



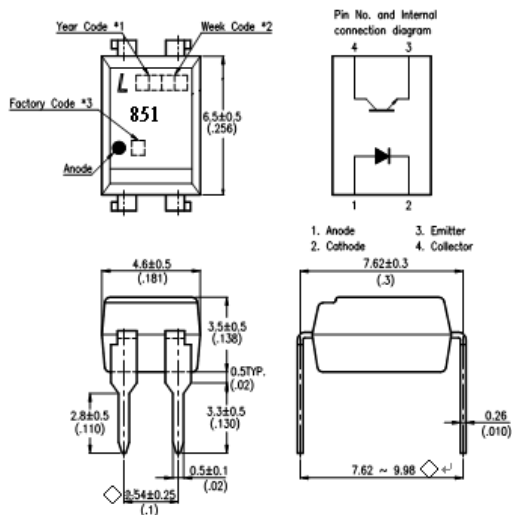
FEATURES

- * Current transfer ratio
(CTR : MIN. 40% at $I_F = 5\text{mA}$, $V_{CE} = 5\text{V}$)
- * High isolation voltage between input and output
($V_{iso} = 5,000\text{Vrms}$)
- * High collector-emitter voltage
($V_{CEO} : 300\text{V}$)
- * Dual-in-line package :
LTV-851 : 1-channel type
- * Wide lead spacing package :
LTV-851M : 1-channel type
- * Surface mounting package :
LTV-851S : 1-channel type
- * Tape and reel packaging :
LTV-851S-TA, LTV-851S-TA1
- * Safety approval
UL, FIMKO, CSA, VDE* approved
("*" Requires "V" ordering option)
- * RoHS compliance

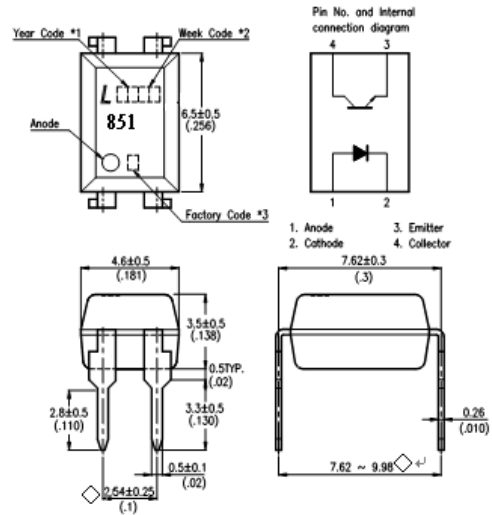
OUTLINE DIMENSIONS

LTV-851 :

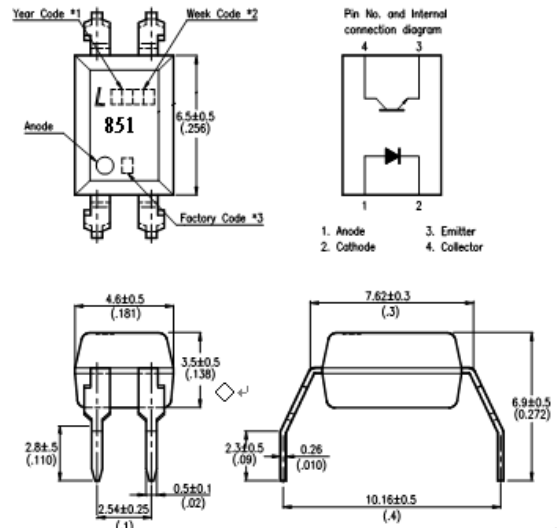
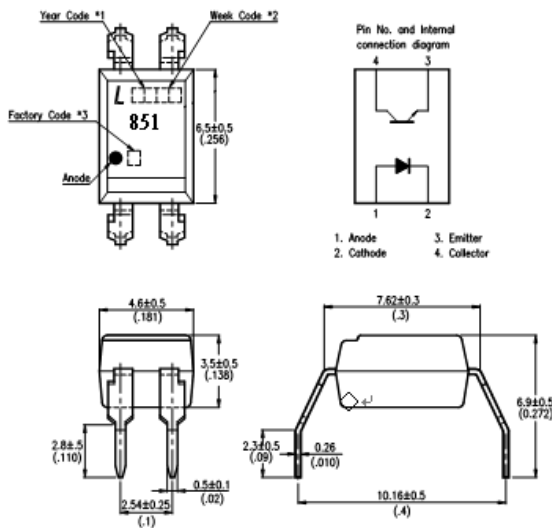
TYPE I (INK MARK)



