

IL1, IL2, IL5, IL74  
 ILD1, ILD2, ILD5, ILD74  
 ILQ1, ILQ2, ILQ5, ILQ74



**HIGH DENSITY  
 PHOTOTRANSISTOR OPTICALLY  
 COUPLED ISOLATORS**

**APPROVALS**

- UL recognised, File No. E91231  
 Package 'FF' (marked I\_\_FF)
- 'X' SPECIFICATION APPROVALS**
- ILD\*X, ILQ\*X part numbers  
 VDE 0884 in 3 available lead form :-  
 - STD  
 - G form  
 - SMD approved to CECC 00802
- IL\*X part numbers VDE 0884 pending
- EN60950 pending

**DESCRIPTION**

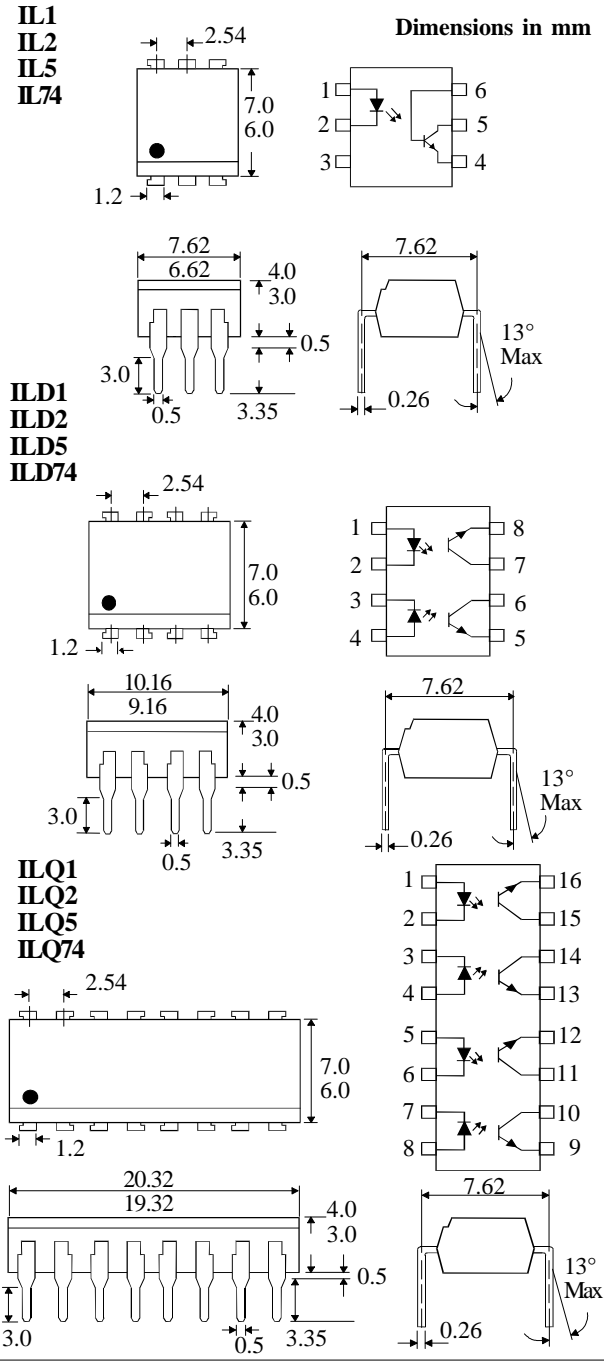
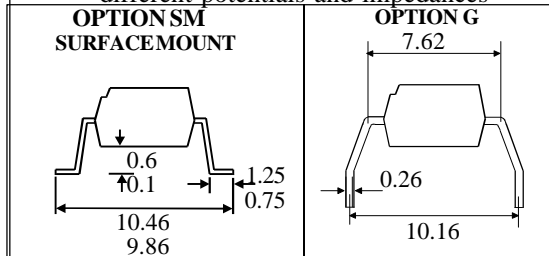
The IL\*, ILD\*, ILQ\* series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

**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.
- Three package types
- High Current Transfer Ratio (50% min)
- High Isolation Voltage (5.3kV<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- High BV<sub>CEO</sub> (70V min)
- IL2, ILD2, ILQ2, IL5, ILD5, ILQ5

