IS1, IS5, IS74
ISD1, ISD5, ISD74
ISQ1, ISQ5, ISQ74

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
- IS1X, IS5X, IS74X are 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 IS*, ISD*, ISQ* series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

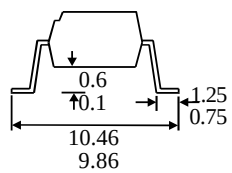
FEATURES

- 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 ($5.3kV_{RMS}$,$7.5kV_{PK}$)
- High BV_{CEO} (70V min) IS5, ISD5, ISQ5

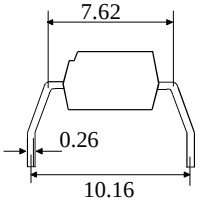
APPLICATIONS

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

OPTION SM
SURFACE MOUNT

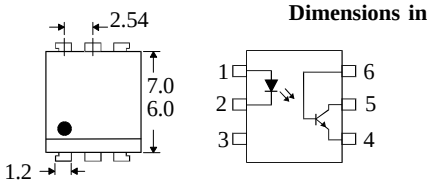


OPTION G

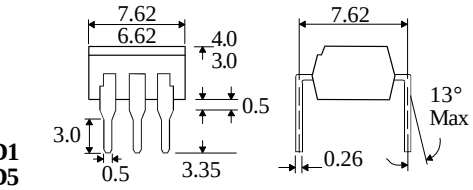


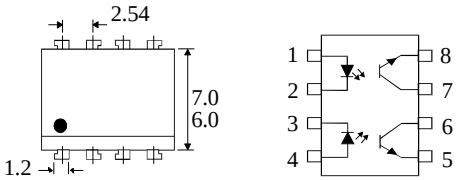
IS1
IS5
IS74

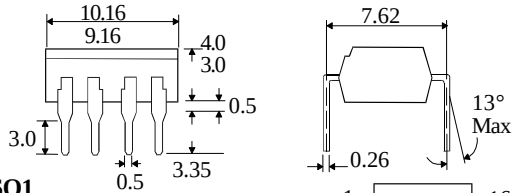
Dimensions in mm



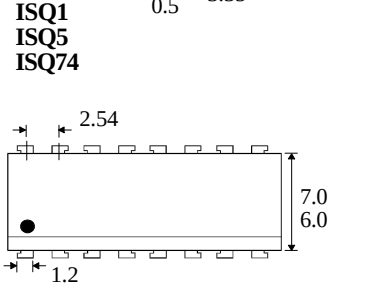
ISD1
ISD5
ISD74

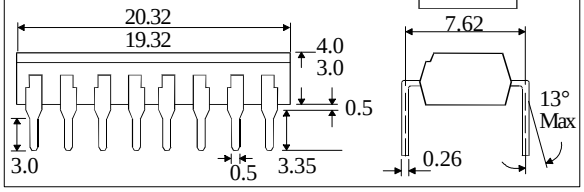






ISQ1
ISQ5
ISQ74





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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}	
IS5, ISD5, ISQ5	70V
IS1,ISD1,ISQ1,IS74,ISD74,ISQ74	50V
Emitter-collector Voltage BV_{ECO}	6V
Power Dissipation	150mW

POWER DISSIPATION

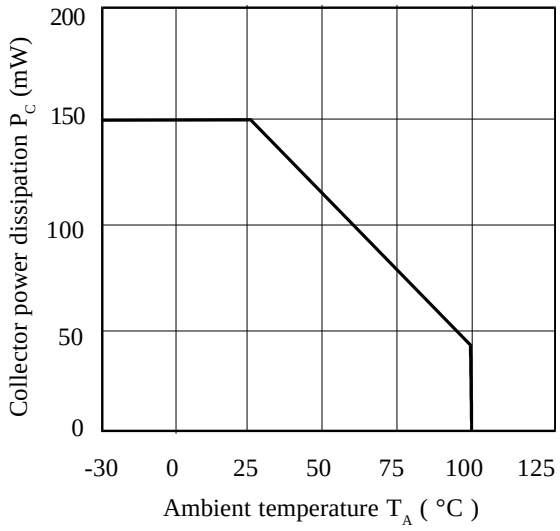
Total Power Dissipation	170mW
(derate linearly 2.67mW/°C above 25°C)	