TYPE II (LASER MARK)



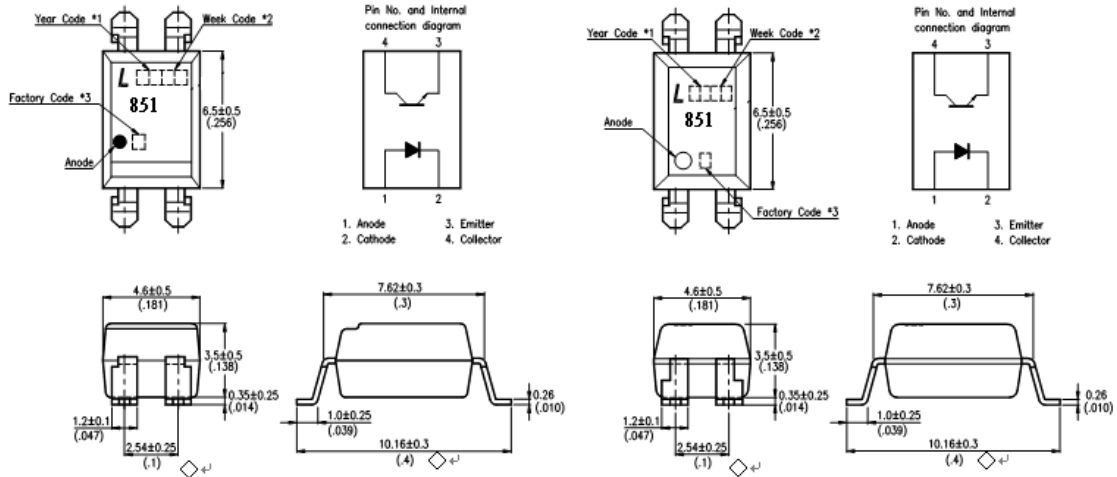
LTV-851M :



- *1. Year date code.
- *2. 2-digit work week.
- *3. Factory identification mark shall be marked (W: China-CZ, X: China-TJ, Y : Thailand).

OUTLINE DIMENSIONS

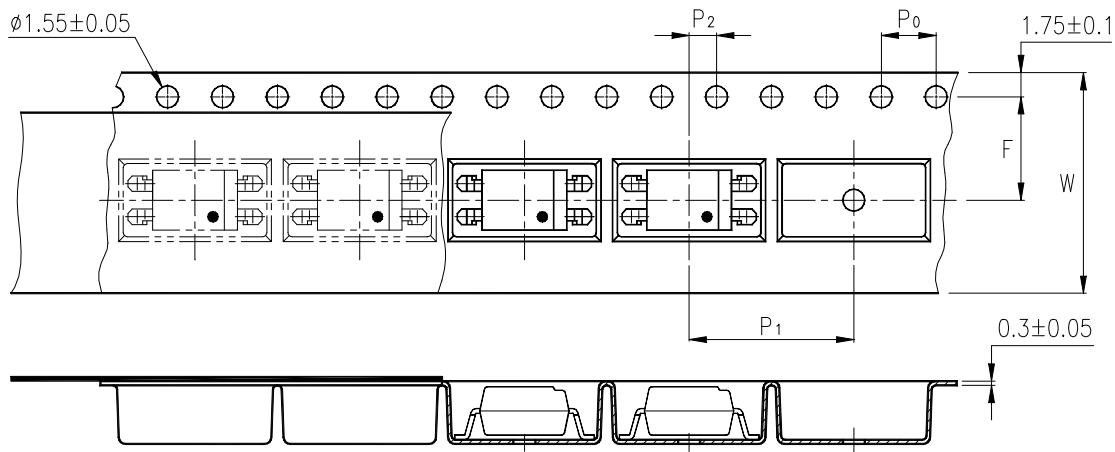
LTV-851S :



