



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 0080
- EN60950 pending

DESCRIPTION

The IS20*, ISD20*, ISQ20* coupled isolators consist of infrared light emitting diodes and NPN silicon photo

packages.

FEATURES

Options :-
10mm lead spread - add G after part no.

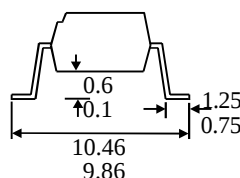
Tape&reel - add SMT&R after part no.

- High Isolation Voltage ($5.3kV_{RMS}$, $7.5kV_{PK}$)
- High BV_{CEO} (70V min)
- All electrical parameter 100% tested
- Custom electrical selections available

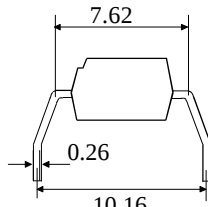
APPLICATIONS

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

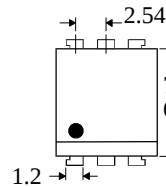
OPTION SM SURFACE MOUNT



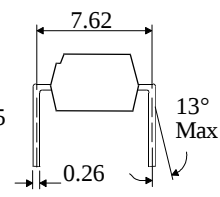
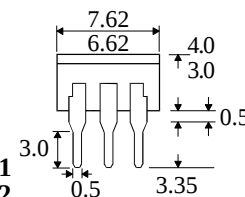
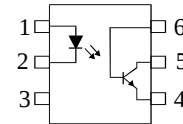
OPTION G



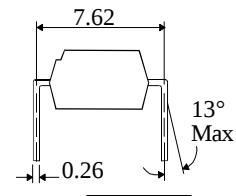
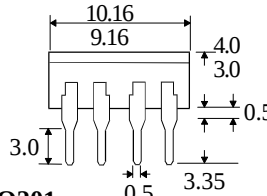
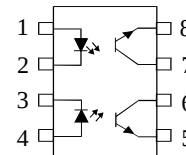
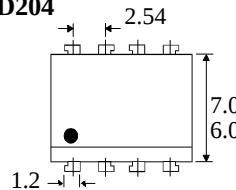
IS201
IS202
IS203
IS204



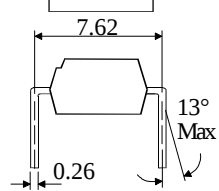
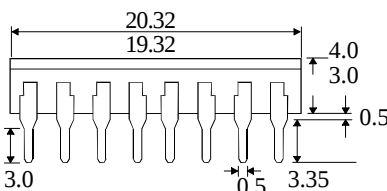
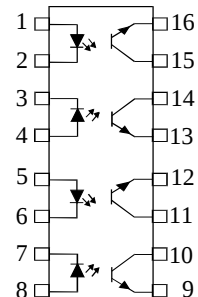
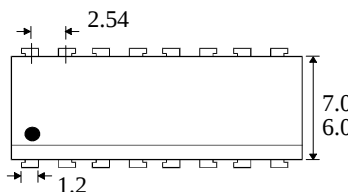
Dimensions in mm



ISD201
ISD202
ISD203
ISD204



ISQ201
ISQ202
ISQ203
ISQ204



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ABSOLUTE MAXIMUM RATINGS
(25°C unless otherwise specified)

Storage Temperature	_____	-55°C to + 125°C
Operating Temperature	_____	-55°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	_____	200mW
(derate linearly 2.67mW/°C above 25°C)		

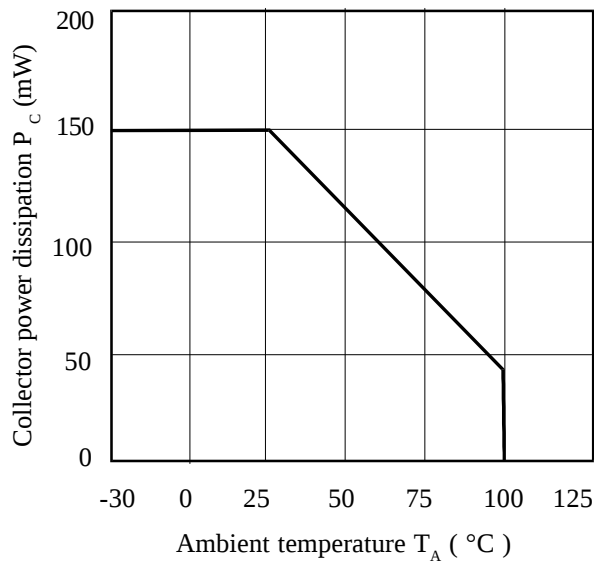
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)	6	1.2	1.65	V	$I_F = 50\text{mA}$ $I_R = 10\mu\text{A}$ $V_R = 6\text{V}$
	Reverse Voltage (V_R)				V	
	Reverse Current (I_R)			10	μA	
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}	5×10^{10}			Ω	$V_{IO} = 500\text{V}$ (note 1)
	Output Turn on Time t_{ON}		3.0		μs	$I_F = 10\text{mA}$
	Output Turn off Time t_{OFF}		2.5		μs	$V_{CE} = 5\text{V}$, $R_L = 75\Omega$

