

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



**HIGH DENSITY
 PHOTOTRANSISTOR OPTICALLY
 COUPLED ISOLATORS**

APPROVALS

- UL recognised, File No. E91231

'X' SPECIFICATION APPROVALS

- VDE0884 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

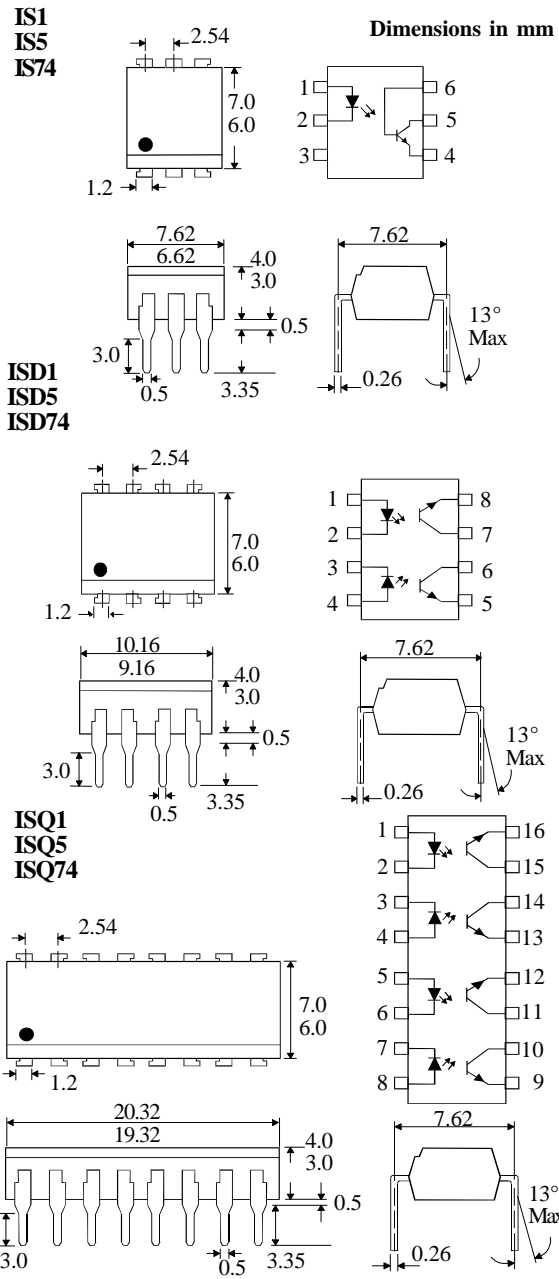
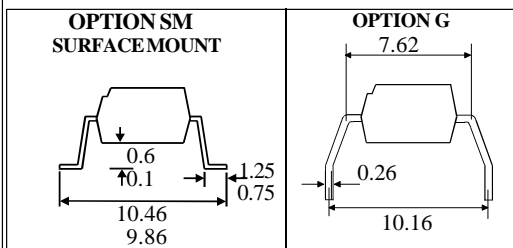
The IS*, ISD*, ISQ* series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

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



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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)		

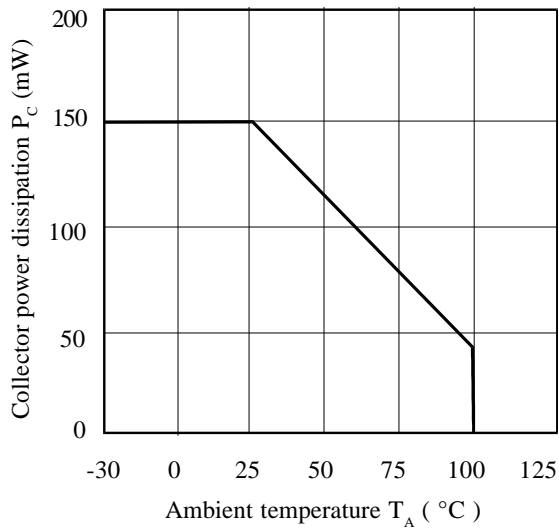
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

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	μA	$V_R = 4\text{V}$
Output	Collector-emitter Breakdown (BV_{CEO}) IS5, ISD5, ISQ5	70			V	$I_C = 1\text{mA}$
	IS1, ISD1, ISQ1, IS74, ISD74, ISQ74	50			V	(Note 2)
	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)					
	IS1, ISD1, ISQ1	20		300	%	$10\text{mA } I_F, 10\text{V } V_{CE}$
	IS5, ISD5, ISQ5	50		400	%	$10\text{mA } I_F, 10\text{V } V_{CE}$
	IS74, ISD74, ISQ74	12.5			%	$16\text{mA } I_F, 5\text{V } V_{CE}$
	Saturated Current Transfer Ratio					
	IS1, ISD1, ISQ1		75		%	$10\text{mA } I_F, 0.4\text{V } V_{CE}$
	IS5, ISD5, ISQ5		100		%	$10\text{mA } I_F, 0.4\text{V } V_{CE}$
	IS74, ISD74, ISQ74		12.5		%	$16\text{mA } I_F, 0.5\text{V } V_{CE}$
	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}	5×10^{10}			Ω	$V_{IO} = 500\text{V}$ (note 1)	
Output Rise Time t_r		2.6		μs	$I_F = 5\text{mA}$	
Output Fall Time t_f		2.2		μs	$V_{CC} = 5\text{V}, R_L = 75\Omega$	

