

4N38X, 4N38AX
4N38, 4N38A



ISOCOM
COMPONENTS



**OPTICALLY COUPLED
ISOLATOR
PHOTOTRANSISTOR OUTPUT**

APPROVALS

- UL recognised, File No. E91231
Package Code " GG "
- 'X' SPECIFICATION APPROVALS
 - VDE 0884 in 3 available lead form :-
- STD
- G form
- SMD approved to CECC 00802
 - Certified to EN60950 by :-
Nemko - Certificate No. P01102464

DESCRIPTION

The 4N38, 4N38A 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.

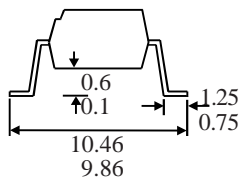
FEATURES

- 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 BV_{CEO} (80V min)
- High Isolation Voltage ($5.3kV_{RMS}, 7.5kV_{PK}$)
- All electrical parameters 100% tested
- Custom electrical selections available

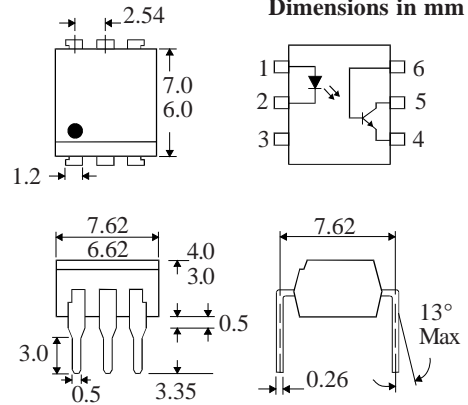
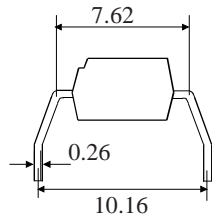
APPLICATIONS

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

**OPTION SM
SURFACE MOUNT**



OPTION G



**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 _____ 6V
Power Dissipation _____ 105mW

OUTPUT TRANSISTOR

Collector-emitter Voltage BV_{CEO} _____ 80V
Collector-base Voltage BV_{CBO} _____ 80V
Emitter-collector Voltage BV_{ECO} _____ 6V
Collector Current _____ 50mA
Power Dissipation _____ 160mW

POWER DISSIPATION

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

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

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.5	V	$I_F = 10\text{mA}$
	Reverse Current (I_R)			10	μA	$V_R = 6\text{V}$
Output	Collector-emitter Breakdown (BV_{CEO}) (note 2)	80			V	$I_C = 1\text{mA}$
	Collector-base Breakdown (BV_{CBO})	80			V	$I_C = 100\mu\text{A}$
	Emitter-collector Breakdown (BV_{ECO})	6			V	$I_E = 100\mu\text{A}$
	Collector-emitter Dark Current (I_{CEO})			50	nA	$V_{CE} = 60\text{V}$
	Collector-base Dark Current (I_{CBO})			20	nA	$V_{CE} = 60\text{V}$
Coupled	Current Transfer Ratio (CTR)	20			%	$10\text{mA } I_F, 10\text{V } V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			1.0	V	$20\text{mA } I_F, 4\text{mA } I_C$
	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}	5×10^{10}			Ω	$V_{IO} = 500\text{V}$ (note 1)
	Response Time (rise) Response Time (fall)		2 2		μs μs	$V_{CC} = 5\text{V}$, $I_F = 10\text{mA}, R_L = 75\Omega$ (FIG 1)

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.

