

LTV-814HS-TA1 Datasheet

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| | |
|------------------------------|--|
| DiGi Electronics Part Number | LTV-814HS-TA1-DG |
| Manufacturer | Lite-On Inc. |
| Manufacturer Product Number | LTV-814HS-TA1 |
| Description | OPTOISOLATR 5KV TRANSISTOR 4-SMD |
| Detailed Description | Optoisolator Transistor Output 5000Vrms 1 Channel l 4-SMD |

This model LTV-814HS-TA1 is available at DiGi Electronics.

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Purchase and inquiry

Manufacturer Product Number:

LTV-814HS-TA1

Series:

-

Number of Channels:

1

Current Transfer Ratio (Min):

20% @ 100mA

Turn On / Turn Off Time (Typ):

-

Input Type:

AC, DC

Voltage - Output (Max):

35V

Voltage - Forward (Vf) (Typ):

1.4V

Vce Saturation (Max):

200mV

Mounting Type:

Surface Mount

Supplier Device Package:

4-SMD

Manufacturer:

Lite-On Inc.

Product Status:

Active

Voltage - Isolation:

5000Vrms

Current Transfer Ratio (Max):

80% @ 100mA

Rise / Fall Time (Typ):

4 μ s, 3 μ s

Output Type:

Transistor

Current - Output / Channel:

80mA

Current - DC Forward (If) (Max):

150 mA

Operating Temperature:

-30°C ~ 100°C

Package / Case:

4-SMD, Gull Wing

Base Product Number:

LTV-814

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.49.8000

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

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FEATURES

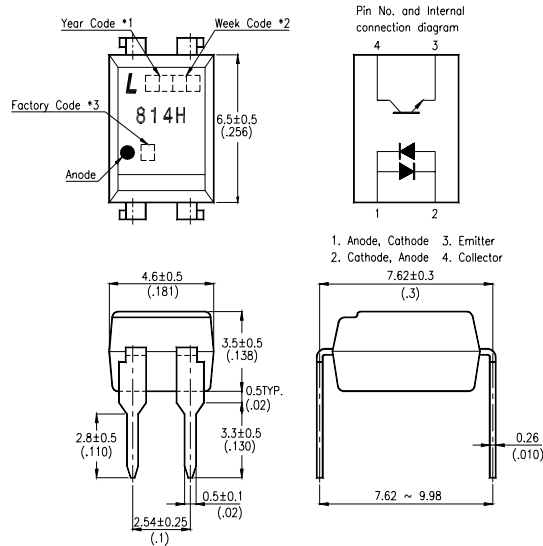
- * AC input response
- * High input current
(I_F : MAX. 150mA)
- * High input-output isolation voltage
(V_{iso} = 5,000Vrms)
- * Low collector dark current
(I_{CEO} : MAX. 10^{-7} A at $V_{CE} = 20V$)
- * Current transfer ratio
(CTR : MIN. 20% at $I_F = \pm 100mA$, $V_{CE} = 2V$)
- * Dual-in-line package :
 - LTV-814H : 1-channel type
 - LTV-824H : 2-channel type
 - LTV-844H : 4-channel type
- * Wide lead spacing package :
 - LTV-814HM : 1-channel type
 - LTV-824HM : 2-channel type
 - LTV-844HM : 4-channel type
- * Surface mounting package :
 - LTV-814HS : 1-channel type
 - LTV-824HS : 2-channel type
 - LTV-844HS : 4-channel type
- * Tape and reel packaging :
 - LTV-814HS-TA1, LTV-824HS-TA1
- * UL approved (No. E113898) only 814H
- * TUV approved (No. R9653630)
- * CSA approved (No. CA91533)
- * VDE approved (No. 094722) only 814H

