

Description

The 4N25, 4N26, 4N27, 4N28, 4N35, 4N36, 4N37, 4N38 series combine an AlGaAs infrared emitting diode as the emitter which is optically coupled to a silicon planar phototransistor detector in a plastic DIP6 package with different lead forming options.

Features

- High isolation 5000 VRMS
- DC input with transistor output
- Operating temperature range - 55 °C to 110 °C
- RoHS & REACH Compliance
- MSL class 1
- UL-approved: UL1577, File No.E492440

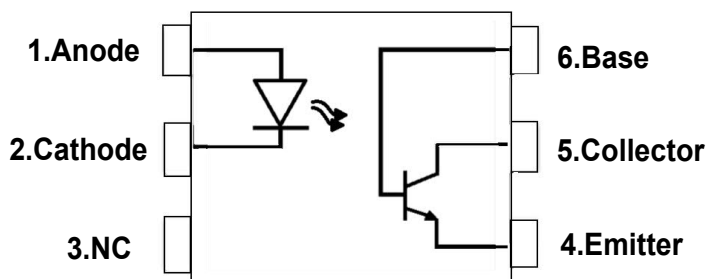
Truth Table (Positive Logic)

| Input | Enable | Output |
|-------|--------|--------|
| H | H | L |
| L | H | H |
| H | L | H |
| L | L | H |
| H | NC | L |
| L | NC | H |

Applications

- Sequence controller
- Telephone/FAX
- System appliances, measuring instrument
- Programmable logic controller

Schematics



ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | VALUE | UNIT | NOTE |
|---------------------------------------|-----------|----------|------------------|------|
| INPUT | | | | |
| Forward Current | I_F | 50 | mA | |
| Peak Forward Current($t=10\mu s$) | I_{FM} | 1 | A | 1 |
| Reverse Voltage | V_R | 6 | V | |
| Power Dissipation($T_A=25^\circ C$) | P_D | 70 | mW | |
| OUTPUT | | | | |
| Collector - Emitter Voltage | V_{CEO} | 80 | V | |
| Collector-Base Breakdown Voltage | V_{CBO} | 80 | V | |
| Emitter - Collector Voltage | V_{ECO} | 7 | V | |
| Emitter-Base Breakdown Voltage | V_{EBO} | 7 | V | |
| Collector Current | I_C | 80 | mA | |
| Power Dissipation($T_A=25^\circ C$) | P_C | 150 | mW | |
| COMMON | | | | |
| Total Power Dissipation | P_{tot} | 200 | mW | |
| Isolation Voltage | V_{iso} | 5000 | V _{rms} | 2 |
| Operating Temperature | T_{opr} | -55~+110 | $^\circ C$ | |
| Storage Temperature | T_{stg} | -55~+110 | $^\circ C$ | |
| Soldering Temperature | T_{sol} | 260 | $^\circ C$ | |

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

Note 2. For 10 seconds

ELECTRICAL OPTICAL CHARACTERISTICS at Ta=25°C

| PARAMETER | SYMBOL | MIN | TYP. | MAX | UNIT | TEST CONDITION | NOTE |
|-------------------------------------|------------|-----|------|-----|---------------|----------------------------|------|
| INPUT | | | | | | | |
| Forward Voltage | V_F | - | 1.24 | 1.4 | V | $I_F=10\text{mA}$ | |
| Reverse Current | I_R | - | - | 10 | μA | $V_R=6\text{V}$ | |
| Input Capacitance | C_{in} | - | 30 | - | pF | $V=0, f=1\text{kHz}$ | |
| OUTPUT | | | | | | | |
| Collector Dark Current | I_{CEO} | - | - | 20 | nA | $V_{CE}=10\text{V}, I_F=0$ | |
| Collector-Emitter Breakdown Voltage | BV_{CEO} | 80 | - | - | V | $I_C=1\text{mA}, I_F=0$ | |
| Emitter-Collector Breakdown Voltage | BV_{ECO} | 7 | - | - | V | $I_E=1\text{mA}, I_F=0$ | |
| Collector-Base Breakdown | BV_{CBO} | 80 | - | - | V | $I_C=0.1\text{mA}, I_F=0$ | |
| Emitter-Base Breakdown | BV_{EBO} | 7 | - | - | V | $I_E=0.1\text{mA}, I_F=0$ | |

