

4N32X3,-2,-1

4N32-3,-2,-1



**LOW INPUT CURRENT
PHOTODARLINGTON OPTICALLY
COUPLED ISOLATORS**

APPROVALS

- UL recognised, File No. E91231

'X' SPECIFICATION APPROVALS

- VDE 0884 in 2 available lead form : -
- STD
- G form
- VDE 0884 in SMD approval pending
- EN60950 approved by SETI,
reg. no. 157786-18

DESCRIPTION

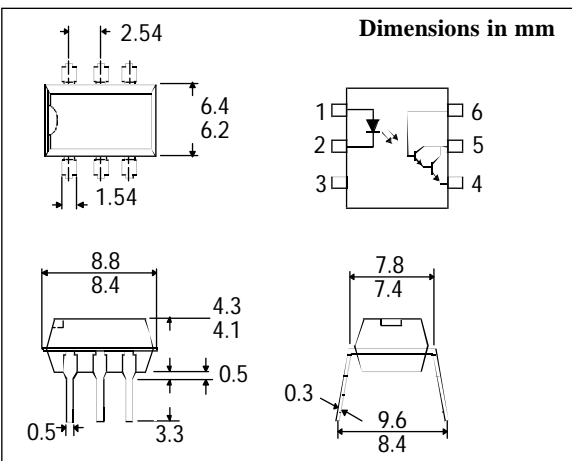
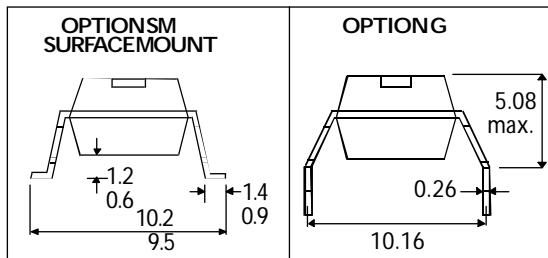
The 4N32-3,-2,-1 series of optically coupled isolators consist of an infrared light emitting diode and NPN silicon photodarlington in a space efficient dual in line plastic package.

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.
- Low input current 0.25mA I_F
- High Current Transfer Ratio (200% min)
- High Isolation Voltage (5.3kV_{RMS}, 7.5kV_{PK})
- High BV_{CEO} (55V min)
- All electrical parameters 100% tested
- Custom electrical selections available

APPLICATIONS

- Computer terminals
- Industrial systems controllers
- Measuring instruments
- 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 _____ 80mA
Reverse Voltage _____ 10V
Power Dissipation _____ 105mW

OUTPUT TRANSISTOR

Collector-emitter Voltage BV_{CEO} _____ 55V
Emitter-collector Voltage BV_{ECO} _____ 6V
Power Dissipation _____ 150mW

POWER DISSIPATION

Total Power Dissipation _____ 250mW
(derate linearly 3.3mW/°C above 25°C)

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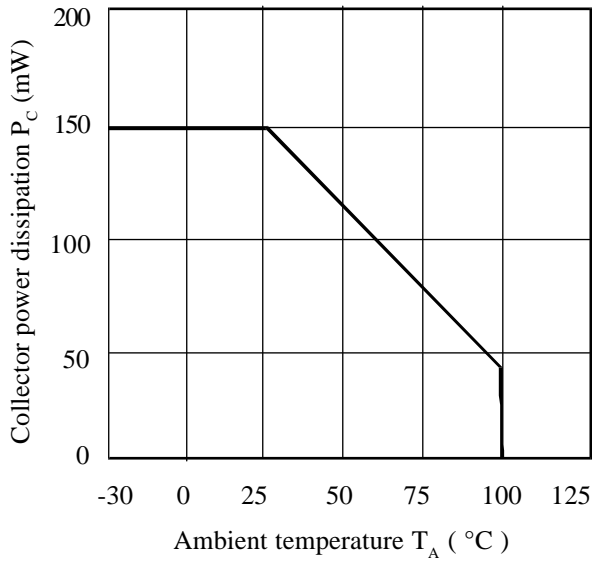
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION	
Input	Forward Voltage (V_F)		1.2	1.4	V	$I_F = 20\text{mA}$	
	Reverse Voltage (V_R)	10			V	$I_R = 10\mu\text{A}$	
	Reverse Current (I_R)			10	μA	$V_R = 10\text{V}$	
Output	Collector-emitter Breakdown (BV_{CEO})	55			V	$I_C = 1\text{mA}$ (note 2)	
	Collector-base Breakdown (BV_{CBO})	55			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})			100	nA	$V_{CE} = 10\text{V}$	
Coupled	Current Transfer Ratio (CTR) (Note 2)	4N32-3	200			%	$0.25\text{mA } I_F, 1.0\text{V } V_{CE}$
			400			%	$0.5\text{mA } I_F, 1.0\text{V } V_{CE}$
			800			%	$1.0\text{mA } I_F, 1.0\text{V } V_{CE}$
	4N32-2	400			%	$0.5\text{mA } I_F, 1.0\text{V } V_{CE}$	
		800			%	$1.0\text{mA } I_F, 1.0\text{V } V_{CE}$	
	4N32-1	800			%	$1.0\text{mA } I_F, 1.0\text{V } V_{CE}$	
	Collector-emitter Saturation Voltage	-3			1.0	V	$0.25\text{mA } I_F, 0.5\text{mA } I_C$
		-2			1.0	V	$0.5\text{mA } I_F, 2\text{mA } I_C$
		-1			1.0	V	$1.0\text{mA } I_F, 8\text{mA } I_C$
	Input to Output Isolation Voltage V_{ISO}	5300				V_{RMS}	(note 1)
		7500				V_{PK}	(note 1)
	Input-output Isolation Resistance R_{ISO}	5×10^{10}				Ω	$V_{IO} = 500\text{V}$ (note 1)
	Output Rise Time tr		60	300		μs	$V_{CE} = 2\text{V}$,
Output Fall Time tf		53	250		μs	$I_C = 10\text{mA}, R_L = 100\Omega$	