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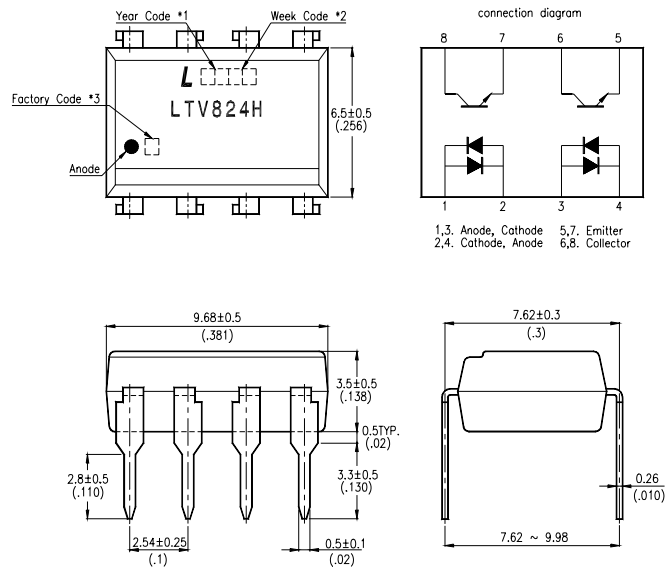
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OUTLINE DIMENSIONS

LTV-814H :



LTV-824H :



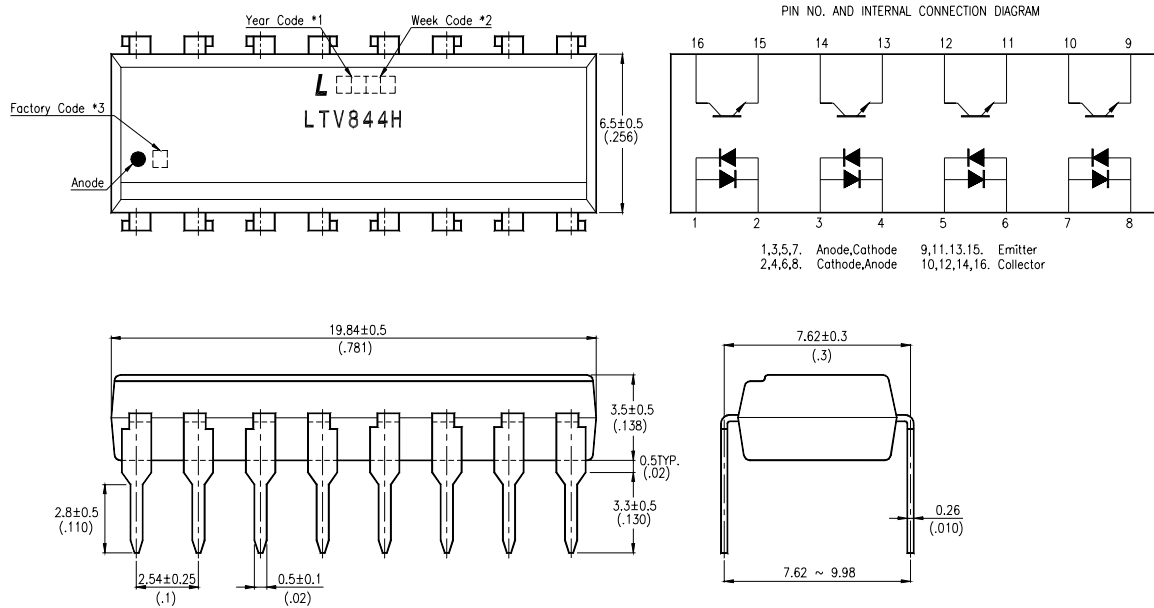
- *1. Year date code.
- *2. 2-digit work week.
- *3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).

