------|--------------------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| INPUT | | | | |
| DC forward current | | I_F | ± 60 | mA |
| Surge forward current | $t_p \leq 10\text{ }\mu\text{s}$ | I_{FSM} | ± 2.5 | A |
| Power dissipation | | P_{diss} | 100 | mW |
| OUTPUT | | | | |
| Collector emitter voltage | | V_{CEO} | 70 | V |
| Emitter collector voltage | | V_{ECO} | 7 | V |
| Collector current | | I_C | 50 | mA |
| | $t_p \leq 1\text{ }\mu\text{s}$ | I_C | 100 | mA |
| Power dissipation | | P_{diss} | 150 | mW |
| COUPLER | | | | |
| Total power dissipation | | P_{tot} | 250 | mW |
| Storage temperature range | | T_{stg} | -55 to +150 | $^{\circ}\text{C}$ |
| Ambient temperature range | | T_{amb} | -55 to +100 | $^{\circ}\text{C}$ |
| Junction temperature | | T_j | 100 | $^{\circ}\text{C}$ |
| Soldering temperature ⁽¹⁾ | max. 10 s, dip soldering distance to seating plane $\geq 1.5\text{ mm}$ | T_{sld} | 260 | $^{\circ}\text{C}$ |

Notes

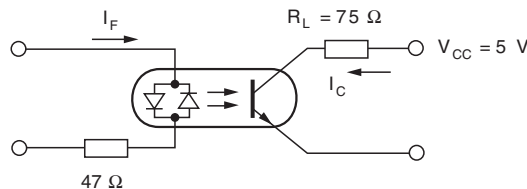
- Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of this document. Exposure to absolute maximum ratings for extended periods of the time can adversely affect reliability.
- ⁽¹⁾ Refer to reflow profile for soldering conditions for surface mounted devices (SMD). Refer to wave profile for soldering conditions for through hole devices (DIP).

| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | | |
|---|--|-----------|-------------|------|------|------|-----------------------------|
| PARAMETER | TEST CONDITION | PART | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| INPUT | | | | | | | |
| Forward voltage | $I_F = \pm 60\text{ mA}$ | | V_F | | 1.25 | 1.65 | V |
| Capacitance | $V_R = 0\text{ V}$, $f = 1\text{ MHz}$ | | C_O | | 50 | | pF |
| Thermal resistance | | | R_{thja} | | 750 | | K/W |
| OUTPUT | | | | | | | |
| Collector emitter capacitance | $V_{CE} = 5\text{ V}$, $f = 1\text{ MHz}$ | | C_{CE} | | 6.8 | | pF |
| Thermal resistance | | | R_{thja} | | 500 | | $^{\circ}\text{C}/\text{W}$ |
| COUPLER | | | | | | | |
| Collector emitter saturation voltage | $I_F = \pm 10\text{ mA}$, $I_C = 2.5\text{ mA}$ | | V_{CEsat} | | 0.25 | 0.4 | V |
| Coupling capacitance | | | C_C | | 0.2 | | pF |
| Collector emitter leakage current | $V_{CE} = 10\text{ V}$ | SFH620A-1 | I_{CEO} | | 2 | 50 | nA |
| | | SFH6206-1 | I_{CEO} | | 2 | 50 | nA |
| | | SFH620A-2 | I_{CEO} | | 2 | 50 | nA |
| | | SFH6206-2 | I_{CEO} | | 2 | 50 | nA |
| | | SFH620A-3 | I_{CEO} | | 5 | 100 | nA |
| | | SFH6206-3 | I_{CEO} | | 5 | 100 | nA |

Note

- Minimum and maximum values are testing requirements. Typical values are characteristics of the device and are the result of engineering evaluation. Typical values are for information only and are not part of the testing requirements. Still air, coupler soldered to PCB or base.

