4N32X3,-2,-1
4N32-3,-2,-1

LOW INPUT CURRENT PHOTODARLINGTON OPTICALLY COUPLED ISOLATORS

APPROVALS
- UL recognised, File No. E91231

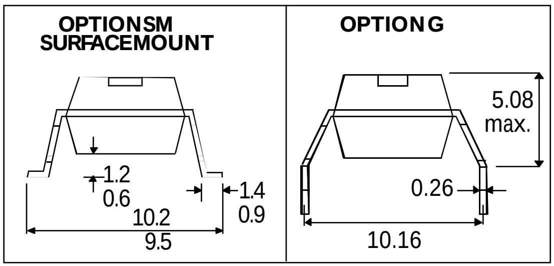
'X' SPECIFICATION APPROVALS
- VDE 0884 in 2 available lead form : -
  - STD
  - G form

  VDE 0884 in SMD approval pending
- EN60950 approved by SETI,
  reg. no. 157786-18

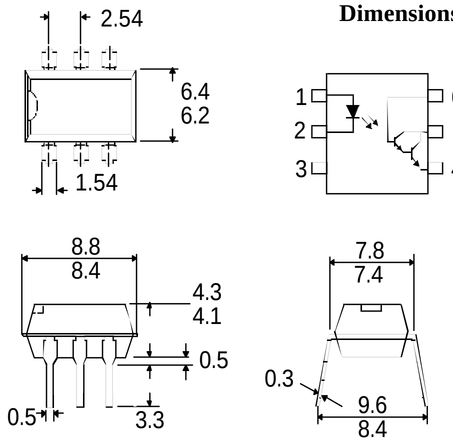
DESCRIPTION
The 4N32-3,-2,-1 series of optically coupled isolators consist of an infrared light emitting diode and NPN silicon photodarlington in a space efficient dual in line plastic package.

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 CurrentTransfer 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



Dimensions in mm



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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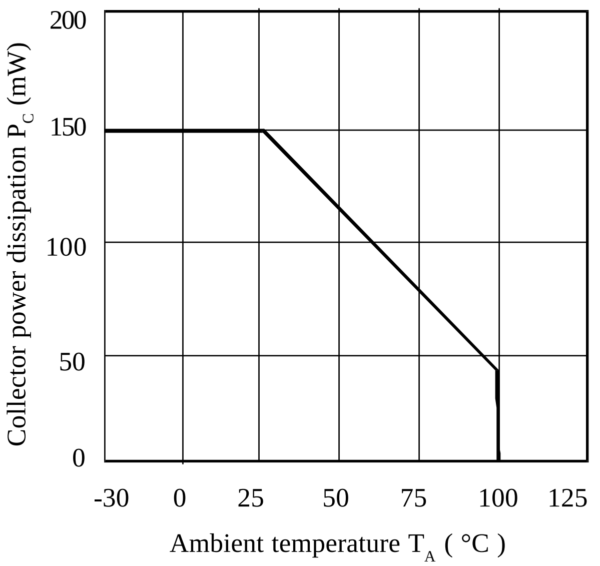
ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless otherwise noted)

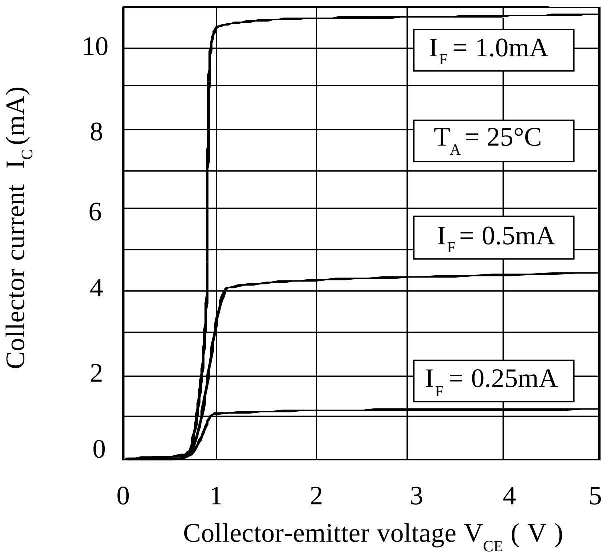
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.4	V	I_F = 20mA
	Reverse Voltage (V_R)	10			V	I_R = 10µA
	Reverse Current (I_R)			10	µA	V_R = 10V
Output	Collector-emitter Breakdown (BV_{CEO})	55			V	I_C = 1mA (note 2)
	Collector-base Breakdown (BV_{CBO})	55			V	I_C = 100µA
	Emitter-collector Breakdown (BV_{ECO})	6			V	I_E = 100µA
	Collector-emitter Dark Current (I_{CEO})			100	nA	V_{CE} = 10V
Coupled	Current Transfer Ratio (CTR) (Note 2)					
	4N32-3	200			%	0.25mA I_F , 1.0V V_{CE}
		400			%	0.5mA I_F , 1.0V V_{CE}
		800			%	1.0mA I_F , 1.0V V_{CE}.
	4N32-2	400			%	0.5mA I_F , 1.0V V_{CE}
		800			%	1.0mA I_F , 1.0V V_{CE}.
	4N32-1	800			%	1.0mA I_F , 1.0V V_{CE}.
	Collector-emitter Saturation Voltage -3			1.0	V	0.25mA I_F , 0.5mA I_C
	-2			1.0	V	0.5mA I_F , 2mA I_C
	-1			1.0	V	1.0mA I_F , 8mA 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}	$5x10^{10}$			Ω	V_{IO} = 500V (note 1)
	Output Rise Time tr		60	300	µs	V_{CE} = 2V ,
	Output Fall Time tf		53	250	µs	I_C = 10mA, R_L= 100Ω