**APPLICATIONS**

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



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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  $BV_{CEO}$   
 IL2,ILD2,ILQ2,IL5,ILD5,ILQ5 \_\_\_\_\_ 70V  
 IL1,ILD1,ILQ1,IL74,ILD74,ILQ74 \_\_\_\_\_ 50V  
 Emitter-collector Voltage  $BV_{ECO}$  \_\_\_\_\_ 6V  
 Power Dissipation \_\_\_\_\_ 150mW

**POWER DISSIPATION**

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

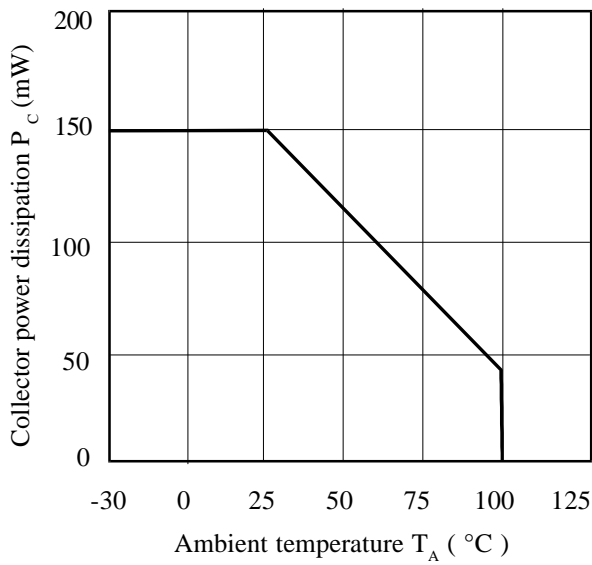
**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ )		1.2	1.65	V	$I_F = 50\text{mA}$ $I_R = 10\mu\text{A}$ $V_R = 6\text{V}$
	Reverse Voltage ( $V_R$ )	6			V	
	Reverse Current ( $I_R$ )			10	$\mu\text{A}$	
Output	Collector-emitter Breakdown ( $BV_{CEO}$ ) IL2, ILD2, ILQ2, IL5, ILD5, ILQ5	70			V	$I_C = 1\text{mA}$ ( Note 2 ) $I_E = 100\mu\text{A}$ $V_{CE} = 10\text{V}$
	IL1, ILD1, ILQ1, IL74, ILD74, ILQ74	50			V	
	Emitter-collector Breakdown ( $BV_{ECO}$ )	6			V	
	Collector-emitter Dark Current ( $I_{CEO}$ )			50	nA	
Coupled	Current Transfer Ratio (CTR) (Note 2)					
	IL1, ILD1, ILQ1	20		300	%	$10\text{mA } I_F, 10\text{V } V_{CE}$
	IL2, ILD2, ILQ2	100		500	%	$10\text{mA } I_F, 10\text{V } V_{CE}$
	IL5, ILD5, ILQ5	50		400	%	$10\text{mA } I_F, 10\text{V } V_{CE}$
	IL74, ILD74, ILQ74	12.5			%	$16\text{mA } I_F, 5\text{V } V_{CE}$
	Saturated Current Transfer Ratio					
	IL1, ILD1, ILQ1		75		%	$10\text{mA } I_F, 0.4\text{V } V_{CE}$
	IL2, ILD2, ILQ2		170		%	$10\text{mA } I_F, 0.4\text{V } V_{CE}$
	IL5, ILD5, ILQ5		100		%	$10\text{mA } I_F, 0.4\text{V } V_{CE}$
	IL74, ILD74, ILQ74	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 $R_{ISO}$	$5 \times 10^{10}$			$\Omega$	$V = 500\text{V}$ (note 1)
	Output Rise Time		2.6		$\mu\text{s}$	$I_F$
Output Fall Time tf				$\mu\text{s}$	$V = 5\text{V}, R_L \quad \Omega$	