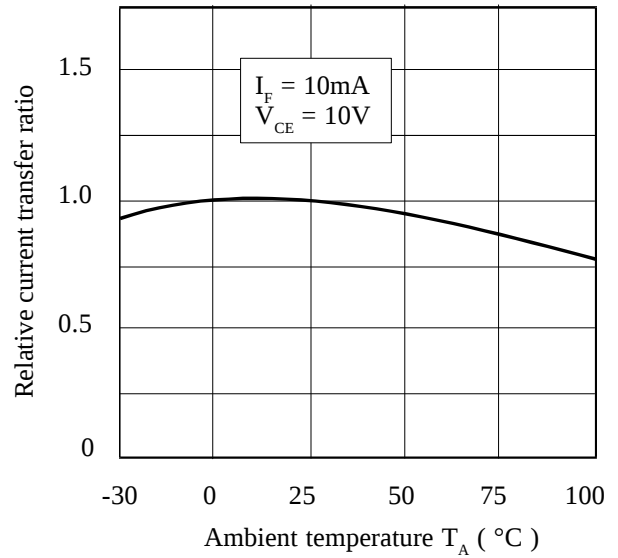
Note 1 Measured with input leads shorted together and output leads shorted together.

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

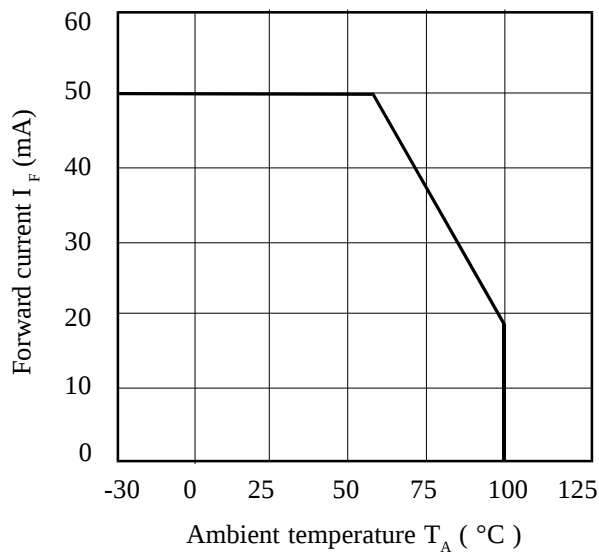
Collector Power Dissipation vs. Ambient Temperature



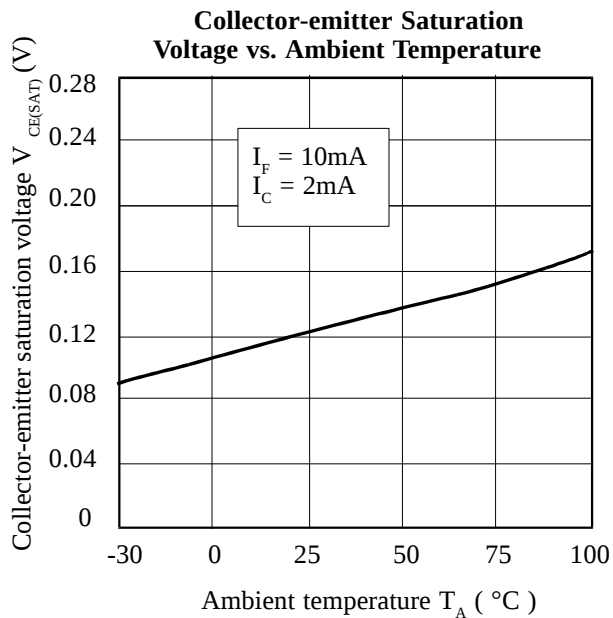
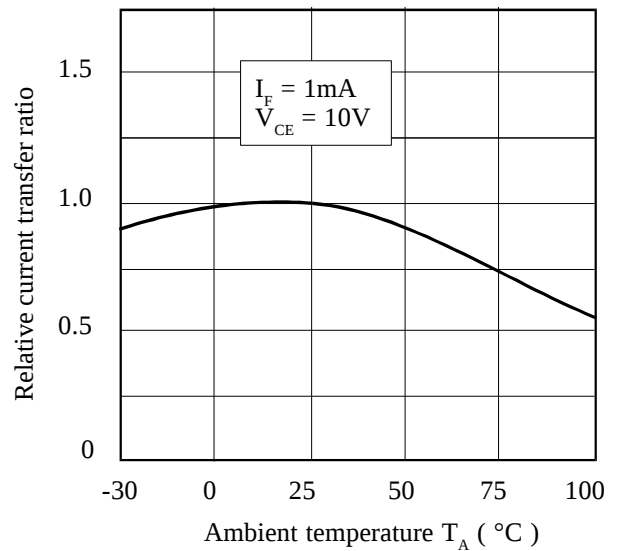
Relative Current Transfer Ratio vs. Ambient Temperature



Forward Current vs. Ambient Temperature



Relative Current Transfer Ratio vs. Ambient Temperature



Relative Current Transfer Ratio vs. Forward Current