| CURRENT TRANSFER RATIO ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | | |
|--|---|-----------|--------|------|------|------|------|
| PARAMETER | TEST CONDITION | PART | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| I_C/I_F | $V_{CE} = 5\text{ V}, I_F = \pm 10\text{ mA}$ | SFH620A-1 | CTR | 40 | | 125 | % |
| | | SFH6206-1 | CTR | 40 | | 125 | % |
| | | SFH620A-2 | CTR | 63 | | 200 | % |
| | | SFH6206-2 | CTR | 63 | | 200 | % |
| | | SFH620A-3 | CTR | 100 | | 320 | % |
| | | SFH6206-3 | CTR | 100 | | 320 | % |
| | $V_{CE} = 5\text{ V}, I_F = \pm 1\text{ mA}$ | SFH620A-1 | CTR | 13 | 30 | | % |
| | | SFH6206-1 | CTR | 13 | 30 | | % |
| | | SFH620A-2 | CTR | 22 | 45 | | % |
| | | SFH6206-2 | CTR | 22 | 45 | | % |
| | | SFH620A-3 | CTR | 34 | 70 | | % |
| | | SFH6206-3 | CTR | 34 | 70 | | % |



isfh620a_08

Fig. 1 - Switching Times Linear Operation (without Saturation)

| SWITCHING CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | |
|---|---|-----------|------|------|------|---------------|
| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Turn-on time | $R_L = 75\text{ }\Omega, I_F = \pm 10\text{ mA}, V_{CC} = 5\text{ V}$ | t_{on} | | 3 | | μs |
| Rise time | $R_L = 75\text{ }\Omega, I_F = \pm 10\text{ mA}, V_{CC} = 5\text{ V}$ | t_r | | 2 | | μs |
| Turn-off time | $R_L = 75\text{ }\Omega, I_F = \pm 10\text{ mA}, V_{CC} = 5\text{ V}$ | t_{off} | | 2.3 | | μs |
| Fall time | $R_L = 75\text{ }\Omega, I_F = \pm 10\text{ mA}, V_{CC} = 5\text{ V}$ | t_f | | 2 | | μs |
| Cut-off frequency | $R_L = 75\text{ }\Omega, I_F = \pm 10\text{ mA}, V_{CC} = 5\text{ V}$ | t_{ctr} | | 208 | | kHz |

| SAFETY AND INSULATION RATINGS | | | | |
|--|--|------------|----------------|--------------------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Climatic classification | According to IEC 68 part 1 | | 55/115/21 | |
| 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} | 4470 | V_{RMS} |
| Tested withstanding isolation voltage | According to UL1577, $t = 1\text{ s}$ | V_{ISO} | 5300 | 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 | $T_{amb} = 25\text{ }^{\circ}\text{C}, V_{IO} = 500\text{ V}$ | R_{IO} | $\geq 10^{12}$ | Ω |
| | $T_{amb} = 100\text{ }^{\circ}\text{C}, V_{IO} = 500\text{ V}$ | R_{IO} | $\geq 10^{11}$ | Ω |
| Output safety power | | P_{SO} | 700 | mW |
| Input safety current | | I_{SI} | 400 | mA |
| Input safety temperature | | T_S | 175 | $^{\circ}\text{C}$ |
| Creepage distance | DIP-4 | | ≥ 7 | mm |
| Clearance distance | DIP-4 | | ≥ 7 | mm |
| Creepage distance | DIP-4, 400 mil, option 6 | | ≥ 8 | mm |
| Clearance distance | DIP-4, 400 mil, option 6 | | ≥ 8 | mm |
| Creepage distance | SMD-4, option 7 and option 9 | | ≥ 7 | mm |
| Clearance distance | SMD-4, option 7 and option 9 | | ≥ 7 | mm |
| Insulation thickness | | DTI | ≥ 0.4 | mm |

Note

- As per DIN EN 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.

TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

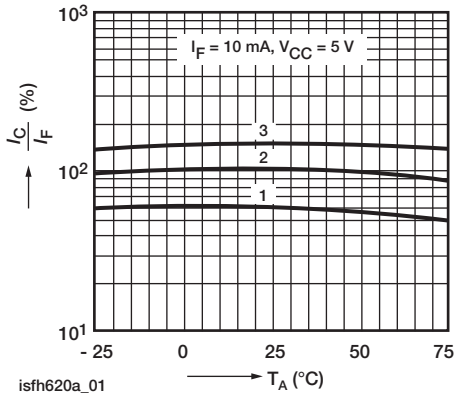


Fig. 2 - Current Transfer Ratio (CTR) vs. Temperature

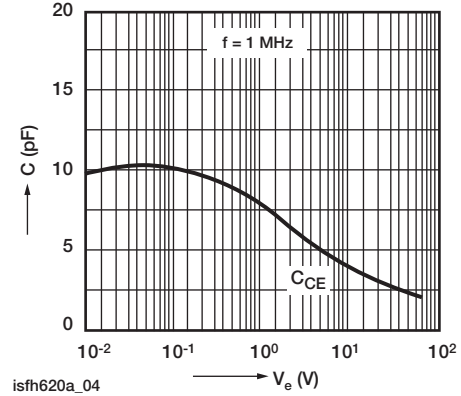


Fig. 5 - Transistor Capacitance (Typ.) vs. Collector Emitter Voltage

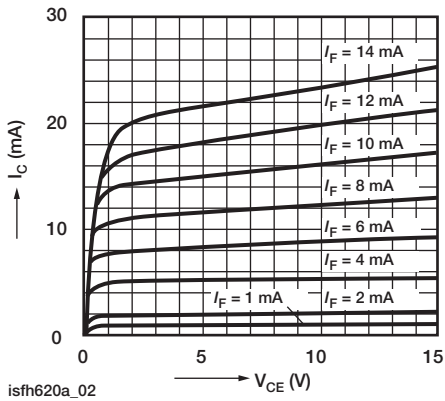


Fig. 3 - Output Characteristics (Typ.) Collector Current vs. Collector Emitter Voltage

