



JOCT357Xh-M4 Series

Rev.A.1.0

DESCRIPTION:

The products are transistor opto-couplers in a plastic SOP4 package. The device combines an AlGaAs infrared diode as the Transmitter which is optically coupled to a phototransistor detector. With the robust coplanar double metal structure, the device provides the most stable isolation feature. The products are widely used to switch mode power supplies, programmable controllers, household equipment.

MAIN FEATURES

High isolation 3750 VRMS

Operating temperature range: -40°C ~ +125°C

RoHS & REACH Compliance

HBM: H3A; MM: M4; CDM: C3

CQC Approved

VDE Approved

UL Approved

AECQ101 Approved

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

| Parameter | | Symbol | Value | Unit |
|-----------------------|---------------------------|------------------|----------|------------------|
| Input | Forward Current | I _F | 50 | mA |
| | Peak Forward Current | I _{FP} | 1 | A |
| | Reverse Voltage | V _R | 6 | V |
| | Power Dissipation | P _D | 75 | mW |
| Output | Collector-Emitter Voltage | V _{CEO} | 80 | V |
| | Emitter-Collector Voltage | V _{ECO} | 7 | V |
| | Collector Current | I _C | 50 | mA |
| | Power Dissipation | P _C | 150 | mW |
| Total Power | | P _{tot} | 225 | mW |
| Isolation Voltage | | V _{iso} | 3750 | V _{rms} |
| Operating Temperature | | T _{op} | -40~+125 | |
| Junction Temperature | | T _j | 135 | |



| | | | |
|-----------------------|------------------|----------|--|
| Storage Temperature | T _{stg} | -55~+125 | |
| Soldering Temperature | T _{sol} | 260 | |

NOTE1: 100μs pulse, 100Hz frequency

NOTE2: AC for 1minute, R.H.=40-60%

ELECTRICAL CHARACTERISTICS (Temperature=25°C)

| Parameter | | Symbol | Condition | Min. | Typ. | Max. | Unit |
|--------------------------|--------------------------------------|----------------------|---|------------------|------------------|------|------|
| Input | Forward Voltage | V _F | I _F =10mA | - | 1.2 | 1.5 | V |
| | Reverse Current | I _R | V _R =6V | - | - | 1 | μA |
| | Terminal Capacitance | C _t | V=0, f=1MHz | - | 10 | - | pF |
| Output | Collector-Emitter dark current | I _{CEO} | V _{CE} =20V, I _F =0 | - | - | 100 | nA |
| | Collector-Emitter breakdown voltage | BV _{CEO} | I _C =0.1mA I _F =0 | 80 | - | - | V |
| | Emitter-Collector breakdown voltage | BV _{ECO} | I _E =0.1mA I _F =0 | 7 | - | - | V |
| Transfer Characteristics | Current transfer ratio | CTR | I _F =5mA V _{CE} =5V | 80 | - | 600 | % |
| | Collector-Emitter Saturation Voltage | V _{CE(sat)} | I _F =20mA I _C =1mA | - | 0.06 | 0.2 | V |
| | Isolation resistance | R _{IO} | DC500V 40~60%R.H. | 10 ¹² | 10 ¹⁴ | - | |
| | Floating Capacitance | C _{IO} | V=0, f=1MHz | - | 0.4 | 1 | pF |
| | Cut-off Frequency | f _c | V _{CE} =5V, I _C =2mA R _L =100Ω, -3dB | - | 80 | - | kHz |
| | Rise Time | t _r | V _{CE} =2V, I _C =2mA R _L =100Ω | - | 3 | 18 | μs |
| | Fall Time | t _f | | - | 4 | 18 | μs |
| | Response Time | t _{on} | | - | 6 | 25 | μs |
| t _{off} | | - | | 5 | 25 | μs | |

NOTE1: Rank Table of Current Transfer Ratio (Temperature=25°C)

| Grade Sign | Min. (%) | Max. (%) |
|------------|----------|----------|
| None | 80 | 600 |
| A | 80 | 160 |
| B | 130 | 260 |
| C | 200 | 400 |
| D | 300 | 600 |
| E | 400 | 600 |
| Q | 100 | 200 |

ORDERING INFORMATION

| | | | | | | | |
|--|--------------------------------------|-----------------------------------|--|--|--|-------------------------------|---|
| <p>J</p> <p>JieJie Microelectronics Co., Ltd.</p> | <p>OC</p> <p>Opto Coupler</p> | <p>T</p> <p>Transistor</p> | <p>357</p> <p>Marketization Model</p> | <p>B</p> <p>CTR Rank:A/B/C/D/None</p> | <p>h</p> <p>h: Automotive grade</p> | <p>-M4</p> <p>SOP4</p> | <p>/</p> <p>None:T1 R:T2</p> |
|--|--------------------------------------|-----------------------------------|--|--|--|-------------------------------|---|

| Packing Quantity | |
|------------------|-----------------|
| Option | Quantity |
| None/R | 3000 Units/Reel |

