

IS201, IS202, IS203, IS204,  
 ISD201, ISD202, ISD203, ISD204,  
 ISQ201, ISQ202, ISQ203, ISQ204



**HIGH DENSITY  
 PHOTOTRANSISTOR OPTICALLY  
 COUPLED ISOLATORS**

**APPROVALS**

- UL recognised, File No. E91231

**'X' SPECIFICATION APPROVALS**

- VDE 0884 in 3 available lead form :-
  - STD
  - G form
  - SMD approved to CECC 00802
- IS20\* Certified to EN60950 by the following Test Bodies :-
  - Nemko - Certificate No. P01102464
  - Fimko - Certificate No. FI18166
  - Semko - Reference No. 0202037/01-22
  - Demko - Certificate No. 311158-01
- BSI approved - Certificate No. 8001

**DESCRIPTION**

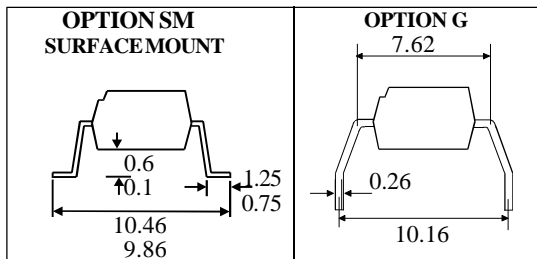
The IS20\*, ISD20\*, ISQ20\* series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

**FEATURES**

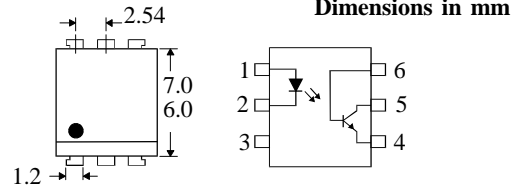
- Options :-
  - 10mm lead spread - add G after part no.
  - Surface mount - add SM after part no.
  - Tape&reel - add SMT&R after part no.
- High Isolation Voltage (5.3kV<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- High BV<sub>CEO</sub> (70V min)
- All electrical parameter 100% tested
- Custom electrical selections available

**APPLICATIONS**

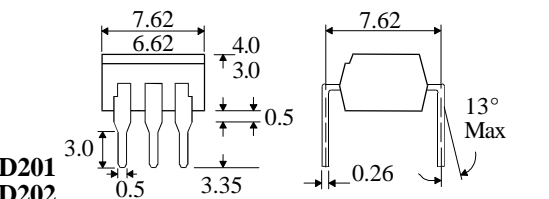
- Computer terminals
- Industrial systems controllers
- Signal transmission between systems of different potentials and impedances



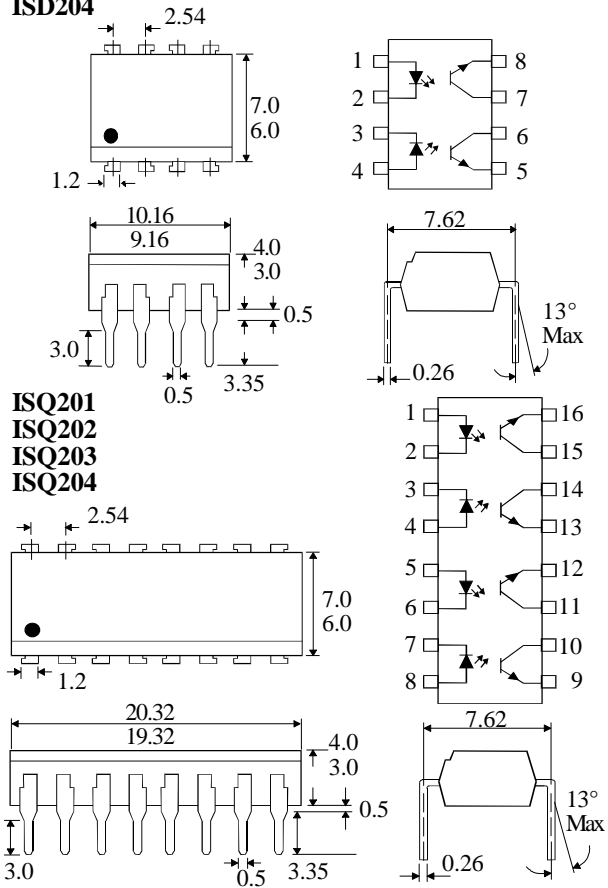
**IS201  
 IS202  
 IS203  
 IS204**



**ISD201  
 ISD202  
 ISD203  
 ISD204**



**ISQ201  
 ISQ202  
 ISQ203  
 ISQ204**



**ISOCOM COMPONENTS LTD**  
 Unit 25B, Park View Road West,  
 Park View Industrial Estate, Brenda Road  
 Hartlepool, Cleveland, TS25 1YD  
 Tel: (01429) 863609 Fax :(01429) 863581