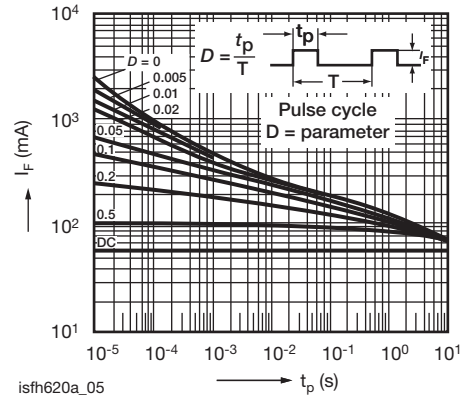


Fig. 6 - Permissible Pulse Handling Capability Forward Current vs. Pulse Width

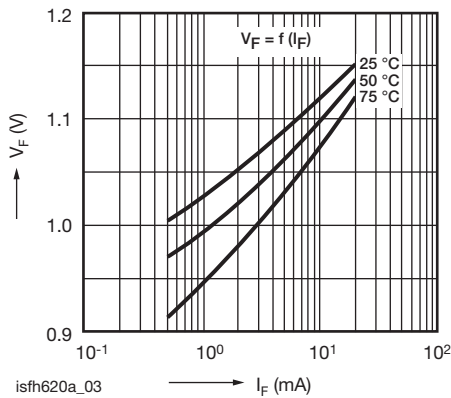


Fig. 4 - Diode Forward Voltage (Typ.) vs. Forward Current

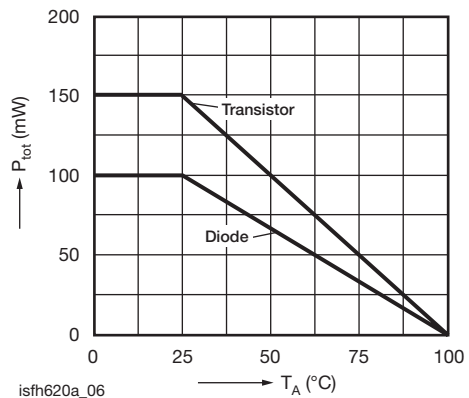


Fig. 7 - Permissible Power Dissipation vs. Ambient Temperature

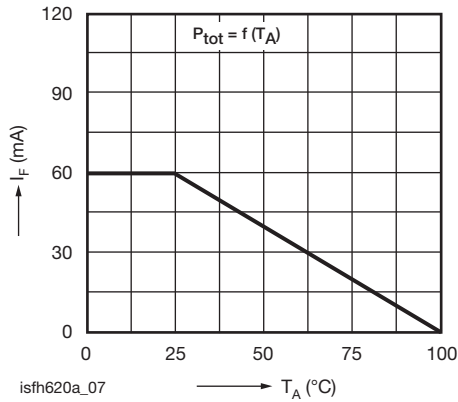
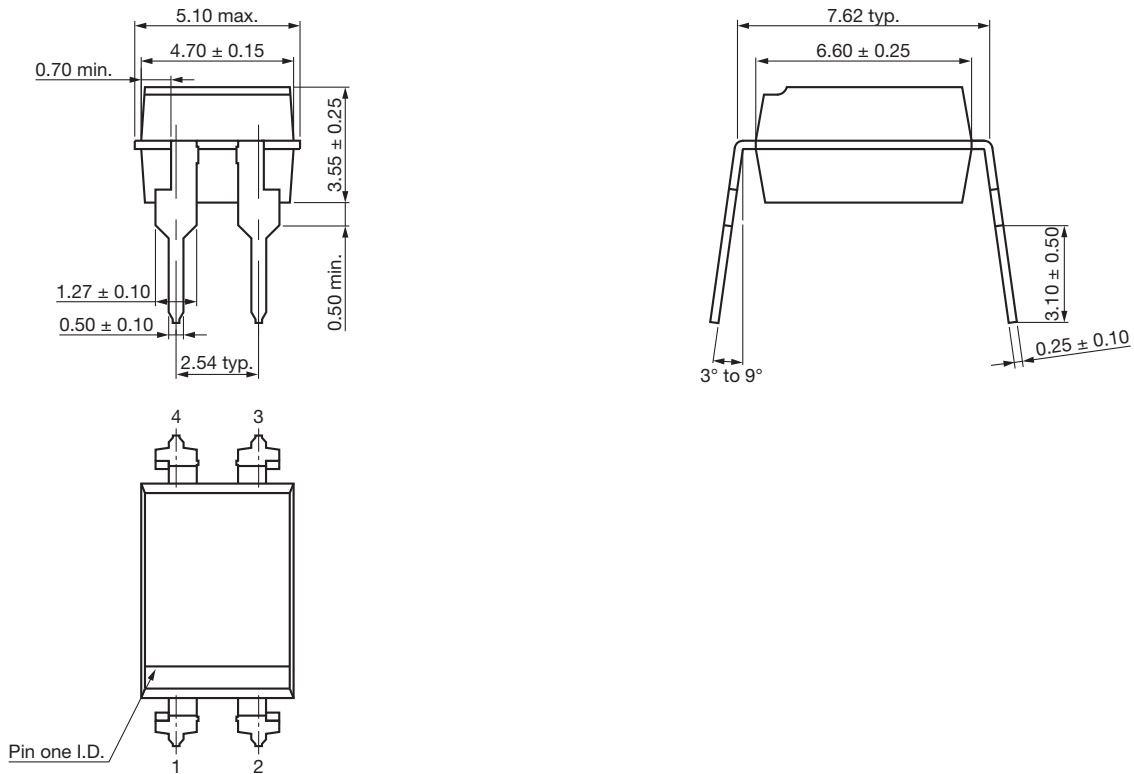