MARKING



JOCT357Xh

FIG.7: Normalized Current Transfer Ratio vs. Ambient Temperature

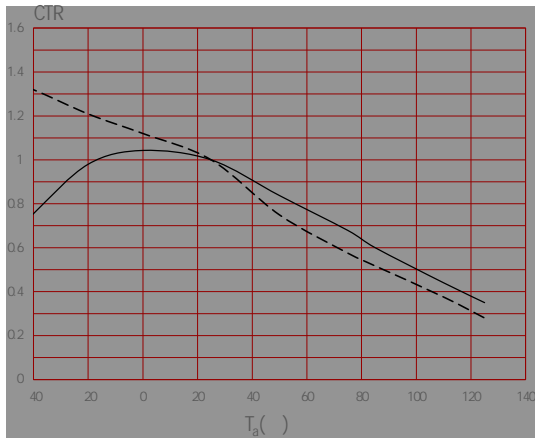


FIG.8: Normalized Collector-emitter Saturation Voltage vs. Ambient Temperature

Test Circuits

FIG.11: Test Circuits of Response Time

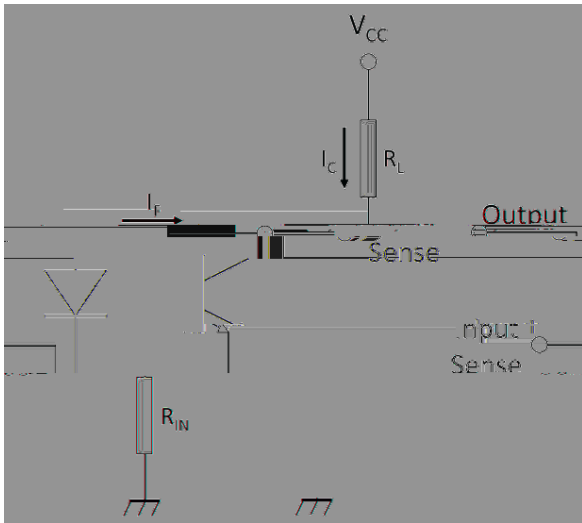


FIG.12: Curves of Response Time

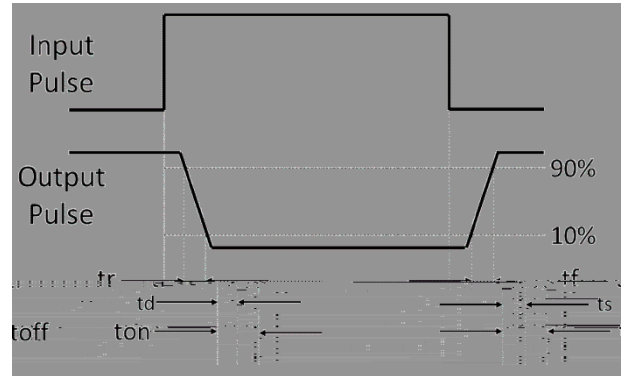
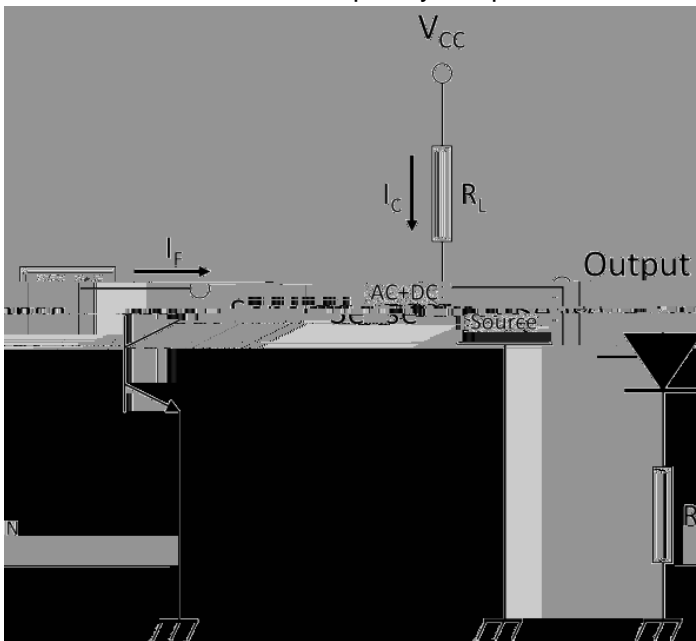
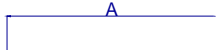


FIG.13: Test Circuits of Frequency Response



Package Dimension (Unit: mm)