TRANSFER CHARACTERISTICS

| | | | | | | | |
|--------------------------------------|----------------------|----------------------|------------------|------------------|-----|-----|--------------------------------|
| Current Transfer Ratio | CTR | 4N35, 4N36, 4N37 | 100 | - | - | % | IF=10mA, VCE=10V |
| | | 4N25,4N26, 4N38 | 20 | - | - | | |
| | | 4N27, 4N28 | 10 | - | - | | |
| Collector-Emitter Saturation Voltage | V _{CE(sat)} | 4N25,4N26, 4N27,4N28 | - | - | 0.5 | V | IF=10mA, VCE=10V |
| | | 4N35,4N36,4N37 | - | - | 0.3 | | IF= 10mA, IC= 0.5mA |
| | | 4N38 | - | - | 1.0 | | IF= 20mA, IC= 4mA |
| | | 4N25,4N26, 4N27,4N28 | - | - | 0.5 | | IF= 50mA, IC= 2mA |
| Isolation Resistance | | R _{IO} | 10 ¹² | 10 ¹⁴ | - | Ω | V _{IO} =500Vdc. |
| Floating Capacitance | | C _{IO} | - | 0.2 | 1 | pF | V=0, f=1MHz |
| Cut-off Frequency | | f _c | - | 6 | - | kHz | VCE=5V, IC=2mA RL=100Ω,-3dB |
| Turn On Time | t _{on} | 4N25,4N26,4N27, 4N28 | - | 3 | 15 | - | IF= 10mA, VCC= 10V, RL= 100Ω |
| | | 4N35,4N36,4N37, 4N38 | - | 10 | 12 | - | Ic= 2mA, VCC= 10V, RL= 100Ω |
| Turn Off Time | t _{off} | 4N25,4N26,4N27, 4N28 | - | 3 | 16 | - | IF= 10mA, VCC= 10V, RL= 100Ω |
| | | 4N35,4N36,4N37, 4N38 | - | 9 | 12 | - | Ic= 10mA, VCC= 10V, RL= 100Ω |