Fig. 8 - Permissible Diode Forward Current vs. Ambient Temperature

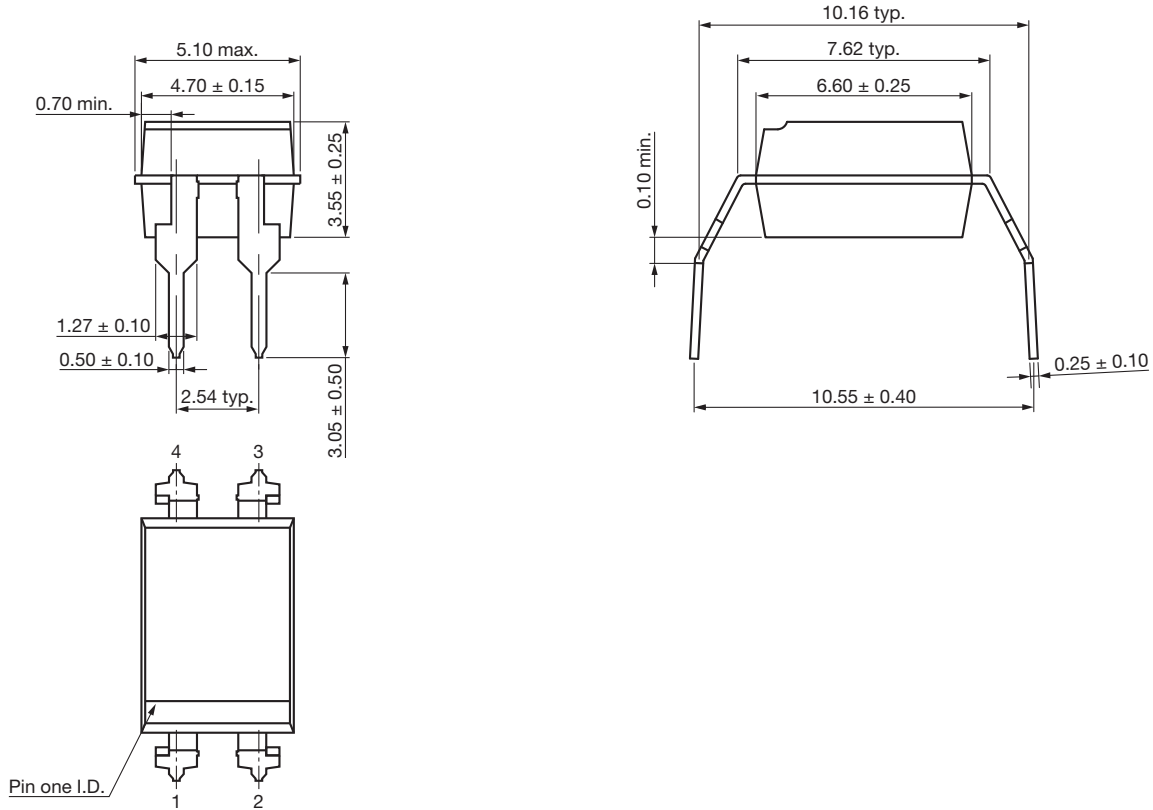
PACKAGE DIMENSIONS in millimeters

DIP-4, Standard

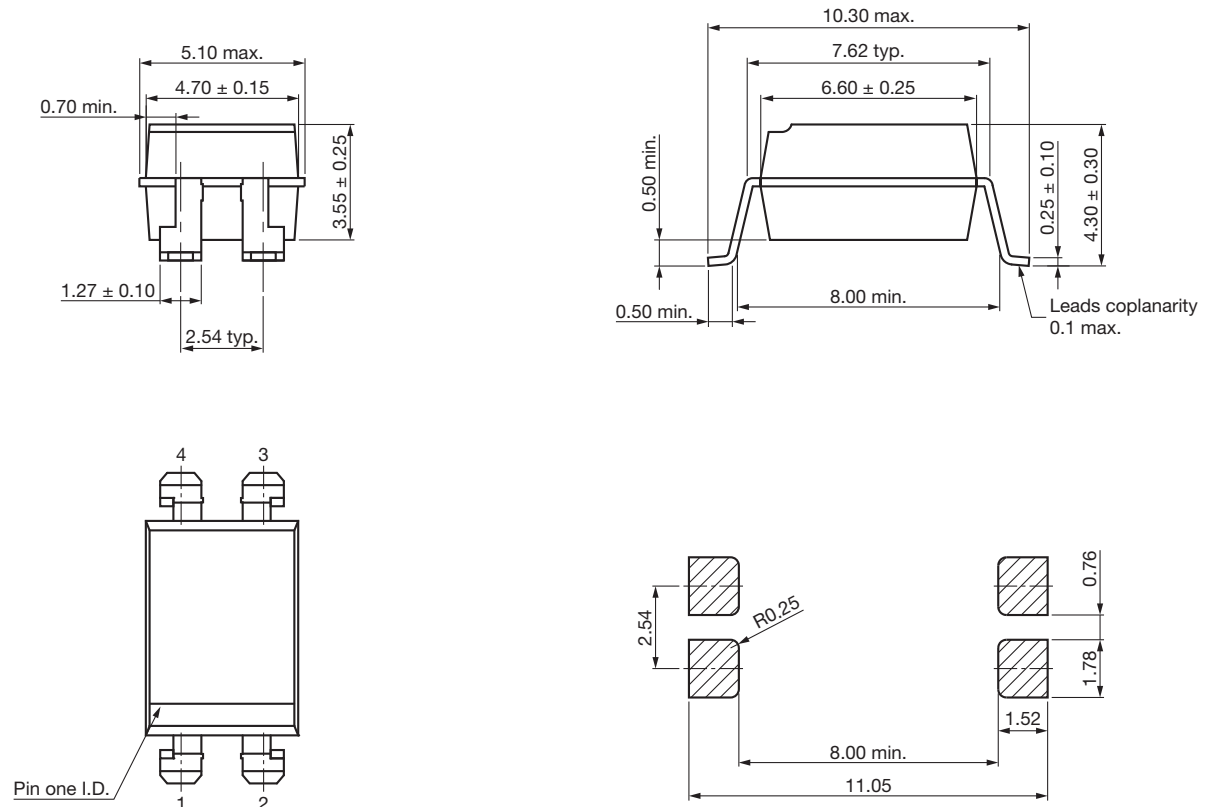




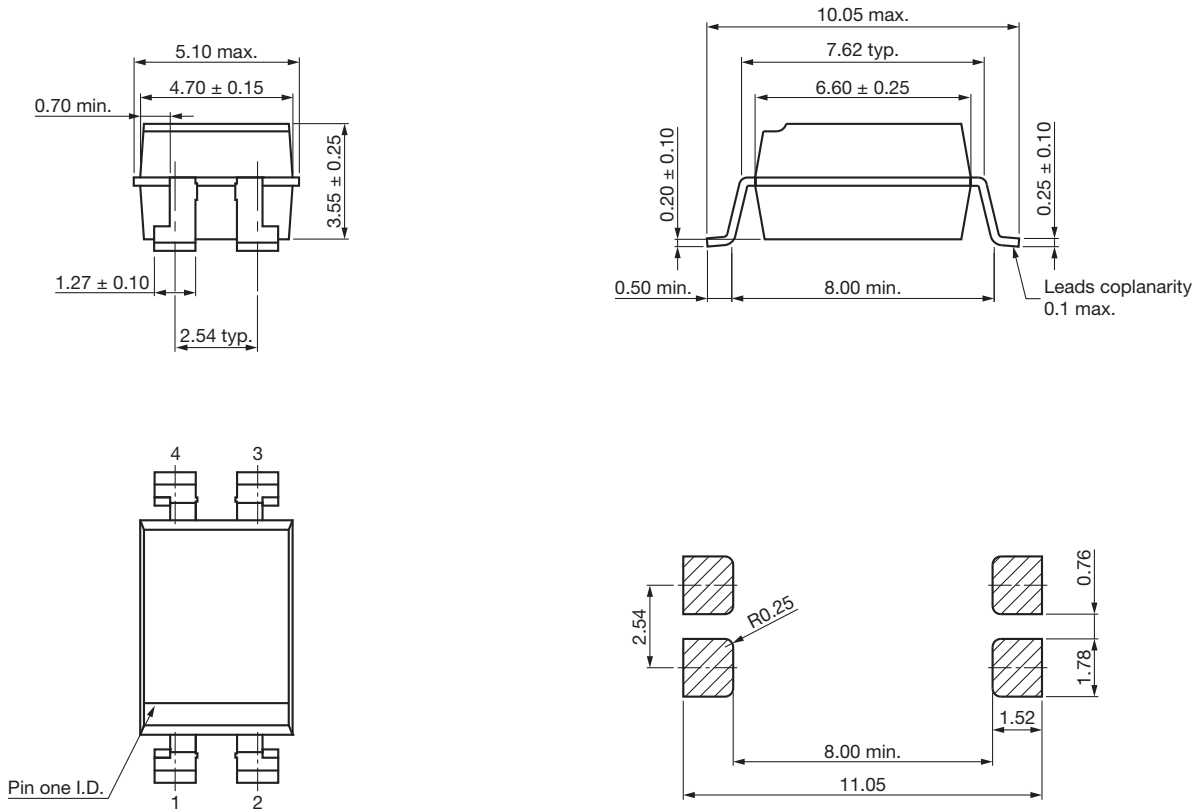
DIP-4, Option 6



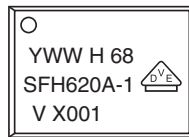
SMD-4, Option 7



SMD-4, Option 9



PACKAGE MARKING (example)