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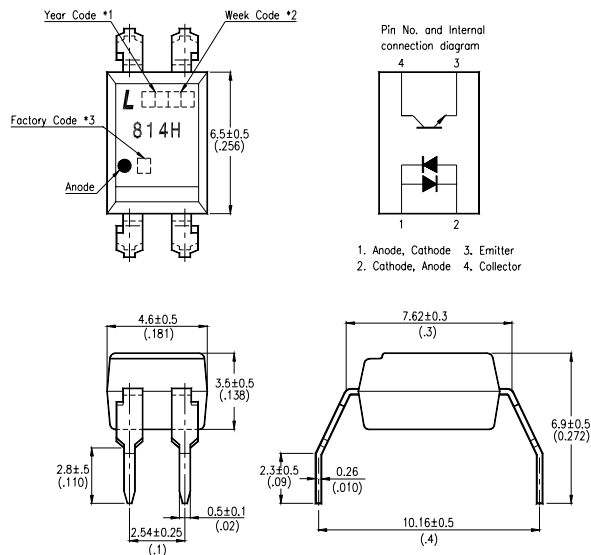
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OUTLINE DIMENSIONS

LTV-844H :



LTV-814HM :



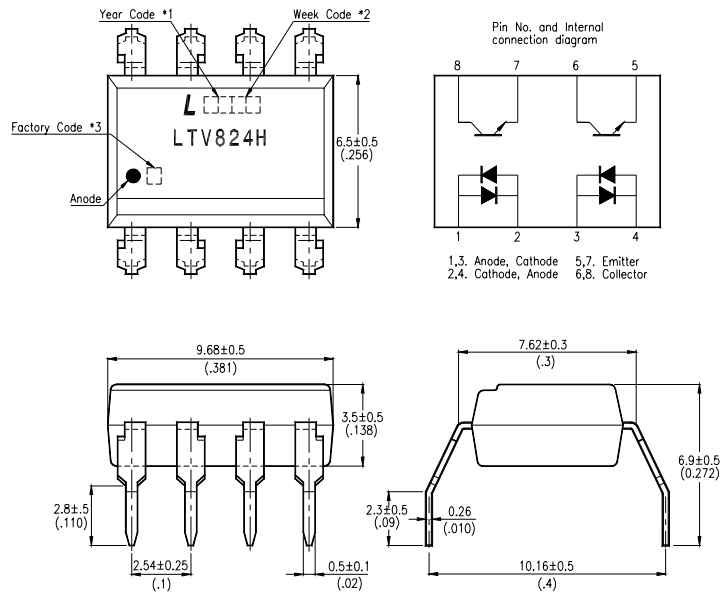
- *1. Year date code.
- *2. 2-digit work week.
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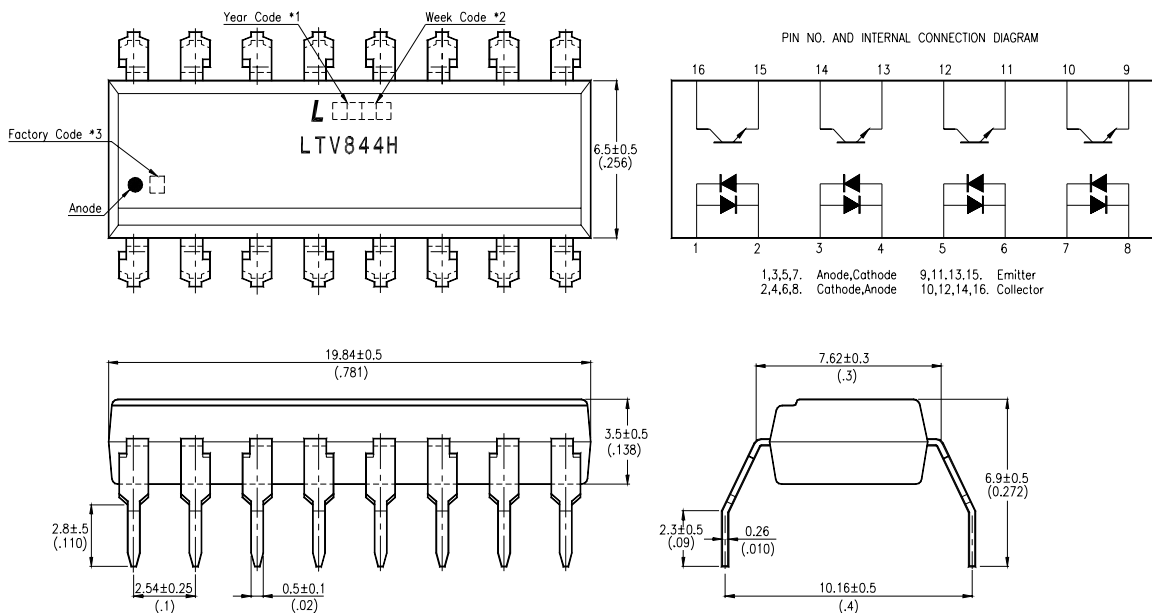
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OUTLINE DIMENSIONS

