



**ISOCOM**  
COMPONENTS

## ISD201, ISD202, ISD203



### DESCRIPTION

The IS20\*, ISD20\*, ISQ20\* series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

### FEATURES

- Options :- 10mm lead spread - add G after part no. Surface mount - add SM after part no. Tape&reel - add SMT&R after part no.
- High Isolation Voltage (5.3kVRMS ,7.5kVPK ) High BVCEO (70V min)
- All electrical parameter 100% tested
- Custom electrical selections available
- UL recognised, File No. E91231 Package Code " GG " or " FF "
- VDE 0884 in 3 available lead form : - - STD - G form - SMD approved to CECC 00802
- IS20\* Certified to EN60950 by :- Nemko - Certificate No. P01102464

### APPLICATIONS

- Computer terminals
- Industrial systems controllers
- Signal transmission between systems of different potentials and impedances

### ORDER INFORMATION

- Available in Tape & Reel with 3000 pieces per reel

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C)

Stresses exceeding the absolute maximum ratings can cause permanent damage to the device.

Exposure to absolute maximum ratings for long periods of time can adversely affect reliability.

#### Input

|                   |      |
|-------------------|------|
| Forward Current   | 50mA |
| Reverse Voltage   | 6V   |
| Power dissipation | 70mW |

#### Output

|                                                |       |
|------------------------------------------------|-------|
| Collector to Emitter Voltage BV <sub>CEO</sub> | 70V   |
| Emitter to Collector Voltage BV <sub>ECO</sub> | 6V    |
| Collector Current                              | 50mA  |
| Power Dissipation                              | 150mW |

#### Total Package

|                                  |                |
|----------------------------------|----------------|
| Total Power Dissipation          | 170mW          |
| Operating Temperature            | -25°C - 100°C  |
| Storage Temperature              | -40°C - 125°C  |
| Lead Soldering Temperature (10s) | 260°C (10 Sec) |

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## ISD201, ISD202, ISD203

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

#### INPUT

| Parameter       | Symbol | Test Condition      | Min | Typ.* | Max  | Unit          |
|-----------------|--------|---------------------|-----|-------|------|---------------|
| Forward Voltage | $V_F$  | $I_F = 50\text{mA}$ |     | 1.2   | 1.65 | V             |
| Reverse Current | $I_R$  | $V_R = 4\text{V}$   |     |       | 10   | $\mu\text{A}$ |

#### OUTPUT

| Parameter                           | Symbol     | Test Condition         | Min | Typ.* | Max | Unit |
|-------------------------------------|------------|------------------------|-----|-------|-----|------|
| Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | $I_C = 1\text{mA}$     | 70  |       |     | V    |
| Emitter-Collector Breakdown Voltage | $BV_{ECO}$ | $I_E = 100\mu\text{A}$ | 6   |       |     | V    |
| Collector-Emitter Dark Current      | $I_{CEO}$  | $V_{CE} = 10\text{V}$  |     |       | 50  | nA   |

#### COUPLED

| Parameter                            | Symbol        | Test Condition                                                  | Min                | Typ.* | Max | Unit          |
|--------------------------------------|---------------|-----------------------------------------------------------------|--------------------|-------|-----|---------------|
| Current Transfer Ratio               | CTR           | 10mA, $I_F$ 10V $V_{CE}$<br>1mA, $I_F$ 10V $V_{CE}$             | 75<br>10           |       |     | %             |
|                                      |               | 10mA, $I_F$ 10V $V_{CE}$<br>1mA, $I_F$ 10V $V_{CE}$             | 125<br>30          |       | 250 |               |
|                                      |               | 10mA, $I_F$ 10V $V_{CE}$<br>1mA, $I_F$ 10V $V_{CE}$             | 210<br>45          |       | 450 |               |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_F = 10\text{mA}$ , $I_F = 2\text{mA}$ $I_C$                  |                    | 0.2   | 0.4 | V             |
| Input-output Isolation Resistance    | $R_{ISO}$     | $V_{10} = 500\text{V}$                                          | $5 \times 10^{10}$ |       |     | $\Omega$      |
| Output Turn on Time                  | $t_{ON}$      | $I_F = 10\text{mA}$<br>$V_{CE} = 5\text{V}$<br>$R_L = 75\Omega$ |                    | 3     |     | $\mu\text{s}$ |
| Output Turn off Time                 | $t_{OFF}$     |                                                                 |                    | 2.5   |     | $\mu\text{s}$ |



