IS205X3,2,1
IS205-3,2,1

LOW INPUT CURRENT NON-BASE LEAD PHOTOTRANSISTOR OPTICALLY COUPLED ISOLATOR

APPROVALS

- UL recognised, File No. E91231

'X' SPECIFICATION APPROVALS

- VDE 0884 in 3 available lead forms : -
  - STD
  - G form
  - SMD approved to CECC 00802
- Certified to EN60950 by the following Test Bodies :-
  Nemko - Certificate No. P96101299
  Fimko - Registration No. 190469-01..22
  Semko - Reference No. 9620076 01
  Demko - Reference No. 305567

DESCRIPTION

The IS205-3, -2, -1 series of optically coupled isolators consist of infrared light emitting diode and NPN silicon photo transistor in a standard 6 pin dual in line plastic package with the base pin unconnected.

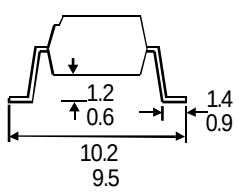
FEATURES

- Options :-
  10mm lead spread - add G after part no.
  Surface mount - add SM after part no.
  Tape&reel - add SMT&R after part no.
- Low input current 0.5mA I_F
- High Current Transfer Ratio (50% min)
- High Isolation Voltage ($5.3kV_{RMS}$,$7.5kV_{PK}$)
- Basepin unconnected for improved noise immunity in high EMI environment

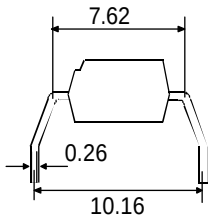
APPLICATIONS

- DC motor controllers
- Industrial systems controllers
- Signal transmission between systems of different potentials and impedances

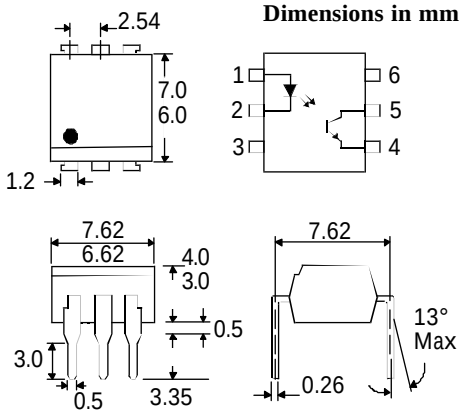
OPTION SM
SURFACE MOUNT



OPTION G



Dimensions in mm



ABSOLUTE MAXIMUM RATINGS (25°C unless otherwise specified)

Storage Temperature	-55°C to + 150°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	60mA
Reverse Voltage	10V
Power Dissipation	105mW

OUTPUT TRANSISTOR

Collector-emitter Voltage BV_{CEO}	70V
Emitter-collector Voltage BV_{ECO}	6V
Power Dissipation	160mW

POWER DISSIPATION

Total Power Dissipation	200mW
(derate linearly 2.67mW/°C above 25°C)	

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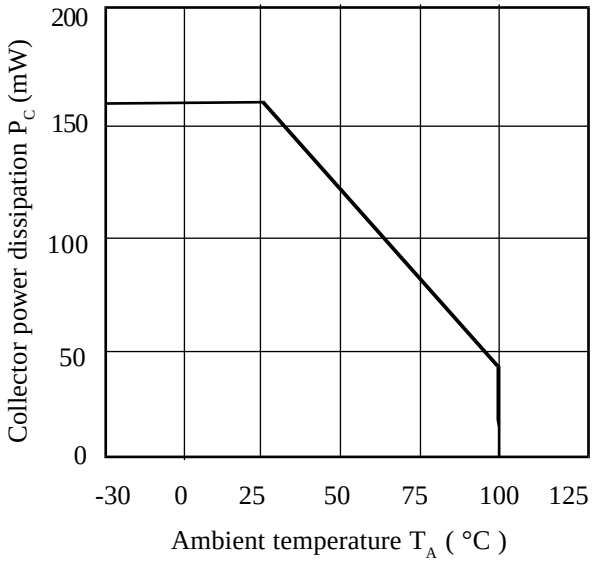
ELECTRICAL CHARACTERISTICS (T_A= 25°C Unless otherwise noted)