LTV-824HM :



LTV-844HM :



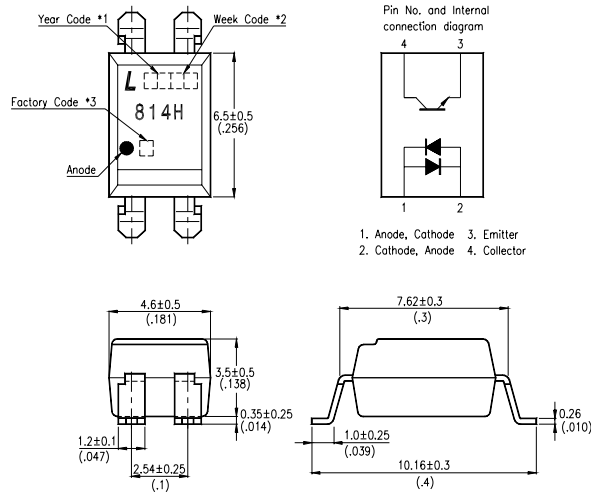
- *1. Year date code.
- *2. 2-digit work week.
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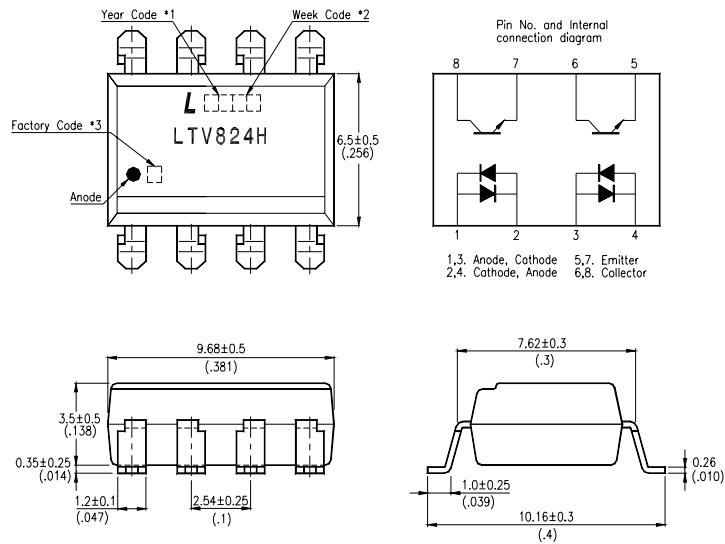
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OUTLINE DIMENSIONS

LTV-814HS :



LTV-824HS :