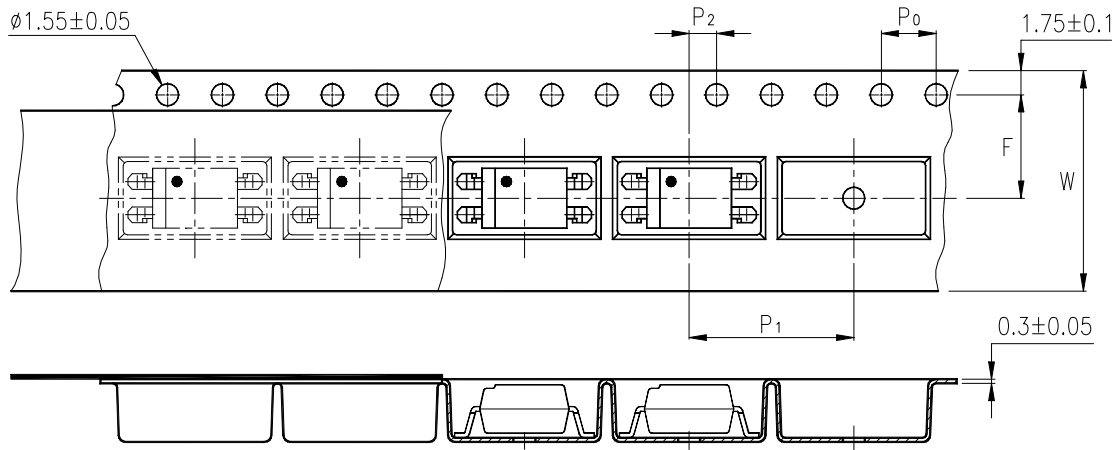
- *1. Year date code.
- *2. 2-digit work week.
- *3. Factory identification mark shall be marked
(W: China-CZ, X: China-TJ, Y : Thailand).

TAPING DIMENSIONS

LTV-851S-TA :



LTV-851S-TA1 :



| Description | Symbol | Dimensions in mm (inches) |
|--|--------|-----------------------------|
| Tape wide | W | 16 ± 0.3 (.63) |
| Pitch of sprocket holes | P_0 | 4 ± 0.1 (.15) |
| Distance of compartment | F | 7.5 ± 0.1 (.295) |
| Distance of compartment to compartment | P_2 | 2 ± 0.1 (.079) |
| Distance of compartment to compartment | P_1 | 12 ± 0.1 (.472) |

ABSOLUTE MAXIMUM RATING

(Ta = 25°C)

| PARAMETER | | SYMBOL | RATING | UNIT |
|-------------------------|-----------------------------|------------------|------------|------------------|
| INPUT | Forward Current | I _F | 50 | mA |
| | Reverse Voltage | V _R | 6 | V |
| | Power Dissipation | P | 70 | mW |
| OUTPUT | Collector - Emitter Voltage | V _{CEO} | 300 | V |
| | Emitter - Collector Voltage | V _{ECO} | 6 | V |
| | Collector Current | I _C | 50 | mA |
| | Collector Power Dissipation | P _C | 150 | mW |
| Total Power Dissipation | | P _{tot} | 200 | mW |
| *1 | Isolation Voltage | V _{iso} | 5,000 | V _{rms} |
| Operating Temperature | | T _{opr} | -25 ~ +100 | °C |
| Storage Temperature | | T _{stg} | -55 ~ +125 | °C |
| *2 | Soldering Temperature | T _{sol} | 260 | °C |

*1. AC For 1 Minute, R.H. = 40 ~ 60%

Isolation voltage shall be measured using the following method.

- (1) Short between anode and cathode on the primary side and between collector and emitter on the secondary side.
- (2) The isolation voltage tester with zero-cross circuit shall be used.
- (3) The waveform of applied voltage shall be a sine wave.

*2. For 10 Seconds

ELECTRICAL - OPTICAL CHARACTERISTICS

(Ta = 25°C)