CHARACTERISTIC CURVES

Fig.1 Forward Current vs. Ambient Temperature

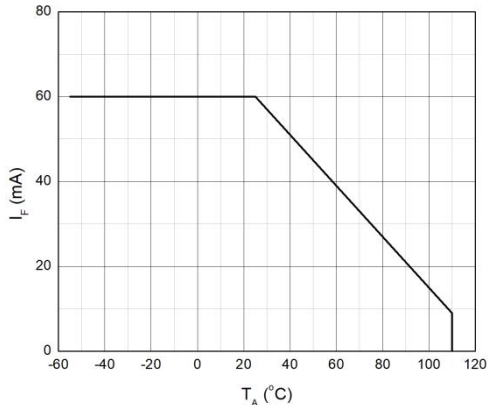


Fig.2 Collector Power Dissipation vs. Ambient Temperature

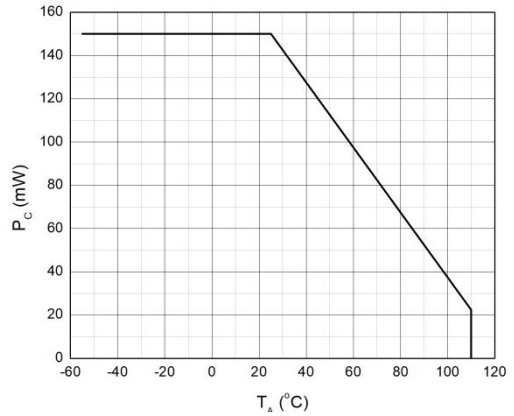


Fig.3 Forward Current vs. Forward Voltage

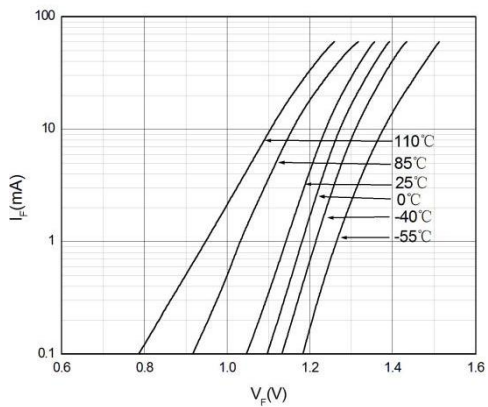


Fig.4 Collector Dark Current vs. Ambient Temperature

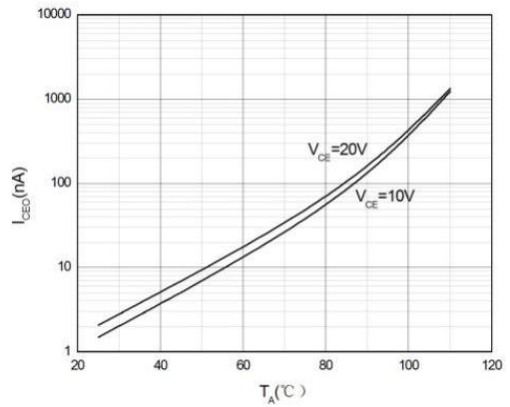


Fig.5 Collector Current vs. Collector-emitter Voltage

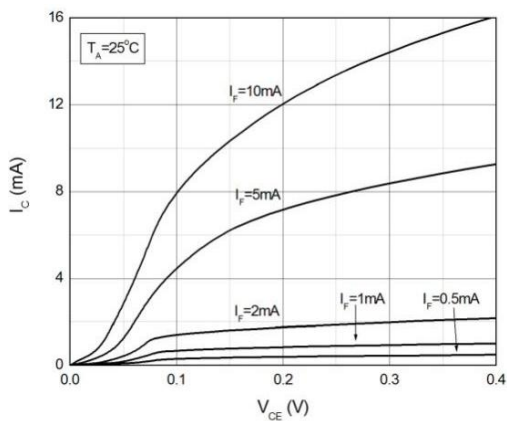
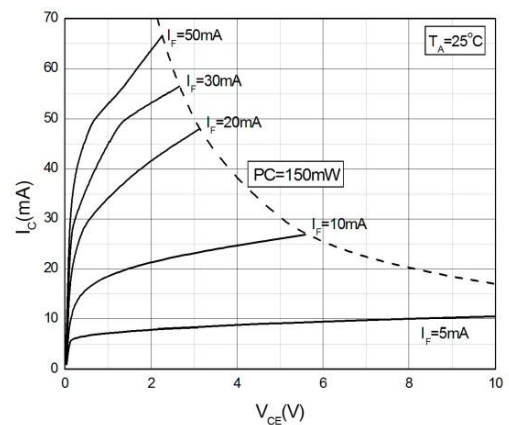