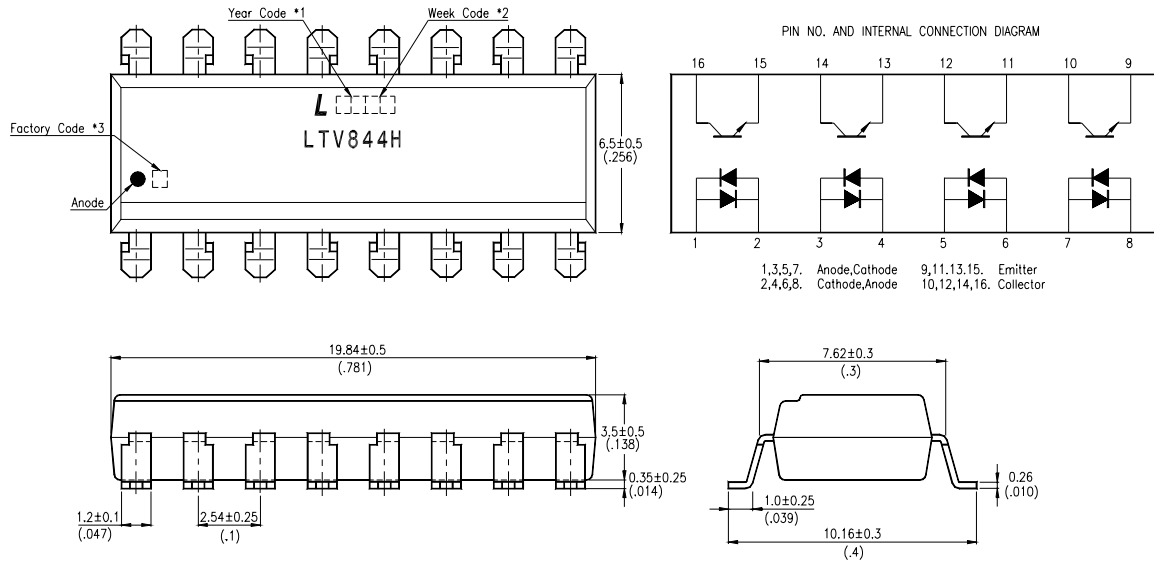
- *1. Year date code.
- *2. 2-digit work week.
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OUTLINE DIMENSIONS

LTV-844HS :



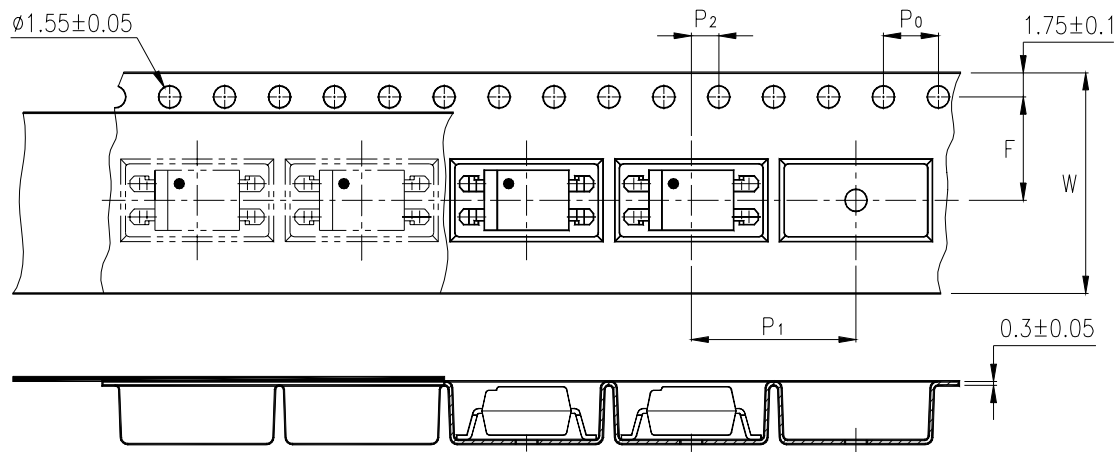
- *1. Year date code.
- *2. 2-digit work week.
- *3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).