**ABSOLUTE MAXIMUM RATINGS**  
(25°C unless otherwise specified)

Storage Temperature \_\_\_\_\_ -40°C to +125°C  
 Operating Temperature \_\_\_\_\_ -25°C to +100°C  
 Lead Soldering Temperature  
 (1/16 inch (1.6mm) from case for 10 secs) 260°C

**INPUT DIODE**

Forward Current \_\_\_\_\_ 50mA  
 Reverse Voltage \_\_\_\_\_ 6V  
 Power Dissipation \_\_\_\_\_ 70mW

**OUTPUT TRANSISTOR**

Collector-emitter Voltage  $BV_{CEO}$  \_\_\_\_\_ 70V  
 Emitter-collector Voltage  $BV_{ECO}$  \_\_\_\_\_ 6V  
 Power Dissipation \_\_\_\_\_ 150mW

**POWER DISSIPATION**

Total Power Dissipation \_\_\_\_\_ 170mW  
 (derate linearly 2.67mW/°C above 25°C)

**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ )		1.2	1.65	V	$I_F = 50\text{mA}$
	Reverse Current ( $I_R$ )			10	$\mu\text{A}$	$V_R = 4\text{V}$
Output	Collector-emitter Breakdown ( $BV_{CEO}$ ) (Note 2)	70			V	$I_C = 1\text{mA}$
	Emitter-collector Breakdown ( $BV_{ECO}$ )	6			V	$I_E = 100\mu\text{A}$
	Collector-emitter Dark Current ( $I_{CEO}$ )			50	nA	$V_{CE} = 10\text{V}$
Coupled	Current Transfer Ratio (CTR) (Note 2)					
	IS201, ISD201, ISQ201	75			%	10mA $I_F$ , 10V $V_{CE}$
	IS201, ISD201, ISQ201	10			%	1mA $I_F$ , 10V $V_{CE}$
	IS202, ISD202, ISQ202	125		250	%	10mA $I_F$ , 10V $V_{CE}$
	IS202, ISD202, ISQ202	30			%	1mA $I_F$ , 10V $V_{CE}$
	IS203, ISD203, ISQ203	225		450	%	10mA $I_F$ , 10V $V_{CE}$
	IS203, ISD203, ISQ203	50			%	1mA $I_F$ , 10V $V_{CE}$
	IS204, ISD204, ISQ204	200		400	%	10mA $I_F$ , 10V $V_{CE}$
	IS204, ISD204, ISQ204	100			%	1mA $I_F$ , 10V $V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$		0.2	0.4	V	10mA $I_F$ , 2mA $I_C$
	Input to Output Isolation Voltage $V_{ISO}$	5300			$V_{RMS}$	See note 1
	7500			$V_{PK}$	See note 1	
Input-output Isolation Resistance $R_{ISO}$	$5 \times 10^{10}$			$\Omega$	$V_{IO} = 500\text{V}$ (note 1)	
Output Turn on Time $t_{ON}$			3.0	$\mu\text{s}$	$I_F = 10\text{mA}$	
Output Turn off Time $t_{OFF}$			2.5	$\mu\text{s}$	$V_{CE} = 5\text{V}$ , $R_L = 75\Omega$	

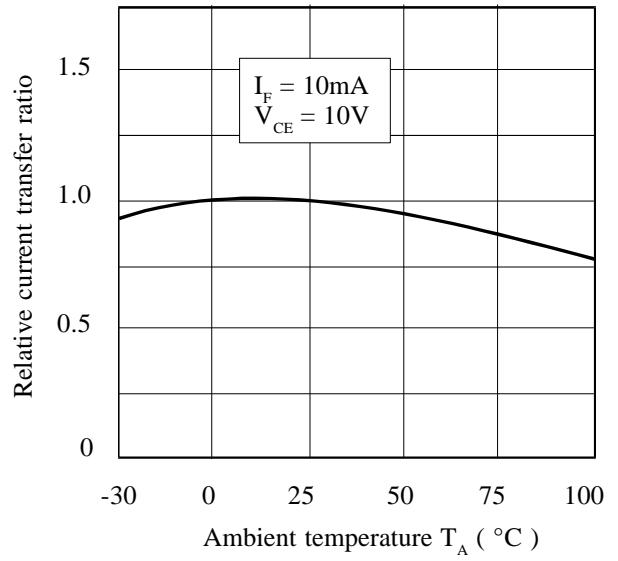
Note 1 Measured with input leads shorted together and output leads shorted together.