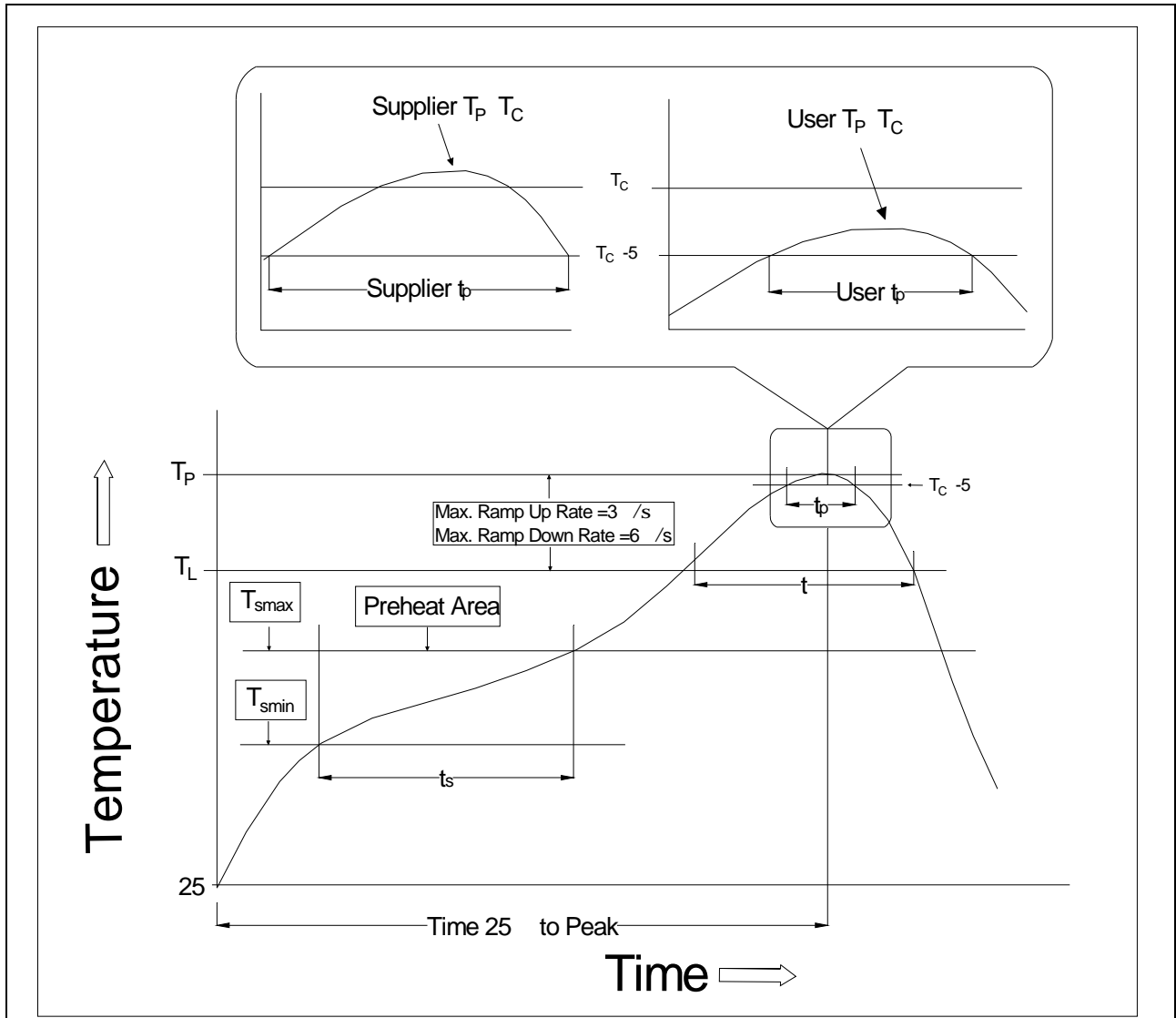


CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Option None



REFLOW INFORMATION




| Profile Feature | Sn-Pb Assembly Profile | Pb-Free Assembly Profile |
|---|------------------------|--------------------------|
| Temperature Min. (T _{smin}) | 100 | 150 |
| Temperature Max. (T _{smax}) | 150 | 200 |
| Time (t _s) from (T _{smin} to T _{smax}) | 60-120 seconds | 60-120 seconds |
| Ramp-up Rate (t _L to t _P) | 3 °/second max. | 3 °/second max. |
| Liquidus Temperature (T _L) | 183 | 217 |
| Time (t _L) Maintained Above (T _L) | 60-150 seconds | 60-150 seconds |
| Peak Body Package Temperature | 235 +0 /-5 | 260 +0 /-5 |

Note:

1. Reflow soldering is recommended at the temperatures and times shown, no more than three times.
2. Avoid direct contact between the epoxy body and any tools or surfaces exceeding its maximum storage temperature.
3. Application of pressure on the epoxy body is prohibited at elevated temperatures. In specific scenarios, any applied force must not exceed 2.5N.
4. Ensure the component has cooled to ambient temperature before proceeding with any subsequent manufacturing steps.
5. The component has a shelf life of one year when stored under standard conditions.
6. Recommend storage Temp.: 0~40°C;
Recommend storage humidity: <60%;
MSL level: MSL 1

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