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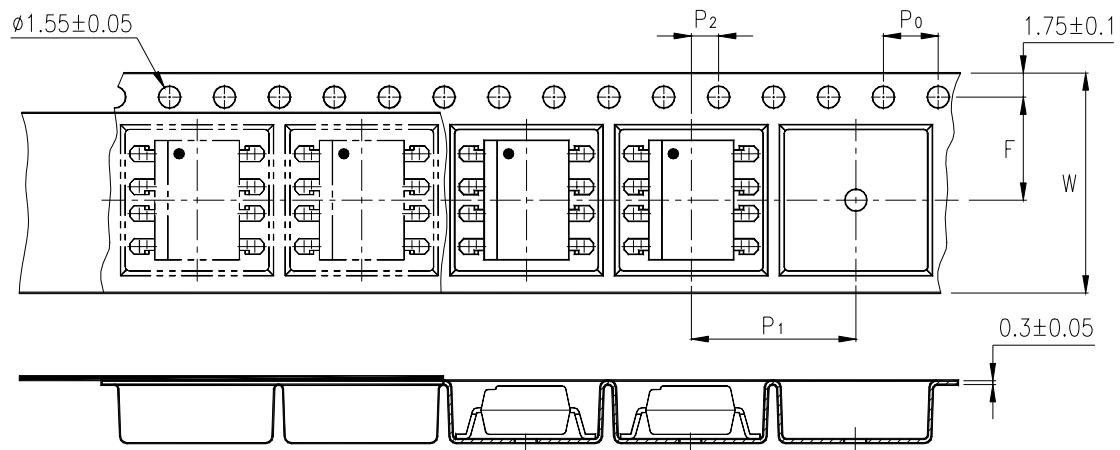
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TAPING DIMENSIONS

LTV-814HS-TA1 :



LTV-824HS-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 ₁ | 2 ± 0.1 (.079) |
| Distance of compartment to compartment | P ₂ | 12 ± 0.1 (.472) |

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ABSOLUTE MAXIMUM RATING

(Ta = 25°C)

| PARAMETER | | SYMBOL | RATING | UNIT |
|-------------------------|-----------------------------|------------------|------------|------------------|
| INPUT | Forward Current | I _F | ±150 | mA |
| | Power Dissipation | P | 230 | mW |
| OUTPUT | Collector - Emitter Voltage | V _{CEO} | 35 | V |
| | Emitter - Collector Voltage | V _{ECO} | 6 | V |
| | Collector Current | I _C | 80 | mA |
| | Collector Power Dissipation | P _C | 160 | mW |
| Total Power Dissipation | | P _{tot} | 320 | mW |
| *1 | Isolation Voltage | V _{iso} | 5,000 | V _{rms} |
| Operating Temperature | | T _{opr} | -30 ~ +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

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ELECTRICAL - OPTICAL CHARACTERISTICS

(Ta = 25°C)

| PARAMETER | | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS |
|--------------------------|--------------------------------------|----------------------|--------------------|--------------------|------|------|--|
| INPUT | Forward Voltage | V _F | — | 1.4 | 1.7 | V | I _F =±100mA |
| | Terminal Capacitance | C _t | — | 50 | 400 | pF | V=0, f=1KHz |
| OUTPUT | Collector Dark Current | I _{CEO} | — | — | 100 | nA | V _{CE} =20V, I _F =0 |
| | Collector-Emitter Breakdown Voltage | BV _{CEO} | 35 | — | — | 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 | 20 | — | 80 | mA | I _F =±100mA V _{CE} =2V |
| | * Current Transfer Ratio | CTR | 20 | — | 80 | % | |
| | Collector-Emitter Saturation Voltage | V _{CE(sat)} | — | 0.1 | 0.2 | V | I _F =±100mA 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 | 15 | 80 | — | KHz | V _{CE} =5V, I _C =2mA R _L =100Ω, -3dB |
| | Response Time (Rise) | t _r | — | 4 | 18 | μs | V _{CE} =2V, I _C =2mA R _L =100Ω |
| | Response Time (Fall) | t _f | — | 3 | 18 | μs | |