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

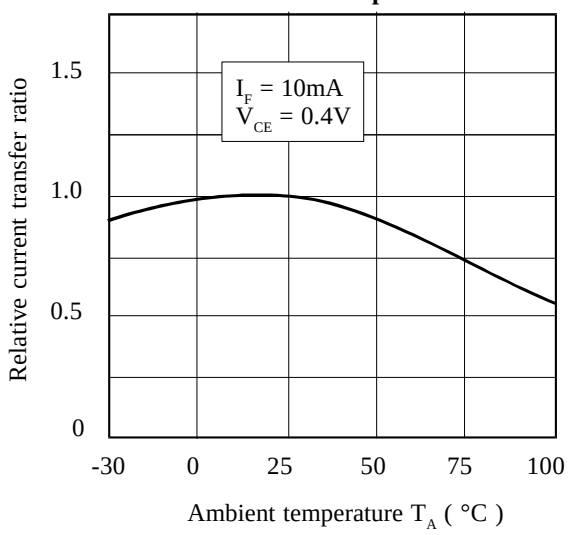
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.65	V	I_F = 50mA
	Reverse Current (I_R)			10	µA	V_R = 4V
Output	Collector-emitter Breakdown (BV_{CEO})					
	IS5, ISD5, ISQ5	70			V	I_C = 1mA
	IS1, ISD1, ISQ1, IS74, ISD74, ISQ74	50			V	(Note 2)
	Emitter-collector Breakdown (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)					
	IS1, ISD1, ISQ1	20		300	%	10mA I_F, 10V V_{CE}
	IS5, ISD5, ISQ5	50		400	%	10mA I_F, 10V V_{CE}
	IS74, ISD74, ISQ74	12.5			%	16mA I_F, 5V V_{CE}
	Saturated Current Transfer Ratio					
	IS1, ISD1, ISQ1		75		%	10mA I_F, 0.4V V_{CE}
	IS5, ISD5, ISQ5		100		%	10mA I_F, 0.4V V_{CE}
	IS74, ISD74, ISQ74	12.5			%	16mA I_F, 0.5V V_{CE}
	Input to Output Isolation Voltage V_{ISO}	5300			V_{RMS}	See note 1
	Input to Output Isolation Voltage V_{ISO}	7500			V_{PK}	See note 1
	Input-output Isolation Resistance R_{ISO}	$5x10^{10}$			Ω	V_{IO} = 500V (note 1)
	Output Rise Time tr		2.6		µs	I_F = 5mA
	Output Fall Time tf		2.2		µs	V_{CC} = 5V, R_L = 75Ω

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.

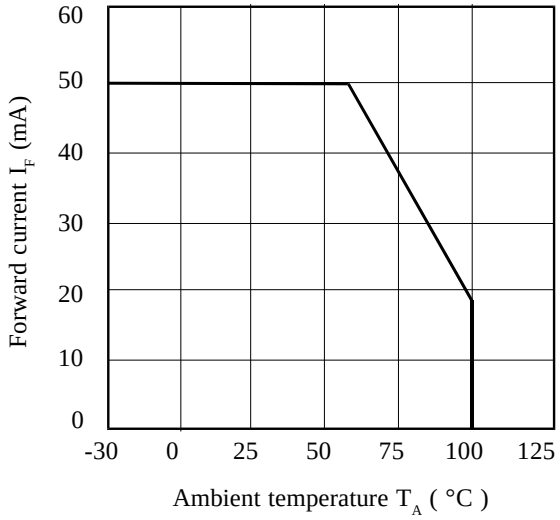
Collector Power Dissipation vs. Ambient Temperature



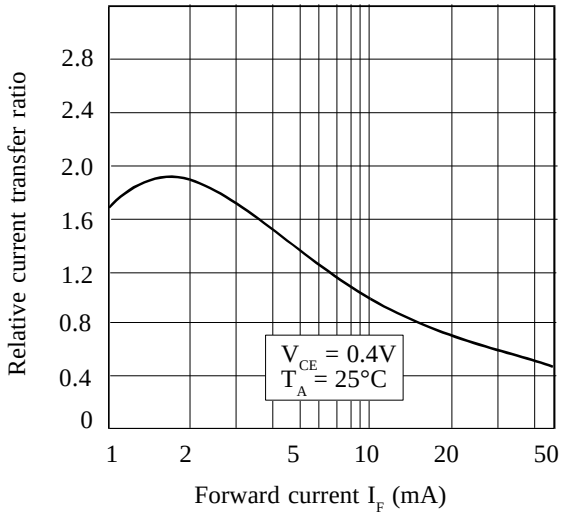
Relative Current Transfer Ratio vs. Ambient Temperature



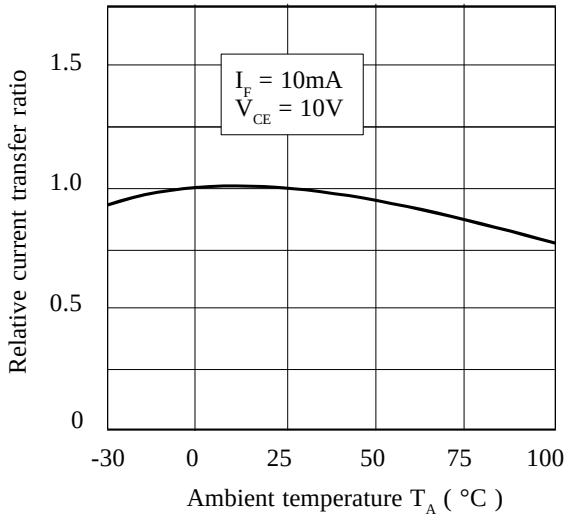
Forward Current vs. Ambient Temperature



Relative Current Transfer Ratio vs. Forward Current



Relative Current Transfer Ratio vs. Ambient Temperature



Relative Current Transfer Ratio vs. Forward Current