# 66100

**MICROCOUPLER, STANDARD TRANSISTOR OUTPUT**

**OPTOELECTRONIC PRODUCTS DIVISION**

08/24/2011

**Features:**

- Radiation tolerant version available
- Small size saves real estate
- Large thick film gold bond pads
- Element evaluation on request
- Electrically similar to 4N2X and 4N4X couplers

**Applications:**

- Eliminate ground loops
- Level shifting
- Line receiver
- Solid state switching
- Switching power supplies

## DESCRIPTION

The ***66100*** microcoupler is a single channel optocoupler consisting of an LED optically coupled to a light sensitive silicon phototransistor. Each microcoupler is provided with full 100% DC testing with sample element evaluation available. All microcouplers are capable of operating over the full military temperature range (-55℃ to +125℃).

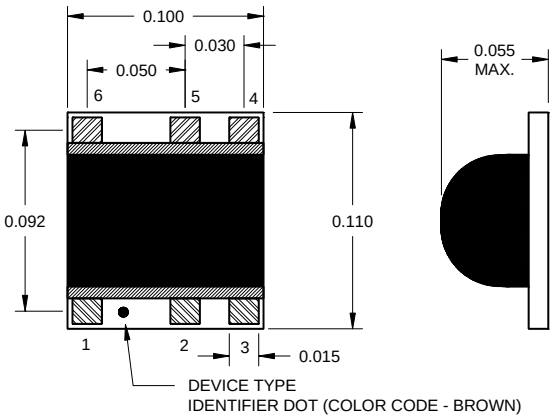
## ABSOLUTE MAXIMUM RATINGS

| | |
|---|---|
| Input to Output Isolation Voltage | 1 kV |
| Input Diode Continuous Forward Current | 40 mA |
| Peak Forward Input Current (value applies for tw ≤10μs, PRR < 300 pps) | 1 A |
| Reverse Input Voltage | 6 V |
| Input Power Dissipation (Note 1) | 80 mW |
| Emitter-Base Voltage | 7 V |
| Collector-Emitter Voltage (Value applies to emitter-base open-circuited and the input diode equal to zero) | 60 V |
| Collector-Base Voltage | 60 V |
| Continuous Collector Current | 50 mA |
| Continuous Transistor Power Dissipation (Note 2) | 300 mW |
| Storage Temperature | -65℃ to +150℃ |
| Operating Free-Air Temperature Range | -55℃ to +125℃ |

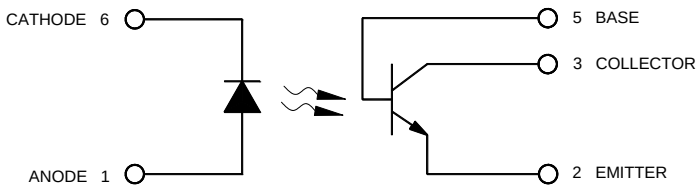
**Notes:**

1. Derate linearly at the rate of 1.33 mW/℃ above 65℃.
2. Derate linearly at the rate of 3 mW/℃ above 25 °C.

### Package Dimensions




### Schematic Diagram





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## ELECTRICAL CHARACTERISTICS

$T_A$ = 25℃ unless otherwise specified.

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNITS | TEST CONDITIONS | NOTE |
|---|---|---|---|---|---|---|---|
| Input Diode Static Reverse Current | $I_R$ | | | 10 | μA | $V_R$ = 2 V | |
| Input Diode Static Forward Voltage -55°C | $V_F$ | 1.0 | | 2.0 | V | $I_F$ = 10 mA | |
| Input Diode Static Forward Voltage +25℃ | $V_F$ | 0.8 | 1.4 | 1.5 | V | $I_F$ = 10 mA | |
| Input Diode Static Forward Voltage +100°C | $V_F$ | 0.8 | | 2.0 | V | $I_F$ = 10 mA | |

## OUTPUT TRANSISTOR

$T_A$ = 25℃ unless otherwise specified.

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNITS | TEST CONDITIONS | NOTE |
|---|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 45 | | | V | $I_C$ = 100 μA, $I_B$ = 0, $I_F$ = 0 | |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 40 | | | V | $I_C$ = 1 mA, $I_B$ = 0, $I_F$ = 0 | |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 7 | | | V | $I_C$ = 0 mA, $I_E$ = 100 μA, $I_F$ = 0 | |
| Off-State Collector Current<br>+100°C | $I_{CEO}$ | | | 100<br>100 | nA<br>μA | $V_{CE}$ = 20 V, $I_F$ = 0 mA, $I_B$ = 0 | |

## COUPLED CHARACTERISTICS

$T_A$ = 25℃ unless otherwise specified.

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNITS | TEST CONDITIONS | NOTE |
|---|---|---|---|---|---|---|---|
| On State Collector Current | $I_{C(ON)}$ | 2.0 | | | mA | $V_{CE}$ = 5 V, $I_F$ = 1 mA, $I_B$ = 0 | |
| On State Collector Current +100˚C | $I_{C(ON)}$ | 2.0 | | | mA | $V_{CE}$ = 5 V, $I_F$ = 2 mA, $I_B$ = 0 | |
| On State Collector Current -55˚C | $I_{C(ON)}$ | 2.8 | | | mA | $V_{CE}$ = 5 V, $I_F$ = 2 mA, $I_B$ = 0 | |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | | | 0.3 | V | $I_F$ = 2 mA, $I_C$ = 2 mA | |
| Input to Output Isolation Voltage | $V_{I-O}$ | 1000 | | | V | $I_{I-O}$ = 100 nA | 1 |
| Rise Time-Phototransistor Operation | $t_r$ | | 10 | 25 | μs | $V_{CC}$ = 10 V, $I_F$ = 10 mA, $R_L$ = 100 Ω, $I_B$ = 0 | 2 |
| Fall Time-Phototransistor Operation | $t_f$ | | 10 | 25 | μs | $V_{CC}$ = 10 V, $I_F$ = 10 mA, $R_L$ = 100 Ω, $I_B$ = 0 | 2 |

**NOTES:**

1. These parameters are measured between all phototransistor leads shorted together and with both input diode leads shorted together.
2. This parameter must be measured using pulse techniques ($t_W$ = 100 μs duty cycle ≤ 1%).

## RECOMMENDED OPERATING CONDITIONS:

| PARAMETER | SYMBOL | MIN | MAX | UNITS |
|---|---|---|---|---|
| Input Current, Low Level | $I_{FL}$ | 0 | 90 | μA |
| Input Current, High Level | $I_{FH}$ | 2 | 10 | mA |
| Supply Voltage | $V_{CE}$ | 5 | 10 | V |
| Operating Temperature | $T_A$ | -55 | 125 | ˚C |

## SELECTION GUIDE

| PART NUMBER | PART DESCRIPTION |
|---|---|
| 66100-001 | Commercial |
| 66100-101 | Commercial with element evaluation |
| 66100-002 | Radiation tolerant |
| 66100-102 | Radiation tolerant with element evaluation |