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

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CHARACTERISTICS CURVES

Fig.1 Forward Current vs. Ambient Temperature

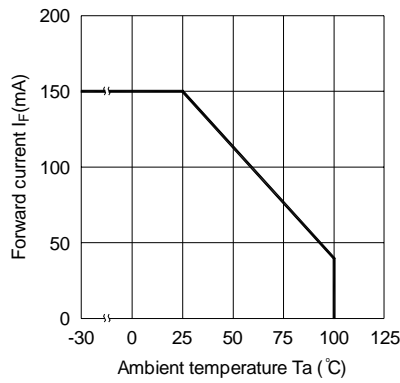


Fig.2 Collector Power Dissipation vs. Ambient Temperature

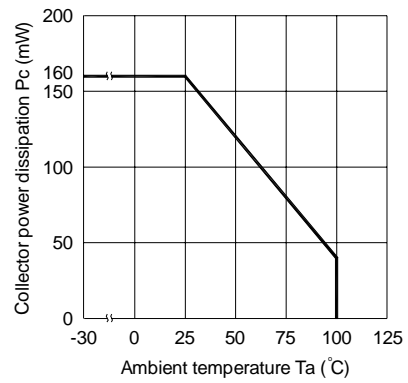


Fig.3 Collector-emitter Saturation Voltage vs. Forward Current

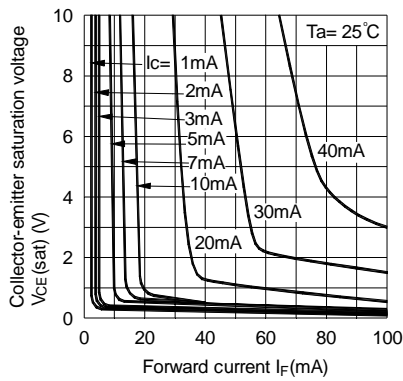


Fig.4 Forward Current vs. Forward Voltage

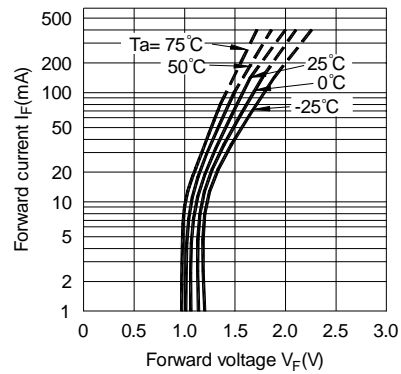


Fig.5 Current Transfer Ratio vs. Forward Current

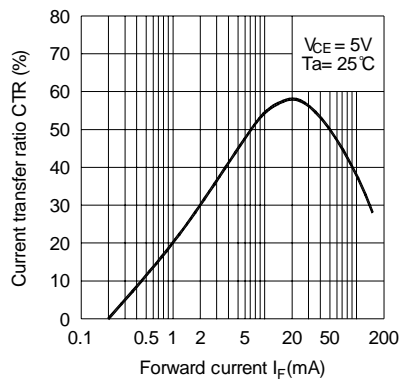
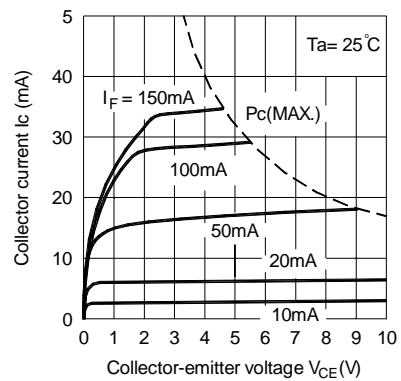