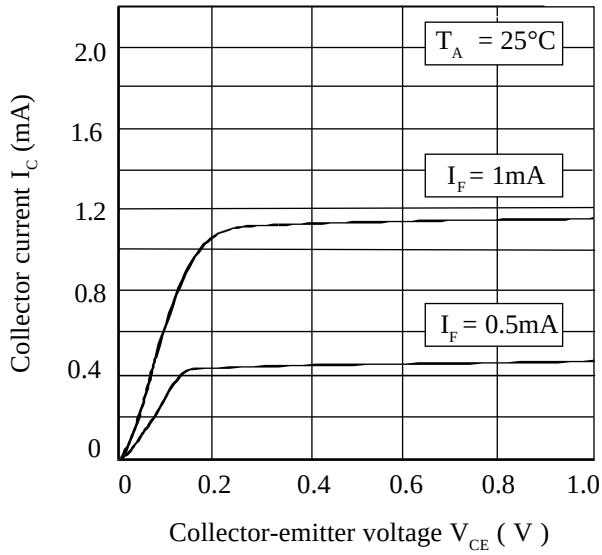
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.4	V	I_F = 20mA
	Reverse Voltage (V_R)	10			V	I_R = 10µA
	Reverse Current (I_R)			10	µA	V_R = 10V
Output	Collector-emitter Breakdown (BV_{CEO}) (Note 2)	70			V	I_C = 1mA
	Emitter-collector Breakdown (BV_{ECO})	6			V	I_E = 100µA
	Collector-emitter Dark Current (I_{CEO})			50	nA	V_{CE} = 10V
Coupled	Current Transfer Ratio (CTR) (Note 2)					
	IS205-3	70			%	0.5mA I_F, 0.4V V_{CE}
		100			%	1.0mA I_F, 0.4V V_{CE}
	IS205-2	50			%	0.5mA I_F, 0.4V V_{CE}
	IS205-1	50			%	1.0mA I_F, 0.4V V_{CE}
	Collector-emitter SaturationVoltage -3			0.4	V	0.5mA I_F , 0.35mA I_C
	-2			0.4	V	0.5mA I_F , 0.25mA I_C
	-1			0.4	V	1.0mA I_F , 0.5mA I_C
	Input to Output Isolation Voltage V_{IS0}	5300			V_{RMS}	See note 1
		7500			V_{PK}	See note 1
	Input-output Isolation Resistance R_{ISO}	$5x10^{10}$			Ω	V_{IO} = 500V (note 1)
	Output Rise Time tr		4	18	µs	V_{CE} = 2V ,
	Output Fall Time tf		3	18	µs	I_C = 0.2mA,R_L= 100Ω

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.

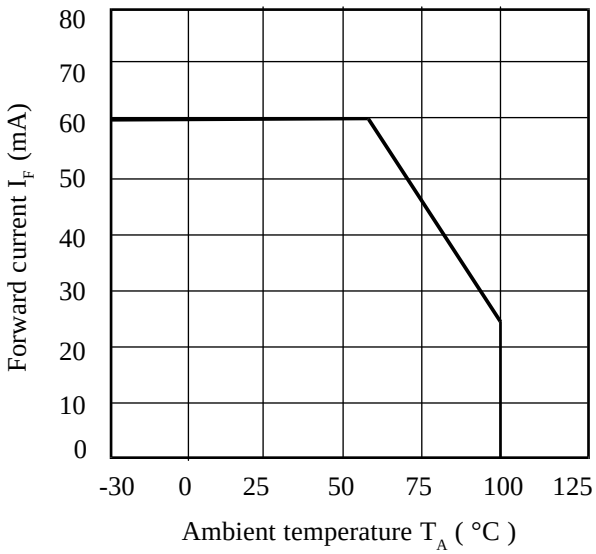
Collector Power Dissipation vs. Ambient Temperature



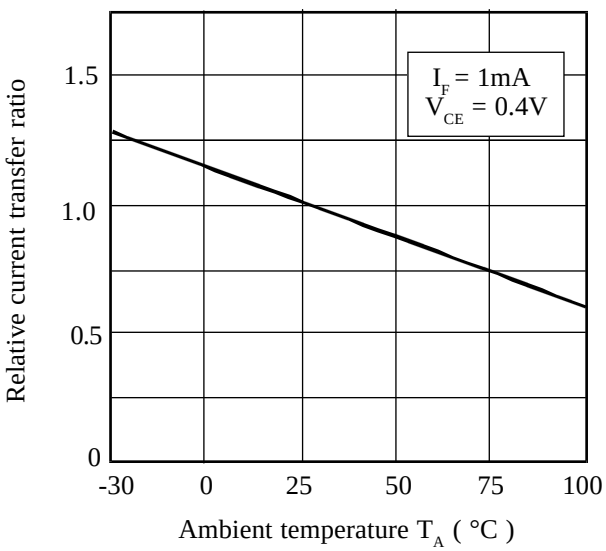
Collector Current vs. Low Collector-emitter Voltage



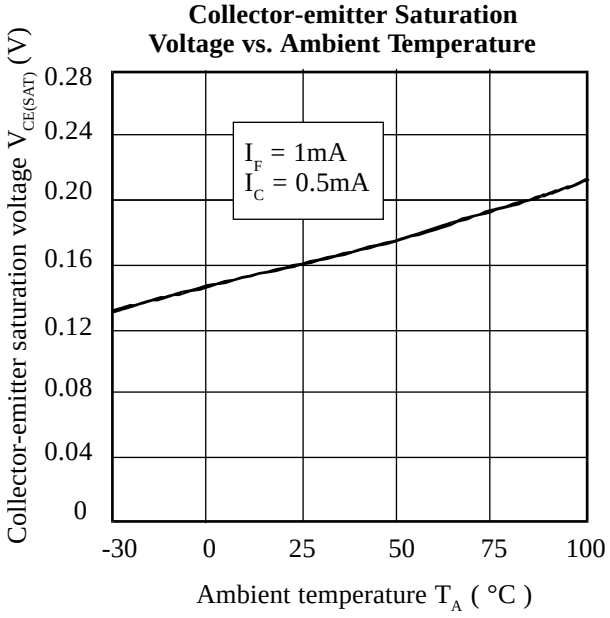
Forward Current vs. Ambient Temperature



Relative Current Transfer Ratio vs. Ambient Temperature



Collector-emitter Saturation Voltage vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current