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.

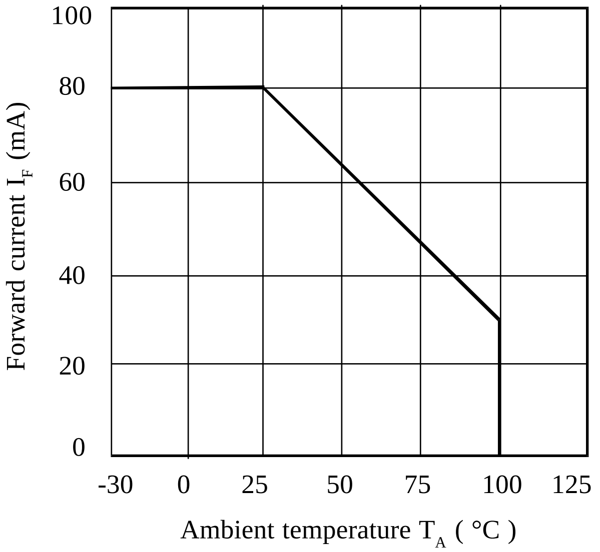
Collector Power Dissipation vs. Ambient Temperature



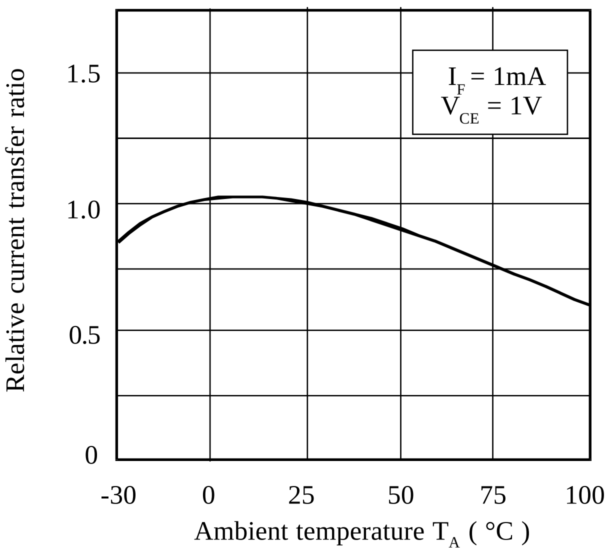
Collector Current vs. Collector-emitter Voltage



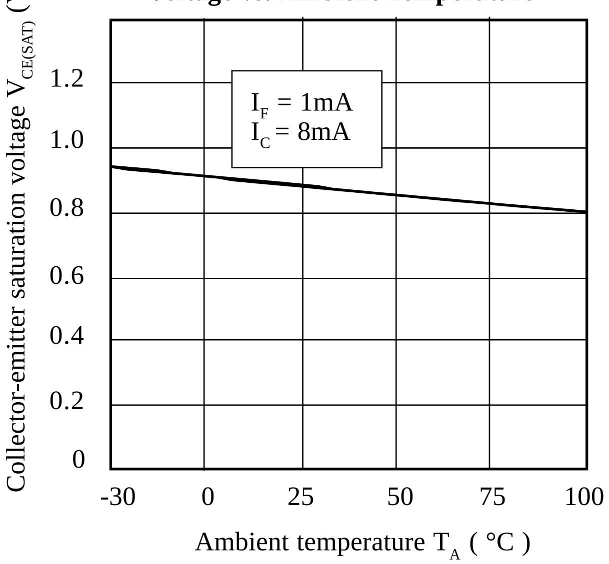
Forward Current vs. Ambient Temperature



Relative Current Transfer Ratio vs. Ambient Temperature



Collector-emitter Saturation Voltage vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current