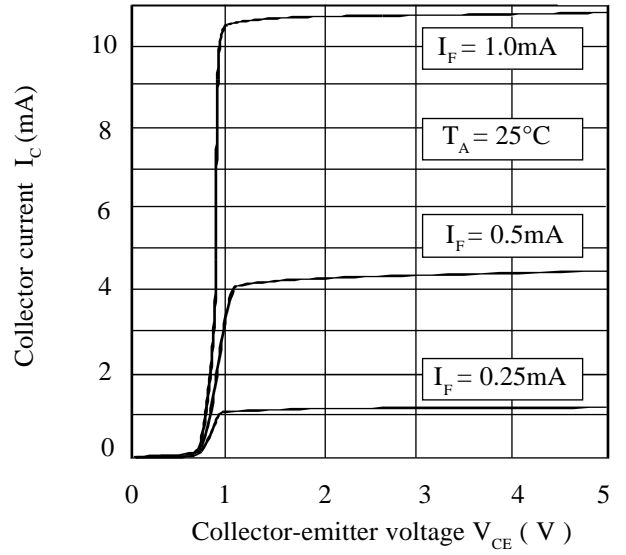
Note 1 Measured with input leads shorted together and output leads shorted together.

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

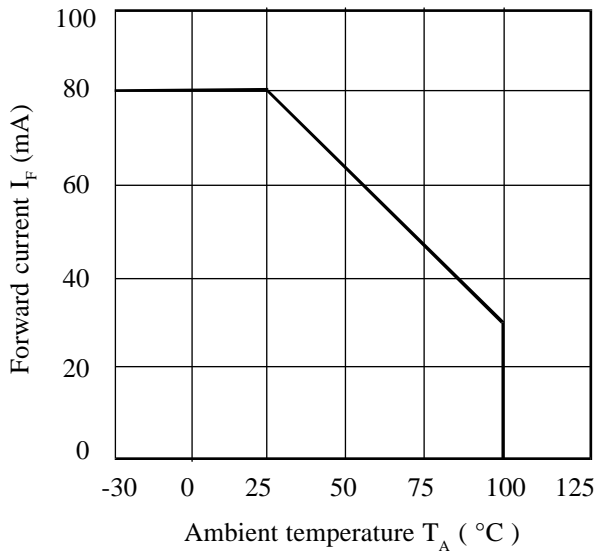
Collector Power Dissipation vs. Ambient Temperature



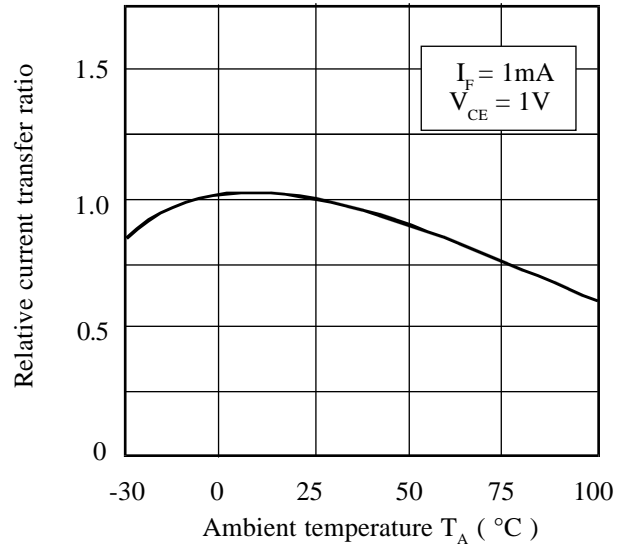
Collector Current vs. Collector-emitter Voltage



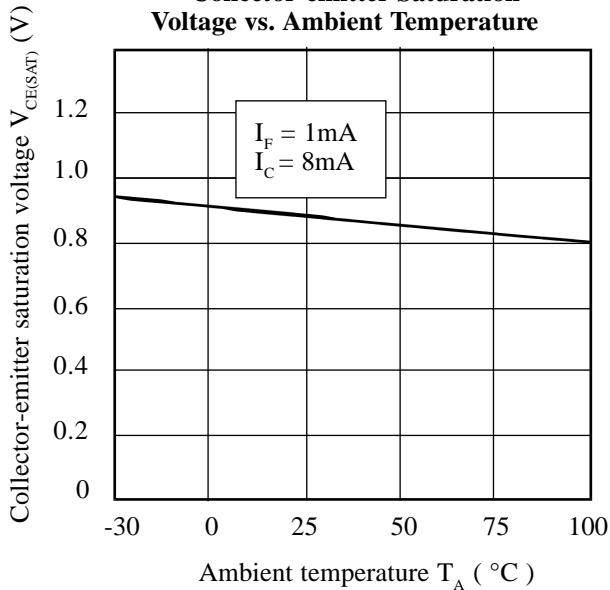
Forward Current vs. Ambient Temperature



Relative Current Transfer Ratio vs. Ambient Temperature



Collector-emitter Saturation Voltage vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current