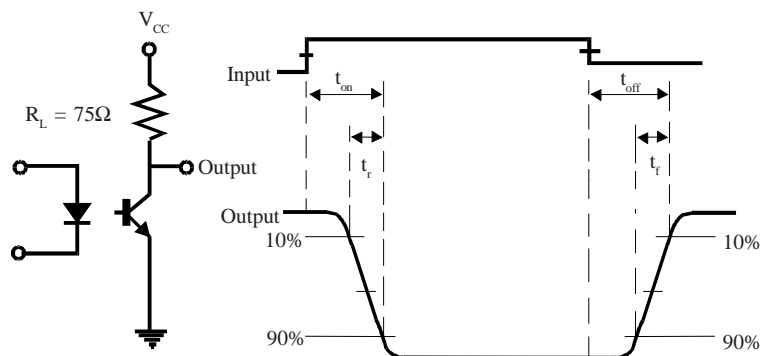
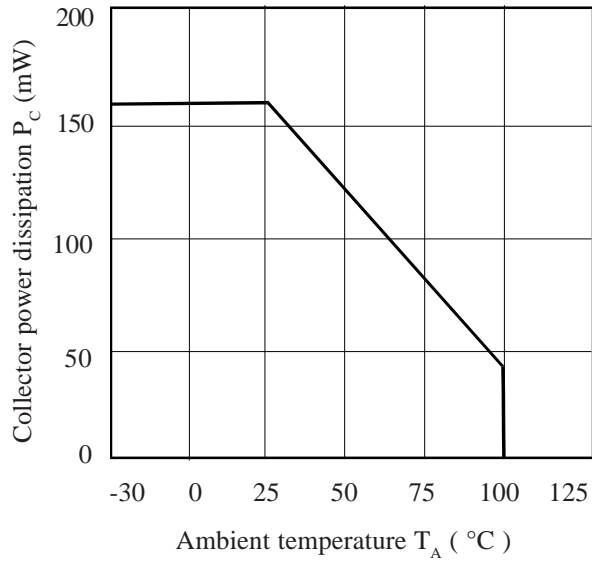
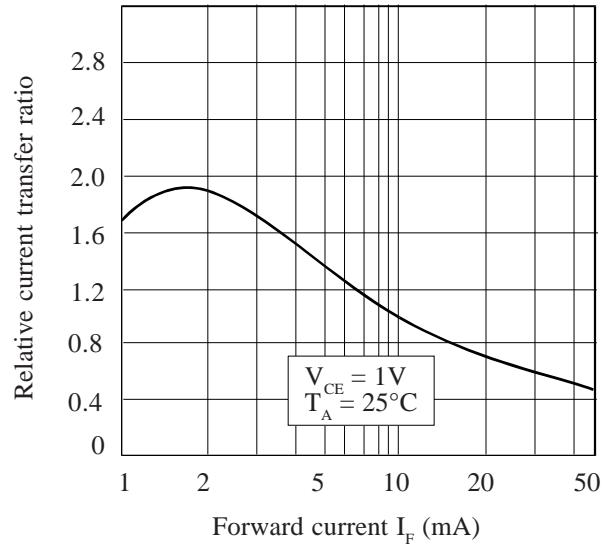


FIG 1

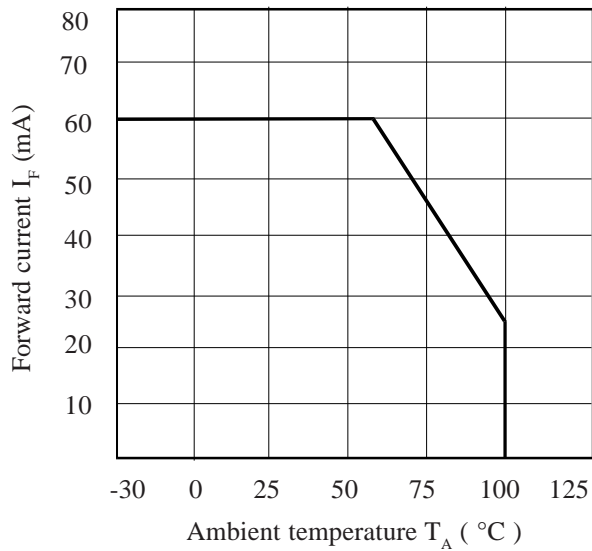
Collector Power Dissipation vs. Ambient Temperature