Fig.6 Collector Current vs. Collector-emitter Voltage



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CHARACTERISTICS CURVES

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

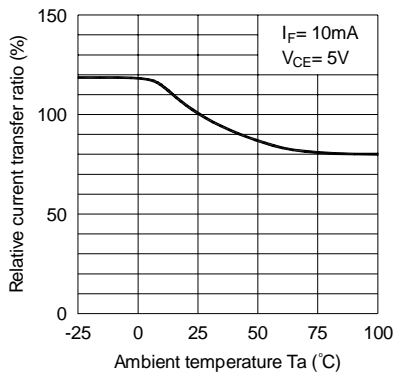


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

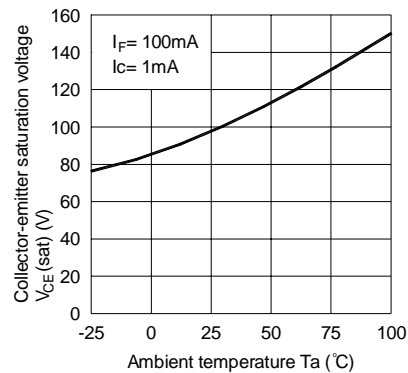


Fig.9 Collector Dark Current vs. Ambient Temperature

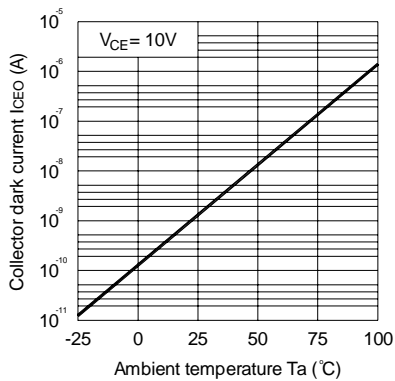


Fig.10 Response Time vs. Load Resistance

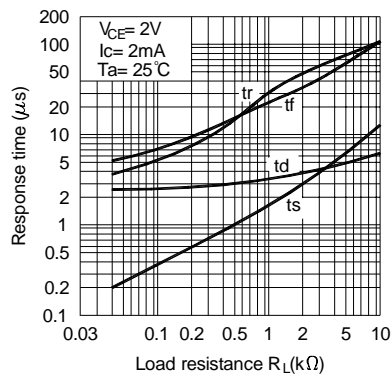
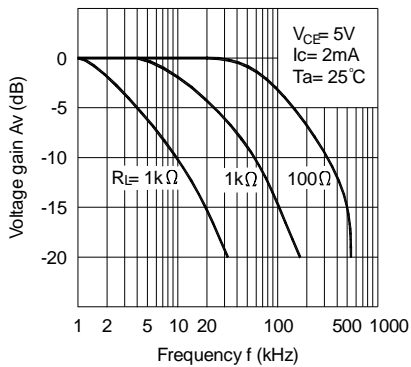
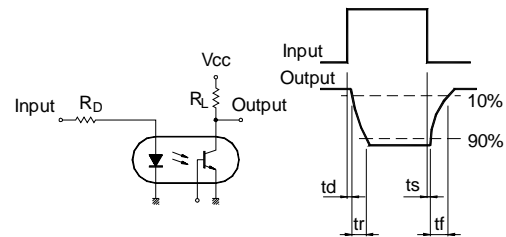


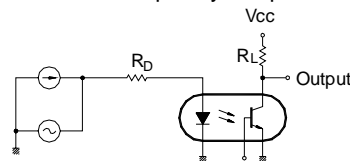
Fig.11 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response



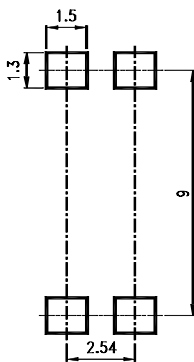
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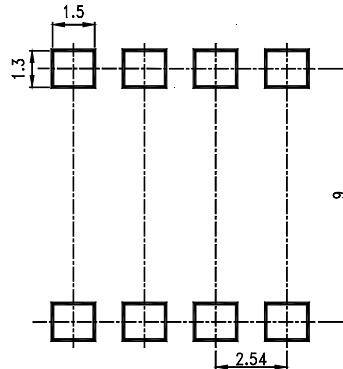
RECOMMENDED FOOT PRINT PATTERNS (MOUNT PAD)

Unit : mm

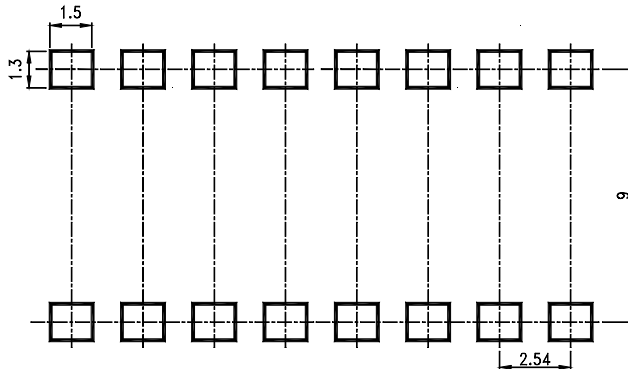
4 PIN



8 PIN



16 PIN



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