Fig.6 Collector Current vs. Collector-emitter Voltage



CHARACTERISTIC CURVES

Fig.7 Normalized Current Transfer Ratio vs. Forward Current

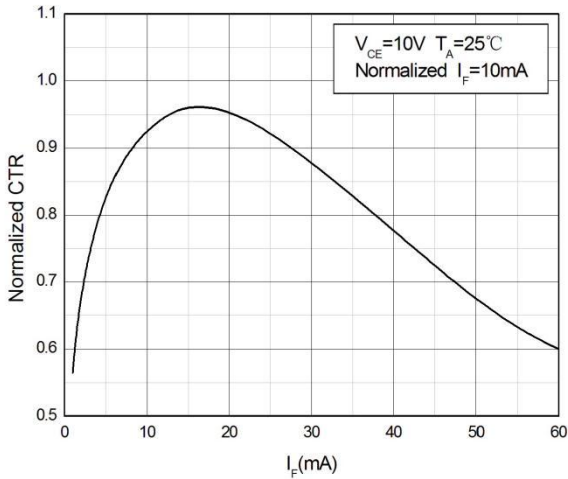


Fig.8 Normalized Current Transfer Ratio vs. Ambient Temperature

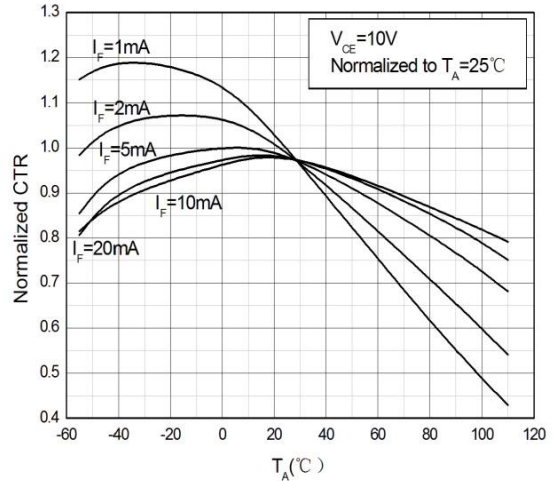


Fig.9 Current Transfer Ratio(Unsaturated) vs Base-Emitter Resistance

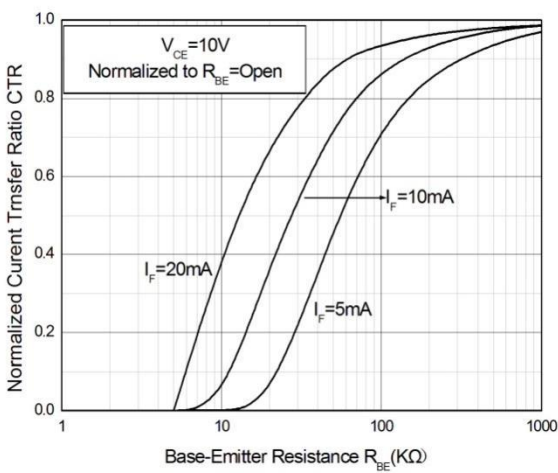
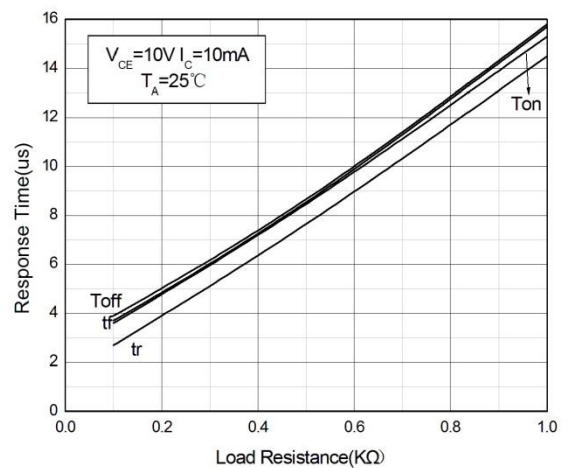
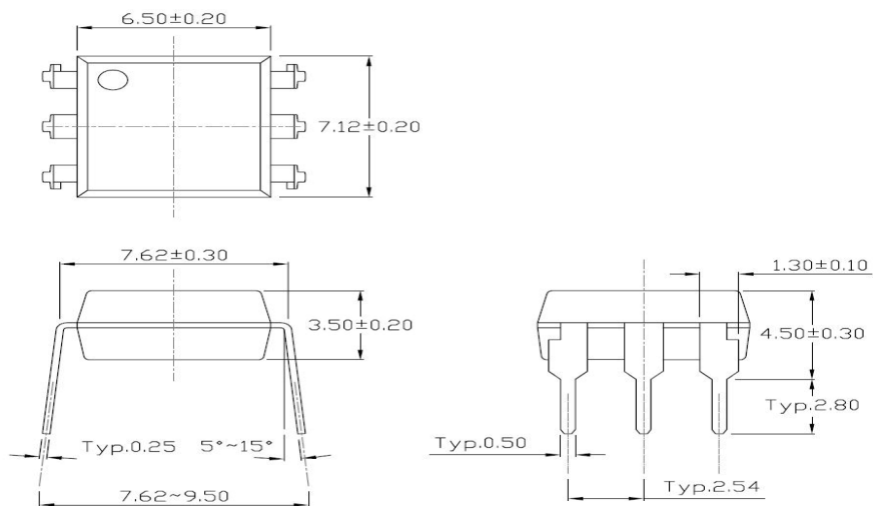


Fig.10 Switching Time vs. Load Resistance



PACKAGE DIMENSIONS (Dimensions in mm unless otherwise stated)

