



| ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | |
|---|----------------------------------|------------|-------------|------------------------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| INPUT | | | | |
| Rated forward current, DC | | | 60 | mA |
| Peak forward current, DC | 1.0 μs pulse, 300 pps | I_{FM} | 3.0 | A |
| Power dissipation | | P_{diss} | 100 | mW |
| Derate linearly from 25 $^{\circ}\text{C}$ | | | 1.3 | mW/ $^{\circ}\text{C}$ |
| OUTPUT | | | | |
| Collector current | | I_C | 30 | mA |
| Collector emitter breakdown voltage | | BV_{CEO} | 30 | V |
| Power dissipation | | P_{diss} | 150 | mW |
| Derate linearly from 25 $^{\circ}\text{C}$ | | | 2.0 | mW/ $^{\circ}\text{C}$ |
| COUPLER | | | | |
| Total package dissipation | | P_{tot} | 400 | mW |
| Derate linearly from 25 $^{\circ}\text{C}$ | | | 5.33 | mW/ $^{\circ}\text{C}$ |
| Storage temperature | | T_{stg} | -55 to +150 | $^{\circ}\text{C}$ |
| Operating temperature | | T_{amb} | -55 to +100 | $^{\circ}\text{C}$ |
| Lead soldering time at 260 $^{\circ}\text{C}$ | | | 10 | s |

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 |
| INPUT | | | | | | |
| Forward voltage | $I_F = 20\text{ mA}$ | V_F | | 1.25 | 1.50 | V |
| Reverse current | $V_R = 3.0\text{ V}$ | I_R | | 0.1 | 10 | μA |
| Junction capacitance | $V_F = 0\text{ V}$ | C_j | | 25 | | pF |
| OUTPUT | | | | | | |
| Collector emitter breakdown voltage | $I_C = 1.0\text{ }\mu\text{A}$, $I_E = 10\text{ }\mu\text{A}$ | BV_{CEO} | 30 | 65 | | V |
| Emitter collector breakdown voltage | $I_C = 10\text{ }\mu\text{A}$, $I_E = 10\text{ }\mu\text{A}$ | BV_{ECO} | 7.0 | 10 | | V |
| Collector emitter leakage current | $V_{CE} = 10\text{ V}$ | I_{CEO} | | 1.0 | 100 | nA |
| Collector emitter capacitance | $V_{CE} = 0\text{ V}$ | C_{CE} | | 8.0 | | pF |
| COUPLER | | | | | | |
| Saturation voltage, collector emitter | $I_C = 2.0\text{ mA}$, $I_F = 16\text{ mA}$ | V_{CEsat} | | | 0.40 | V |
| Capacitance (input to output) | $f = 1.0\text{ MHz}$ | C_{IO} | | 0.5 | | pF |
| Capacitance between channels | $f = 1.0\text{ MHz}$ | | | 0.4 | | pF |
| Bandwidth | $I_C = 2.0\text{ mA}$, $V_{CC} = 10\text{ V}$, $R_L = 100\text{ }\Omega$ | | | 150 | | kHz |

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.

| CURRENT TRANSFER RATIO ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | |
|---|---|------------|------|------|------|------|
| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| DC current transfer ratio | $I_F = 10\text{ mA}$, $V_{CE} = 10\text{ V}$ | CTR_{DC} | 20 | 50 | | % |

| SWITCHING CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | |
|--|---|----------------------|------|------|------|---------------|
| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Switching times, output transistor | $I_C = 2.0\text{ mA}$, $R_L = 100\text{ }\Omega$, $V_{CE} = 5\text{ V}$ | t_{on} , t_{off} | | 3.0 | | μs |



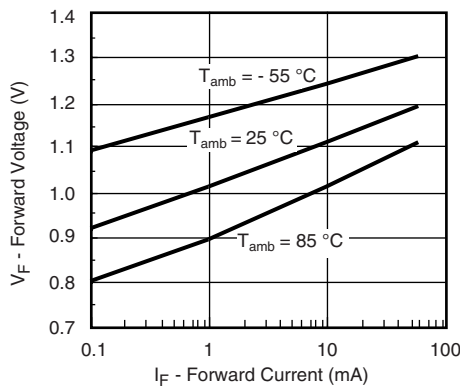
| SAFETY AND INSULATION RATINGS | | | | |
|--|--|------------|----------------|--------------------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Climatic classification | According to IEC 68 part 1 | | 55/100/21 | |
| Comparative tracking index | | CTI | 175 | |
| Maximum rated withstanding isolation voltage | t = 1 min | V_{ISO} | 4420 | V_{RMS} |
| Maximum transient isolation voltage | | V_{IOTM} | 10 000 | V_{peak} |
| Maximum repetitive peak isolation voltage | | 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 |
| Output safety power | | P_{SO} | 400 | mW |
| Input safety current | | I_{SI} | 275 | mA |
| Safety temperature | | T_S | 175 | $^{\circ}\text{C}$ |
| Creepage distance | | | ≥ 7 | mm |
| Clearance distance | | | ≥ 7 | 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.

