

IS604X  
IS604



**A.C. INPUT PHOTOTRANSISTOR  
OPTICALLY COUPLED  
ISOLATORS**

**APPROVALS**

- UL recognised, File No. E91231

**'X' SPECIFICATION APPROVALS**

- VDE 0884 in 2 available lead forms : -  
- STD  
- G form
- EN60950 approval pending

**DESCRIPTION**

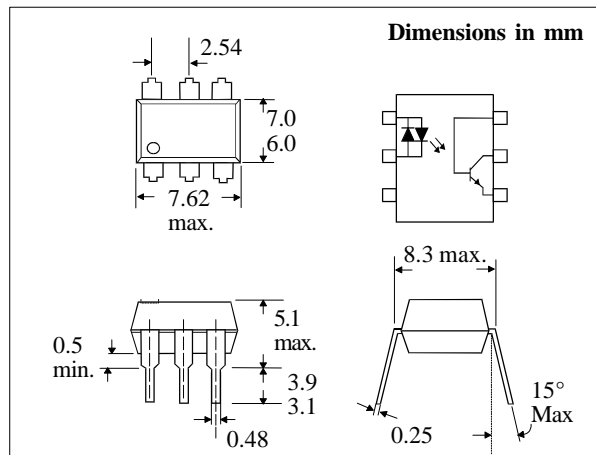
The IS604 optically coupled isolator consists of two infrared light emitting diodes connected in inverse parallel and NPN silicon photo transistor in a standard 6 pin dual in line plastic package.

**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<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- AC or polarity insensitive input
- All electrical parameters 100% tested
- Custom electrical selections available

**APPLICATIONS**

- Computer terminals
- Industrial systems controllers
- Telephone sets, Telephone exchangers
- Signal transmission between systems of different potentials and impedances



**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**

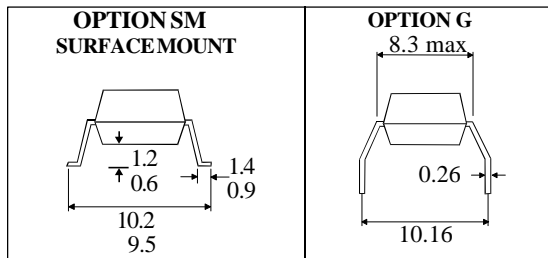
Forward Current \_\_\_\_\_ ±100mA  
Peak Forward Current \_\_\_\_\_ ±1A  
Power Dissipation \_\_\_\_\_ 200mW

**OUTPUT TRANSISTOR**

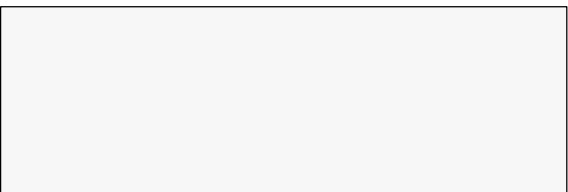
Collector-emitter Voltage BV<sub>CEO</sub> \_\_\_\_\_ 30V  
Collector-base Voltage BV<sub>CBO</sub> \_\_\_\_\_ 70V  
Emitter-collector Voltage BV<sub>ECO</sub> \_\_\_\_\_ 7V  
Emitter-base Voltage BV<sub>EBO</sub> \_\_\_\_\_ 7V  
Power Dissipation \_\_\_\_\_ 300mW

**POWER DISSIPATION**

Total Power Dissipation \_\_\_\_\_ 350mW  
(derate linearly 4.67mW/°C above 25°C)



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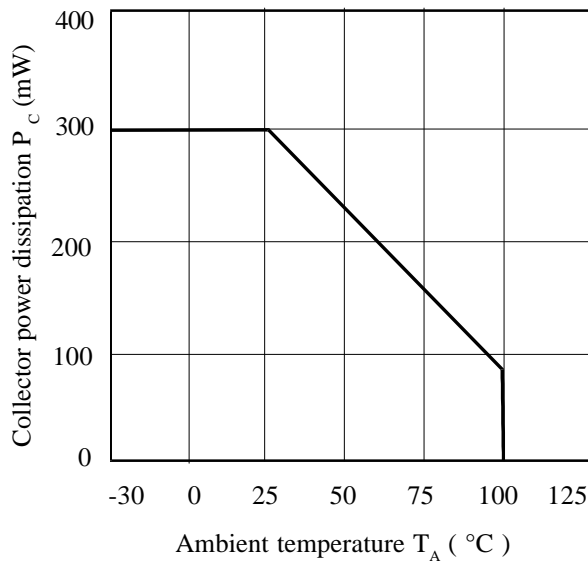
**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ )		1.2	1.5	V	$I_F = \pm 10\text{mA}$
Output	Collector-emitter Breakdown ( $BV_{CEO}$ ) ( note 2 )	30			V	$I_C = 1\text{mA}$
	Collector-base Breakdown ( $BV_{CBO}$ )	70			V	$I_C = 100\mu\text{A}$
	Emitter-base Breakdown ( $BV_{EBO}$ )	7			V	$I_E = 100\mu\text{A}$
	Emitter-collector Breakdown ( $BV_{ECO}$ )	7			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)	50			%	$\pm 10\text{mA} I_F, 10\text{V } V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			0.4	V	$\pm 10\text{mA} I_F, 0.5\text{mA} I_C$
	Current Transfer Ratio Symmetry	0.33		3.0		$\pm 10\text{mA} I_F, 10\text{V } V_{CE}$
	Input to Output Isolation Voltage $V_{ISO}$	5300 7500			$V_{RMS}$ $V_{PK}$	See note 1 See note 1
	Input-output Isolation Resistance $R_{ISO}$	$5 \times 10^{10}$			$\Omega$	$V_{IO} = 500\text{V}$ (note 1)
	Turn-on Time $t_{on}$		3		$\mu\text{s}$	$V_{CC} = 10\text{V},$ $I_C = 2\text{mA}, R_L = 100\Omega$
	Turn-off Time $t_{off}$		3		$\mu\text{s}$	
	Output Rise Time $t_r$		2		$\mu\text{s}$	
Output Fall Time $t_f$		2		$\mu\text{s}$		