Note 2 Special Selections are available on request. Please consult the factory.

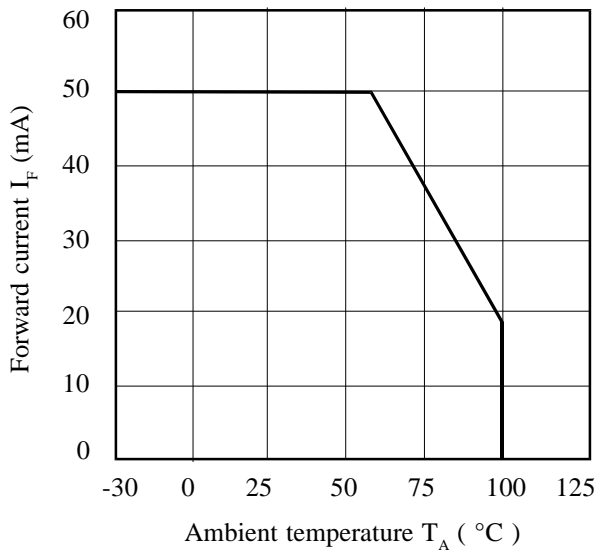
**Collector Power Dissipation vs. Ambient Temperature**



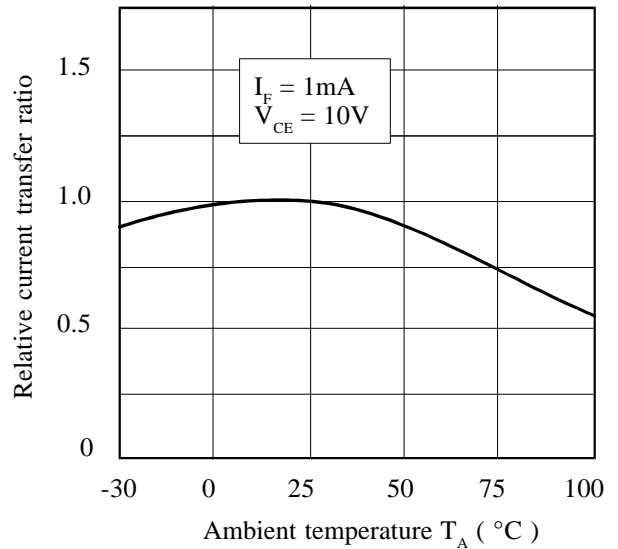
**Relative Current Transfer Ratio vs. Ambient Temperature**



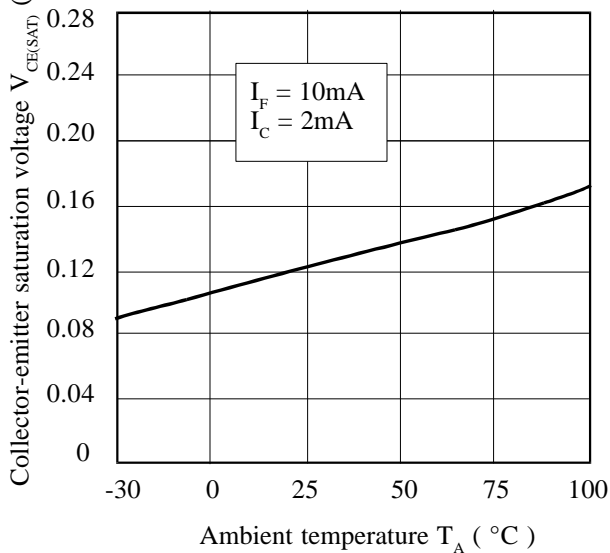
**Forward Current vs. Ambient Temperature**



**Relative Current Transfer Ratio vs. Ambient Temperature**



**Collector-emitter Saturation Voltage vs. Ambient Temperature**



**Relative Current Transfer Ratio vs. Forward Current**