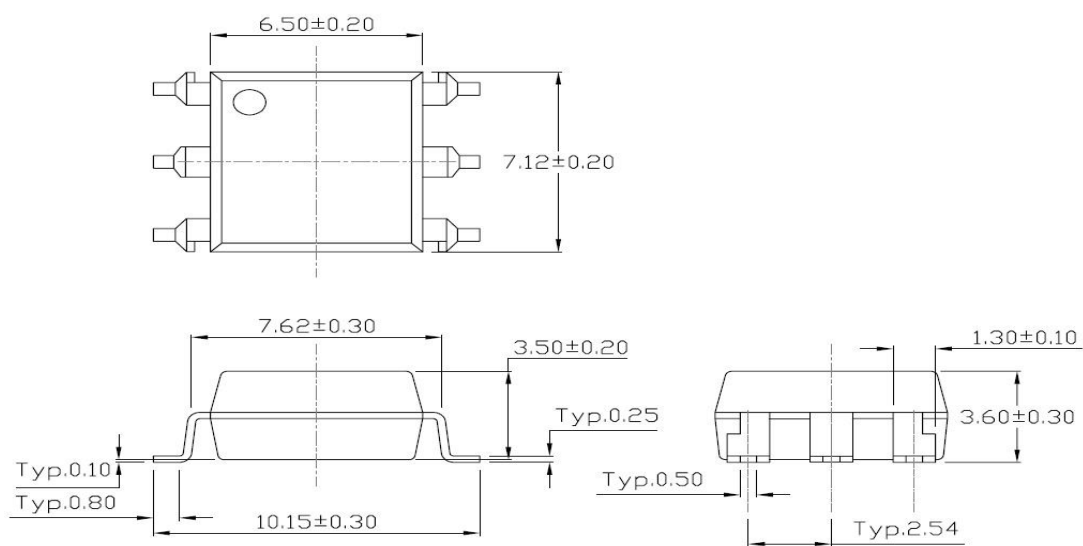
Standard DIP – Through Hole (DIP Type)



Gullwing (400mil) Lead Forming – Through Hole (M Type)

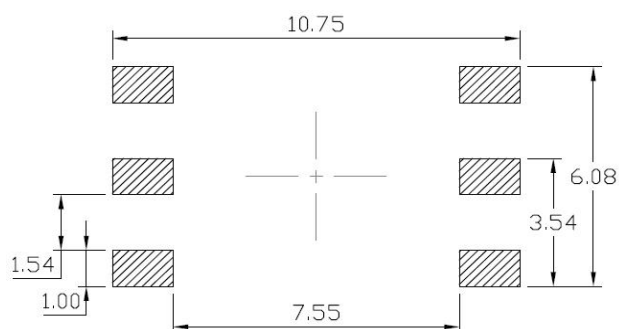
PACKAGE DIMENSIONS (Dimensions in mm unless otherwise stated)

Surface Mount (Low Profile) Lead Forming (SL Type)

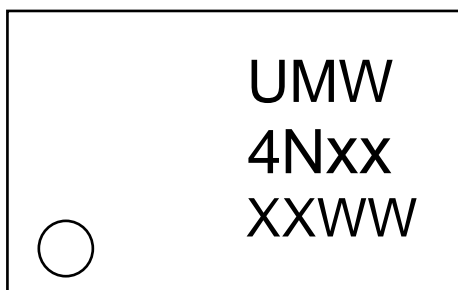


Recommended Solder Mask (Dimensions in mm unless otherwise stated)

Surface Mount Lead Forming & Surface Mount (Low Profile) Lead Forming



Marking



- “XX” denotes YEAR;
- “WW” denotes WEEK

ORDERING INFORMATION

| Order code | Package | Baseqty | Deliverymode |
|------------|---------|---------|---------------|
| UMW 4N25SM | SOP-6 | 1000 | Tape and reel |
| UMW 4N26SM | SOP-6 | 1000 | Tape and reel |
| UMW 4N27SM | SOP-6 | 1000 | Tape and reel |
| UMW 4N28SM | SOP-6 | 1000 | Tape and reel |
| UMW 4N35SM | SOP-6 | 1000 | Tape and reel |
| UMW 4N36SM | SOP-6 | 1000 | Tape and reel |
| UMW 4N37SM | SOP-6 | 1000 | Tape and reel |
| UMW 4N38SM | SOP-6 | 1000 | Tape and reel |
| UMW 4N25 | DIP-6 | 1600 | Tube and box |
| UMW 4N26 | DIP-6 | 1600 | Tube and box |
| UMW 4N27 | DIP-6 | 1600 | Tube and box |
| UMW 4N28 | DIP-6 | 1600 | Tube and box |
| UMW 4N35 | DIP-6 | 1600 | Tube and box |
| UMW 4N36 | DIP-6 | 1600 | Tube and box |
| UMW 4N37 | DIP-6 | 1600 | Tube and box |
| UMW 4N38 | DIP-6 | 1600 | Tube and box |

单击下面可查看定价，库存，交付和生命周期等信息

[>>UMW\(友台半导体\)](#)