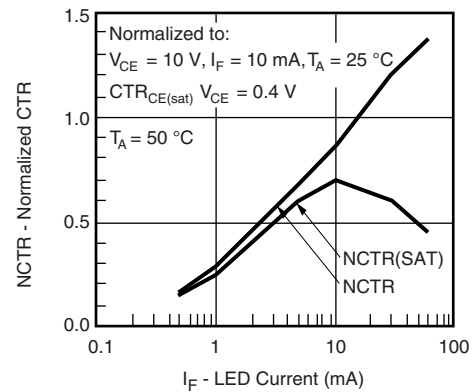
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

LED Current



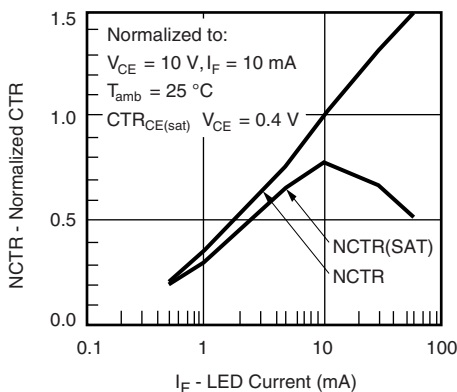
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Fig. 1 - Forward Voltage vs. Forward Current



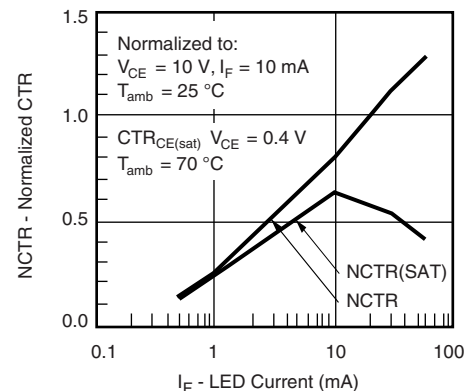
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Fig. 3 - Normalized Non-Saturated and Saturated CTR vs. LED Current



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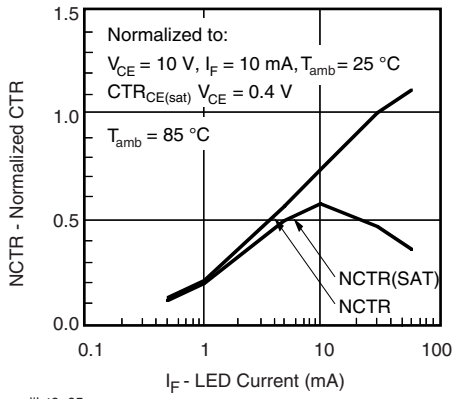
Fig. 2 - Normalized Non-Saturated and Saturated CTR vs.



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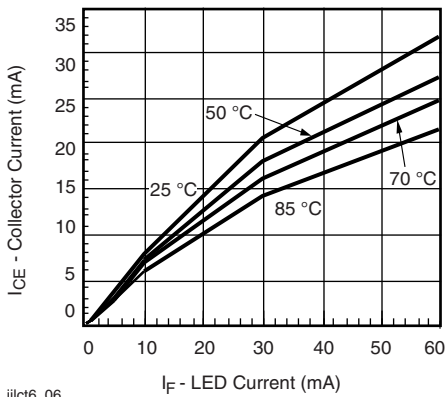


Fig. 4 - Normalized Non-Saturated and Saturated CTR vs. LED Current



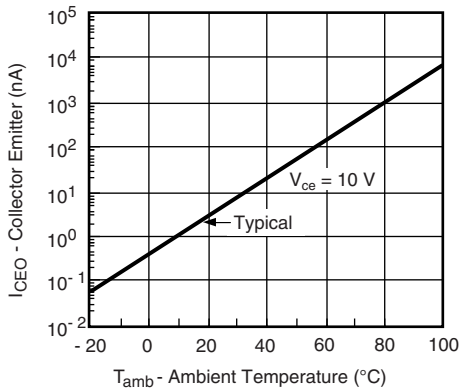
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Fig. 5 - Normalized Non-Saturated and Saturated CTR vs. LED Current



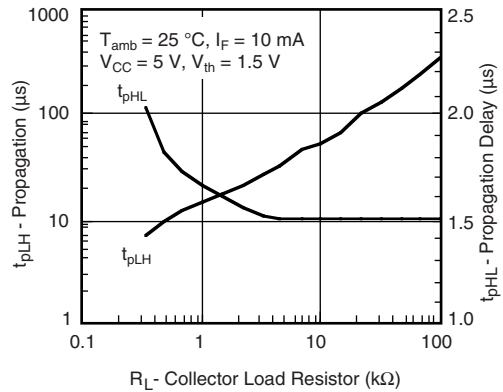
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Fig. 6 - Collector Emitter Current vs. Temperature and LED Current