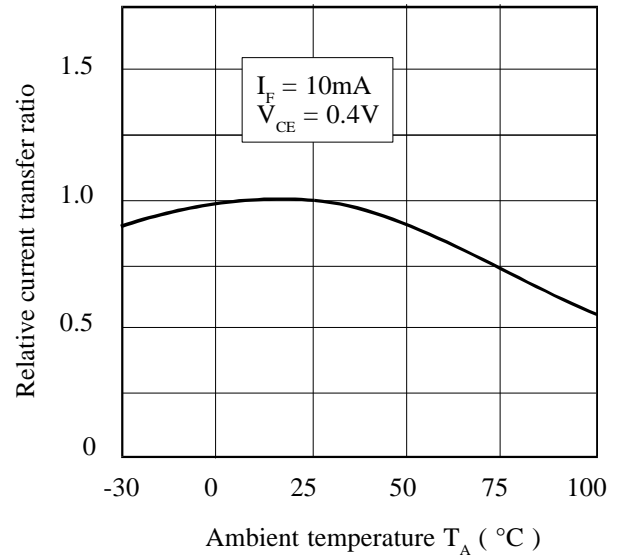
Note 1 Measured with input leads shorted together and output leads shorted together.

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

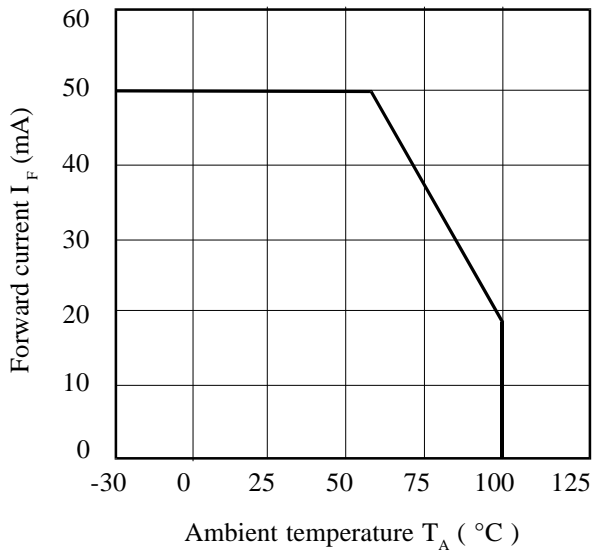
**Collector Power Dissipation vs. Ambient Temperature**



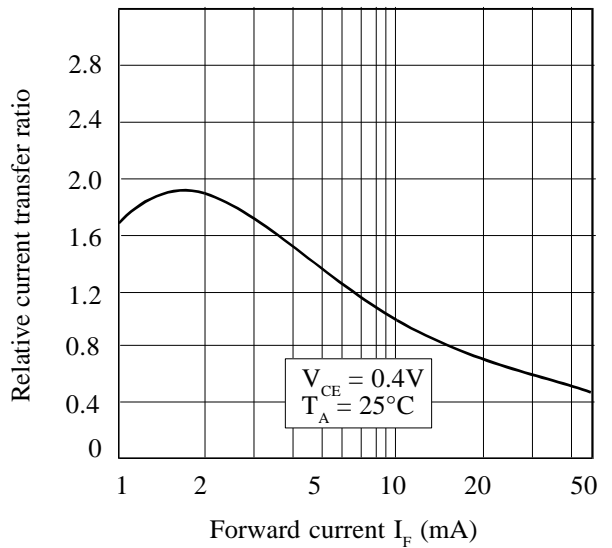
**Relative Current Transfer Ratio vs. Ambient Temperature**



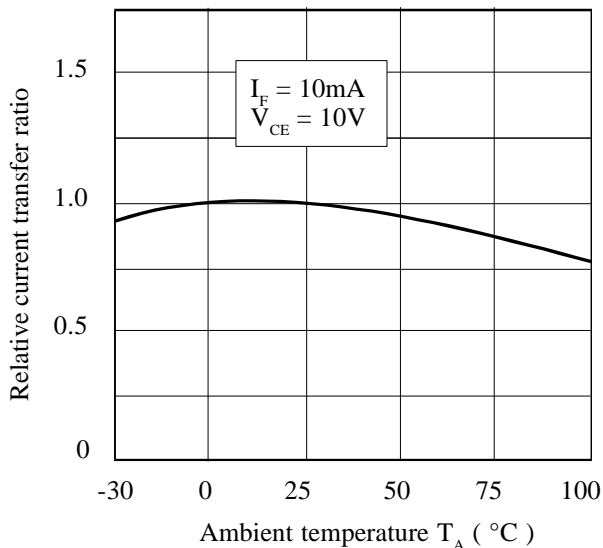
**Forward Current vs. Ambient Temperature**



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



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



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