| PARAMETER | | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS |
|--------------------------|--------------------------------------|----------------------|--------------------|--------------------|------|------|--|
| INPUT | Forward Voltage | V _F | — | 1.2 | 1.4 | V | I _F =20mA |
| | Reverse Current | I _R | — | — | 10 | μA | V _R =4V |
| | Terminal Capacitance | C _t | — | 30 | 250 | pF | V=0, f=1KHz |
| OUTPUT | Collector Dark Current | I _{CEO} | — | — | 1 | μA | V _{CE} =200V, I _F =0 |
| | Collector-Emitter Breakdown Voltage | BV _{CEO} | 300 | — | — | V | I _C =0.1mA I _F =0 |
| | Emitter-Collector Breakdown Voltage | BV _{ECO} | 6 | — | — | V | I _E =10μA I _F =0 |
| TRANSFER CHARACTERISTICS | Collector Current | I _C | 2 | — | — | mA | I _F =5mA |
| | *1 Current Transfer Ratio | CTR | 40 | — | — | % | V _{CE} =5V |
| | Collector-Emitter Saturation Voltage | V _{CE(sat)} | — | 0.1 | 0.3 | V | I _F =20mA I _C =1mA |
| | Isolation Resistance | R _{iso} | 5×10 ¹⁰ | 1×10 ¹¹ | — | Ω | DC500V 40 ~ 60% R.H. |
| | Floating Capacitance | C _f | — | 0.6 | 1 | pF | V=0, f=1MHz |
| | Cut-Off Frequency | f _c | — | 50 | — | kHz | V _{CE} =5V, I _C =2mA R _L =100Ω, -3dB |
| | Response Time (Rise) | t _r | — | 4 | 10 | μs | V _{CE} =2V, I _C =2mA R _L =100Ω |
| | Response Time (Fall) | t _f | — | 5 | 12 | μs | |

$$*1 \text{ CTR} = \frac{I_C}{I_F} \times 100\%$$

CHARACTERISTICS CURVES

Fig.1 Forward Current vs. Ambient Temperature

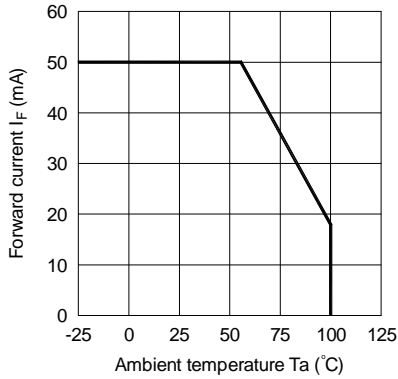


Fig.2 Collector Power Dissipation vs. Ambient Temperature

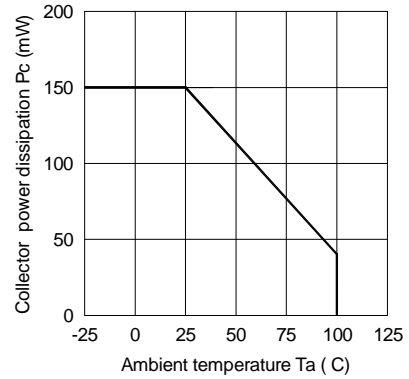


Fig.3 Collector-emitter saturation Voltage vs. Forward current

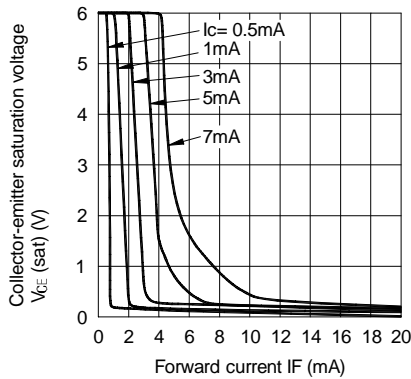


Fig.4 Forward Current vs. Forward Voltage

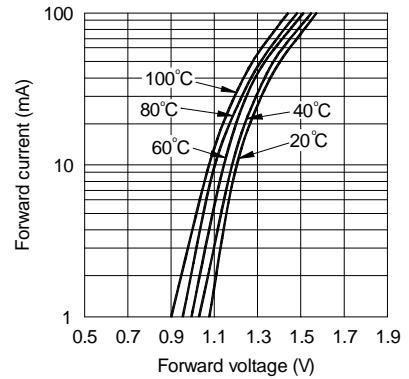


Fig.5 Current Transfer Ratio vs. Forward Current

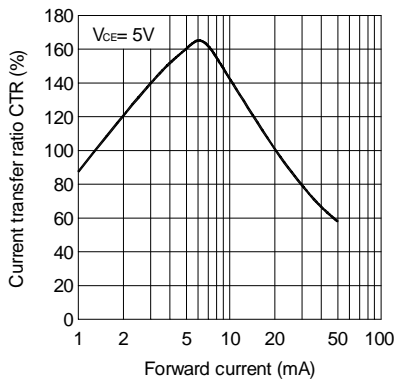
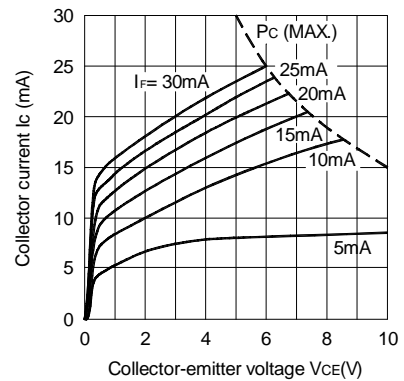