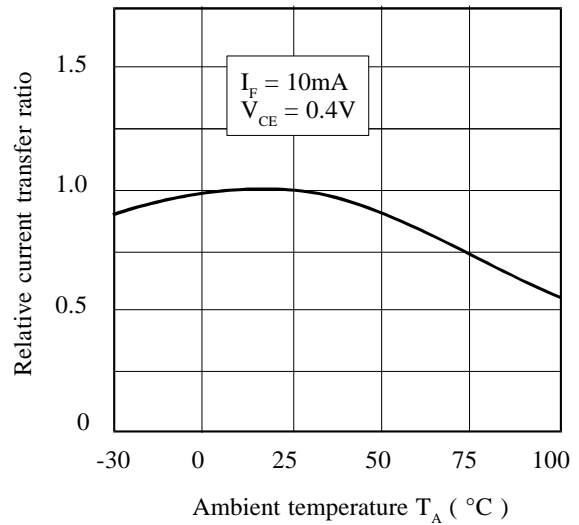
Note 1 Measured with input leads shorted together and output leads shorted together.

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

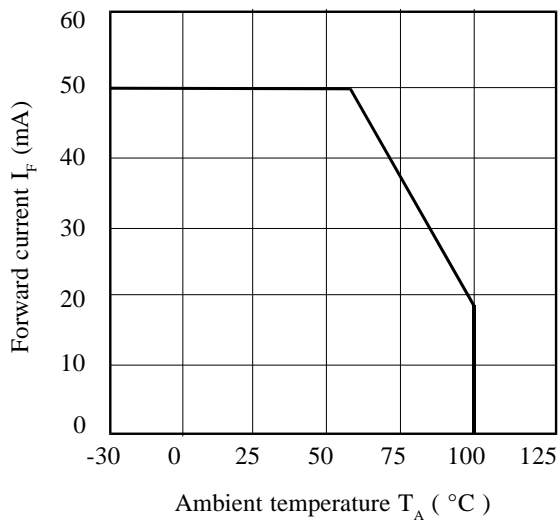
Collector Power Dissipation vs. Ambient Temperature



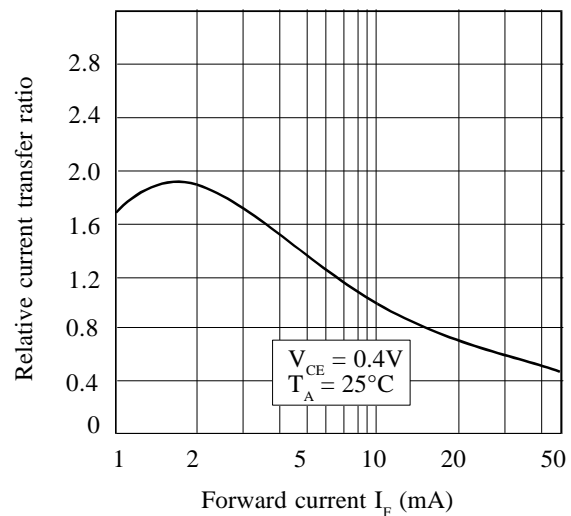
Relative Current Transfer Ratio vs. Ambient Temperature



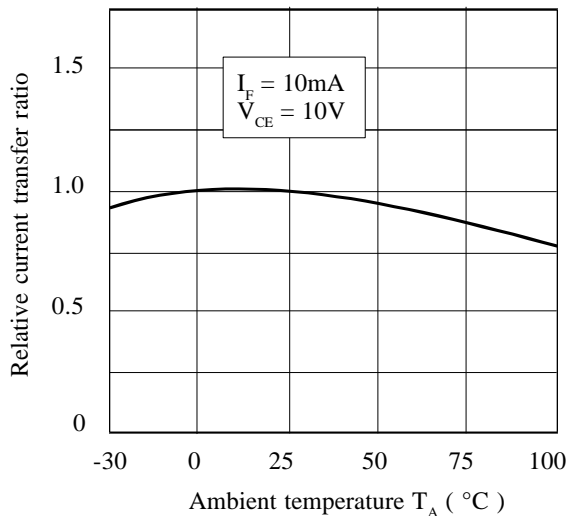
Forward Current vs. Ambient Temperature



Relative Current Transfer Ratio vs. Forward Current



Relative Current Transfer Ratio vs. Ambient Temperature



Relative Current Transfer Ratio vs. Forward Current