## ISD201, ISD202, ISD203

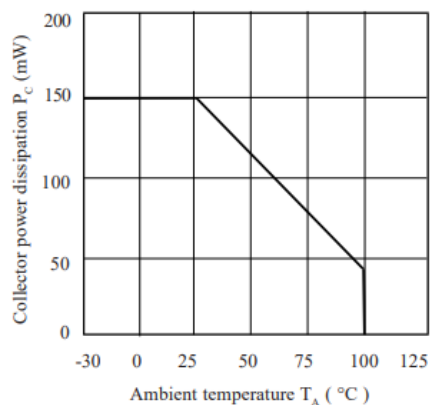


**Fig 1 Collector Power Dissipation vs Ambient Temperature**

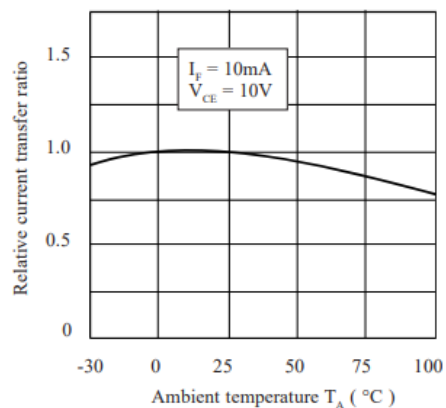


**Fig 2 Relative Current Transfer Ratio vs Ambient Temperature**

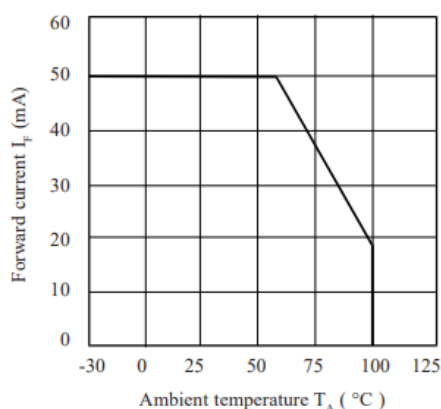


**Fig 3 Forward Current vs Ambient**

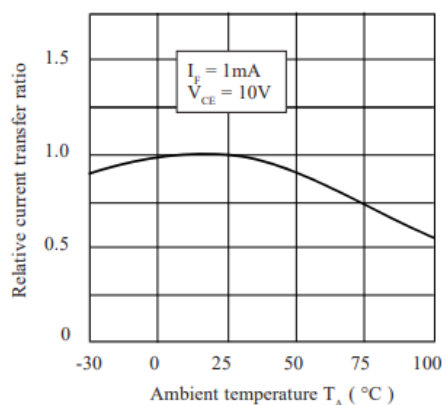


**Fig 4 Relative Current Transfer Ratio vs Ambient Temperature**

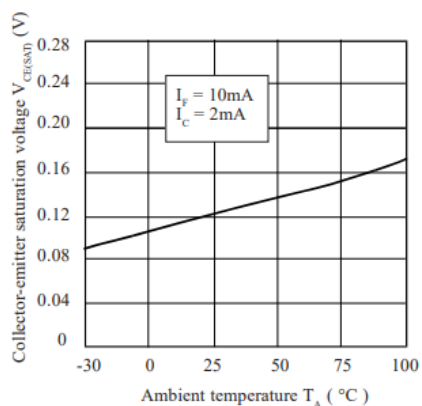


**Fig 5 Collector-Emitter Saturation Voltage vs Ambient Temperature**

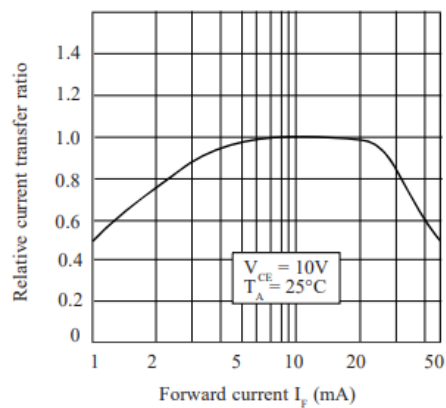
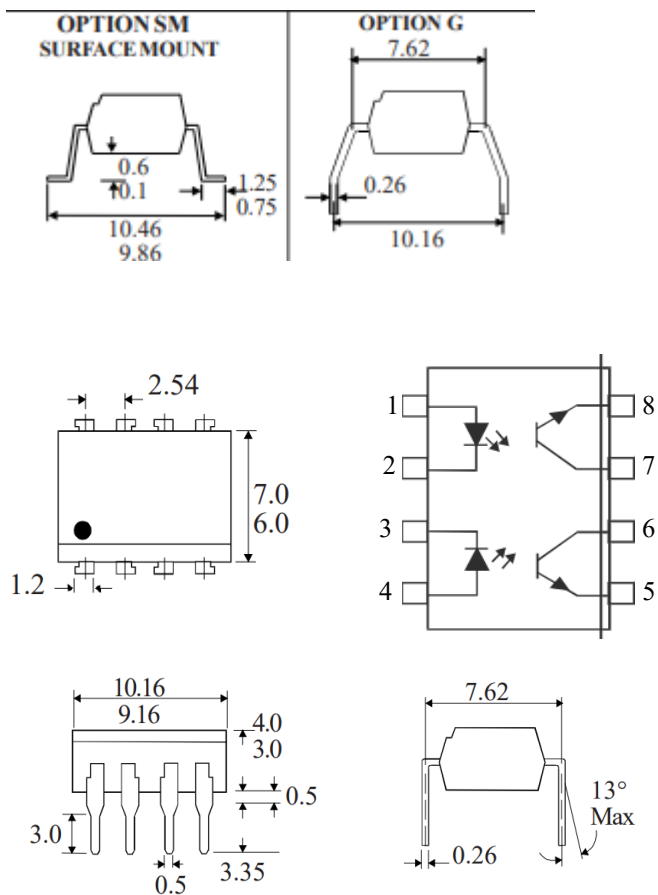


**Fig 6 Relative Current Transfer Ratio vs Forward Current**



## ISD201, ISD202, ISD203

### DIMENSIONS (mm)



### DEVICE MARKING

I Isocom

YY Year code (A=2010, B=2011, etc.)

WW 2 digit Week code

UL identification also marked on the device.

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