Fig.6 Collector Current vs. Collector-emitter Voltage



CHARACTERISTICS CURVES

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

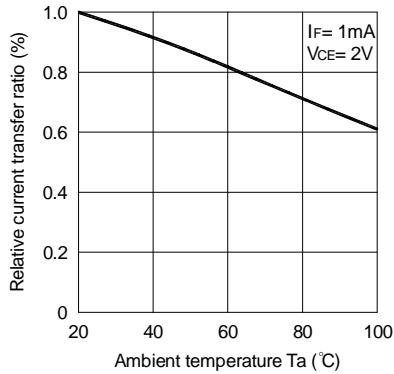


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

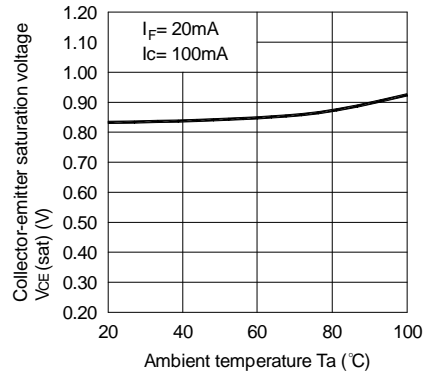


Fig.9 Collector Dark Current vs. Temperature

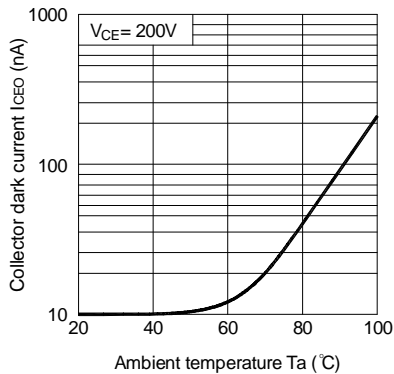


Fig.10 Response Time vs. Load Resistance

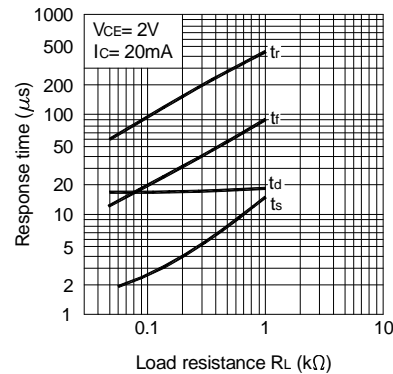
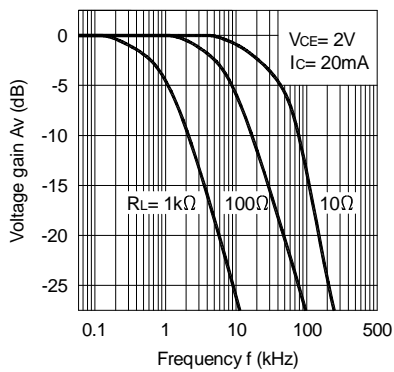
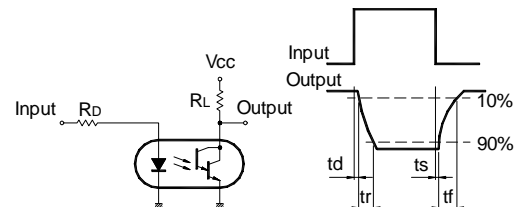


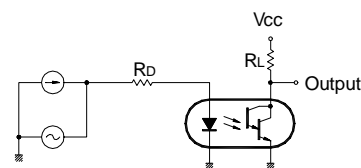
Fig.11 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response



TEMPERATURE PROFILE OF SOLDERING REFLOW

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- The products shown in this publication are designed for the general use in electronic applications such as office automation equipment, communications devices, audio/visual equipment, electrical application and instrumentation.
- For equipment/devices where high reliability or safety is required, such as space applications, nuclear power control equipment, medical equipment, etc, please contact our sales representatives.
- When requiring a device for any " specific" application, please contact our sales in advice.
- If there are any questions about the contents of this publication, please contact us at your convenience.
- The contents described herein are subject to change without prior notice.
- Immerge unit's body in solder paste is not recommended.