Notes

- Only options 1 and 7 are reflected in the package marking.
- The VDE logo is only marked on option1 parts.
- Tape and reel suffix (T) is not part of the package marking.

SOLDER PROFILES

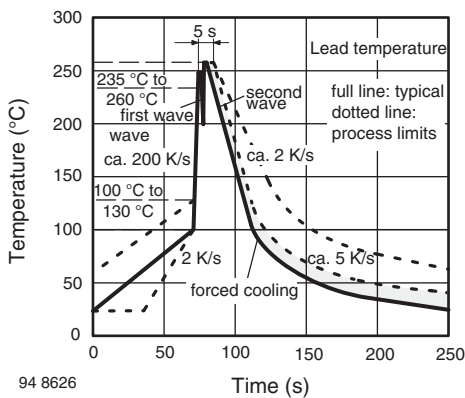


Fig. 9 - Wave Soldering Double Wave Profile According to J-STD-020 for DIP-8 Devices

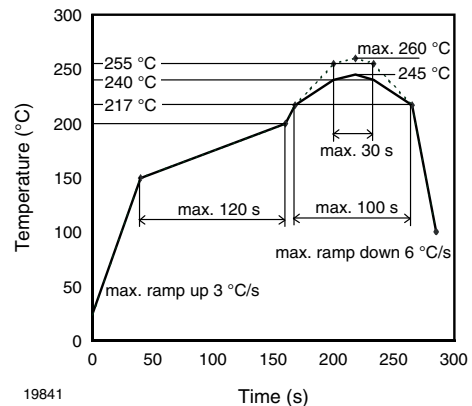


Fig. 10 - Lead (Pb)-free Reflow Solder Profile According to J-STD-020 for SMD-8 Devices



HANDLING AND STORAGE CONDITIONS

ESD level: HBM class 2

Floor life: unlimited

Conditions: $T_{amb} < 30\text{ }^{\circ}\text{C}$, RH < 85 %

Moisture sensitivity level 1, according to J-STD-020



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