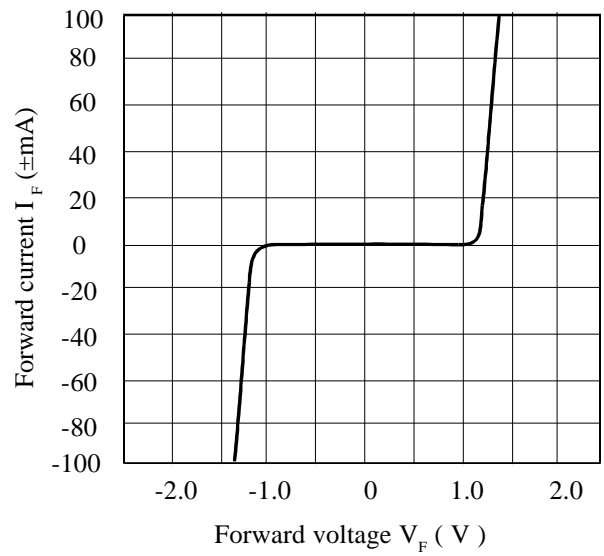
Note 1 Measured with input leads shorted together and output leads shorted together.

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

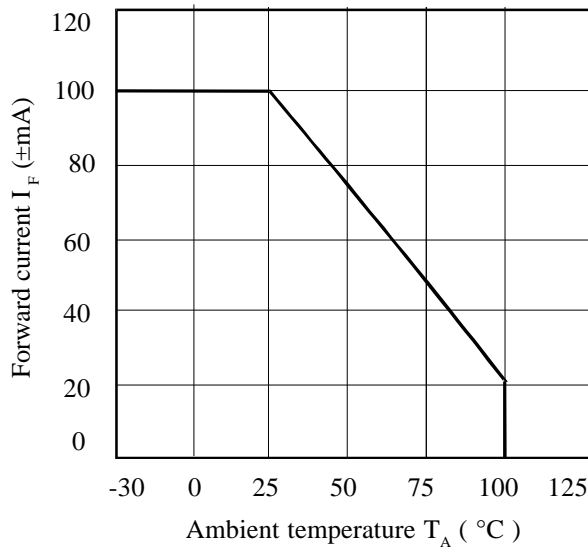
**Collector Power Dissipation vs. Ambient Temperature**



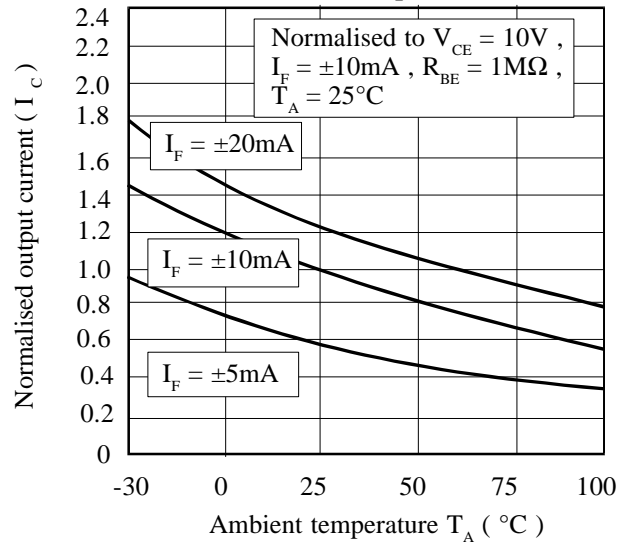
**Forward Current vs. Forward Voltage**



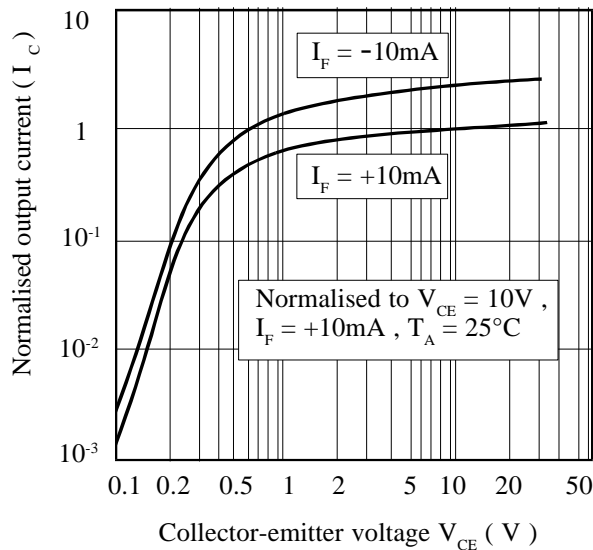
**Forward Current vs. Ambient Temperature**



**Normalised Output Current vs. Ambient Temperature**



**Normalised Output Current vs. Collector-emitter Voltage**



**Normalised Output Current vs. Forward Current**