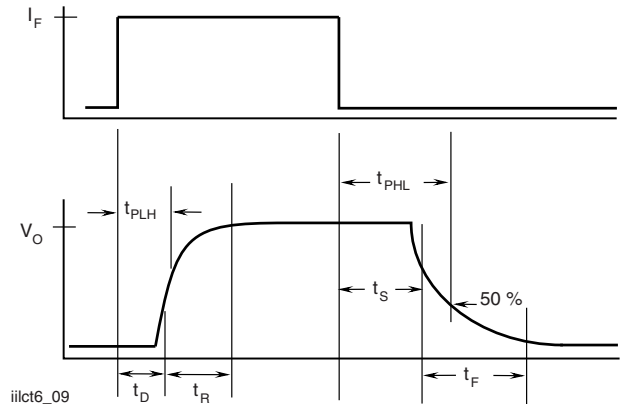
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Fig. 7 - Collector Emitter Leakage Current vs. Temperature



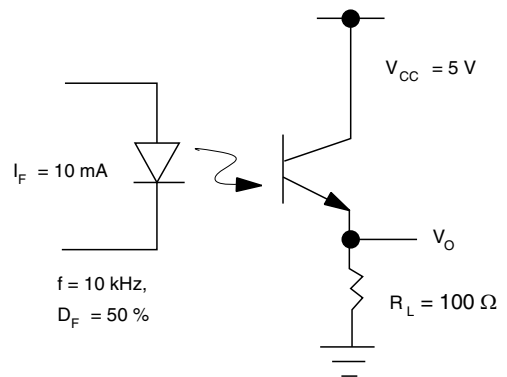
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Fig. 8 - Propagation Delay vs. Collector Load Resistor



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Fig. 9 - Switching Timing

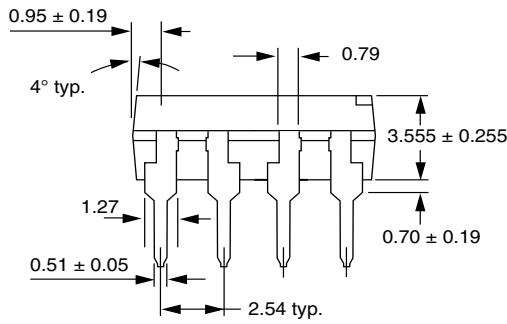
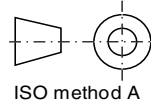
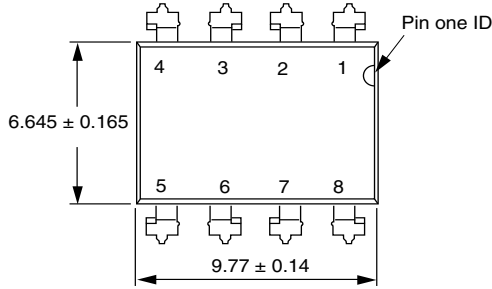


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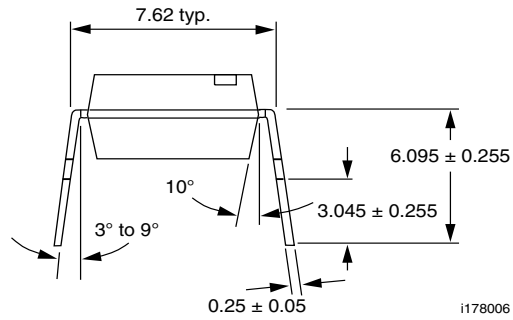
Fig. 10 - Switching Schematic



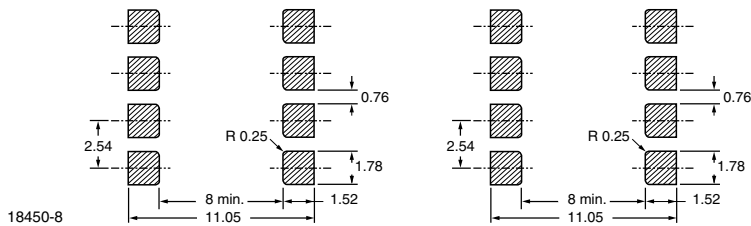
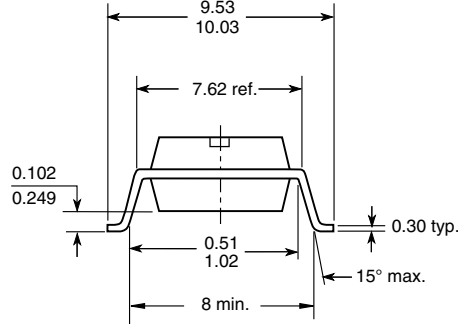
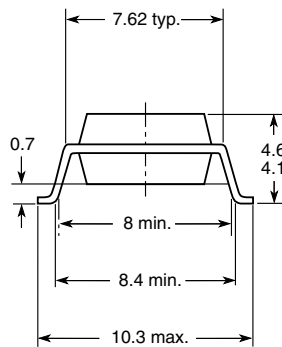
PACKAGE DIMENSIONS in millimeters



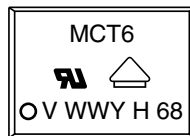
Option 7



Option 9



PACKAGE MARKING



Notes

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



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