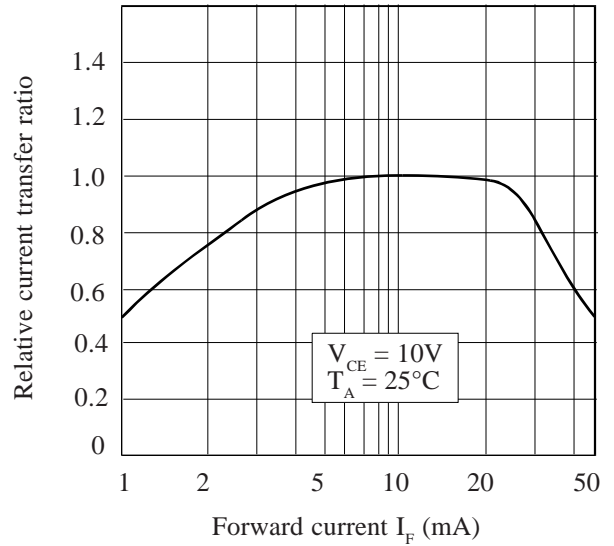
Relative Current Transfer Ratio vs. Forward Current



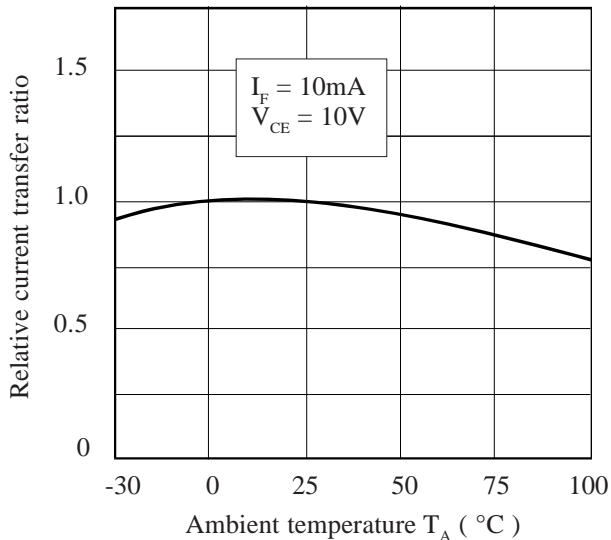
Forward Current vs. Ambient Temperature



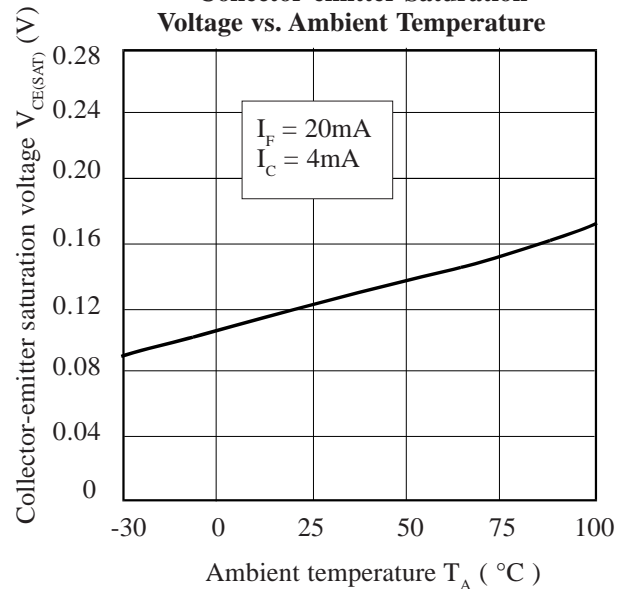
Relative Current Transfer Ratio vs. Forward Current



Relative Current Transfer Ratio vs. Ambient Temperature



Collector-emitter Saturation Voltage vs. Ambient Temperature



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