

4N29, 4N30, 4N31, 4N32, 4N33



ISOCOM

COMPONENTS

OPTICALLY COUPLED ISOLATOR PHOTODARLINGTON OUTPUT



DESCRIPTION

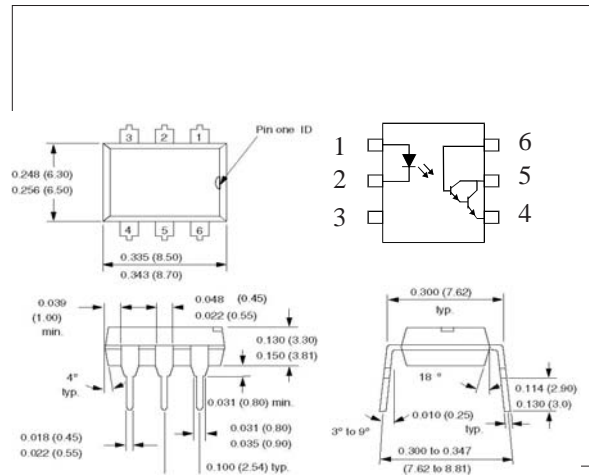
The 4N29, 4N30, 4N31, 4N32, 4N33 series of optically coupled isolators consist of an infrared light emitting diode and NPN silicon photodarlington in a space efficient dual in line plastic package.

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.
- High Current Transfer Ratio
- High Isolation Voltage (5.3kV_{RMS}, 7.5kV_{PK})
- 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	5V
Power Dissipation	100mW

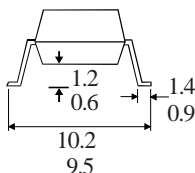
OUTPUT TRANSISTOR

Collector-emitter Voltage BV _{CEO}	30V
Collector-base Voltage BV _{CBO}	50V
Emitter-collector Voltage BV _{ECO}	5V
Power Dissipation	150mW

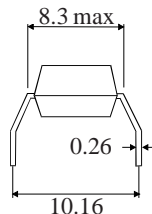
POWER DISSIPATION

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

OPTION SM SURFACE MOUNT



OPTION G 8.3 max.



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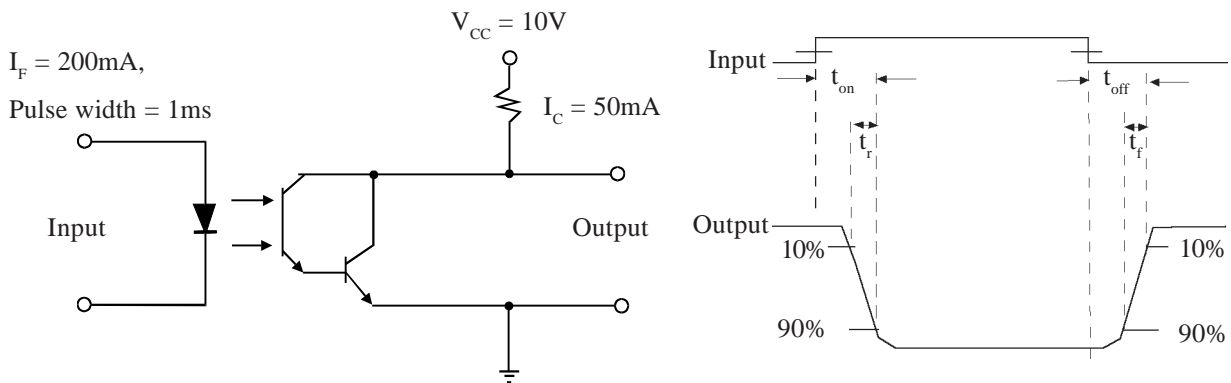
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.5	V	$I_F = 50\text{mA}$
	Reverse Current (I_R)			10	μA	$V_R = 6\text{V}$
Output	Collector-emitter Breakdown (BV_{CEO})	30			V	$I_C = 1\text{mA}$ (note 2)
	Collector-base Breakdown (BV_{CBO})	50			V	$I_C = 100\mu\text{A}$
	Emitter-collector Breakdown (BV_{ECO})	5			V	$I_E = 100\mu\text{A}$
	Collector-emitter Dark Current (I_{CEO})			100	nA	$V_{CE} = 10\text{V}$
Coupled	Collector Output Current (I_C) (Note 2)					
	4N32, 4N33	50			mA	$10\text{mA } I_F, 10\text{V } V_{CE}$
	4N29, 4N30	10			mA	$10\text{mA } I_F, 10\text{V } V_{CE}$
	4N31	5			mA	$10\text{mA } I_F, 10\text{V } V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$					
	4N29, 4N30, 4N32, 4N33			1.0	V	$8\text{mA } I_F, 2\text{mA } I_C$
	4N31			1.2	V	$8\text{mA } I_F, 2\text{mA } I_C$
	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 Turn on Time ton			5	μs	$V_{CC} = 10\text{V}, I_C = 50\text{mA},$ $I_F = 200\text{mA},$ Pulse Width = 1ms fig.1	
Output Turn off Time						
4N32, 4N33 toff			100	μs		
4N29, 4N30, 4N31			40	μs		

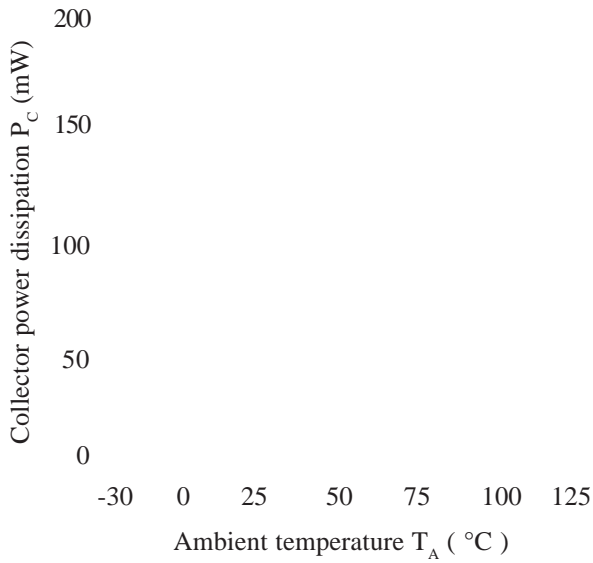
Note 1 Measured with input leads shorted together and output leads shorted together.

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

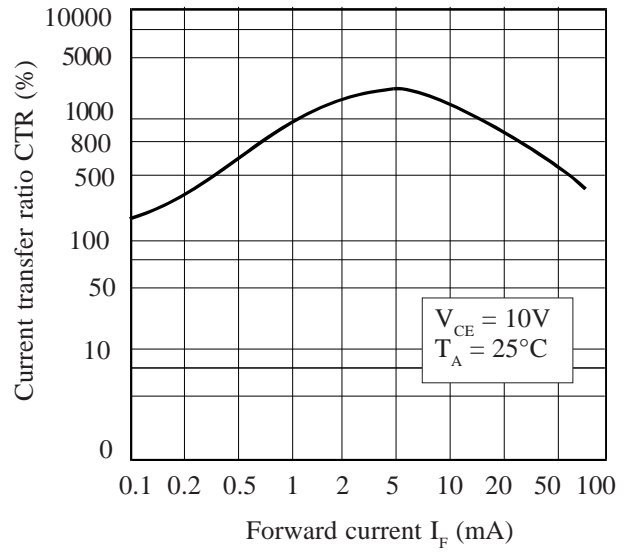
FIGURE 1



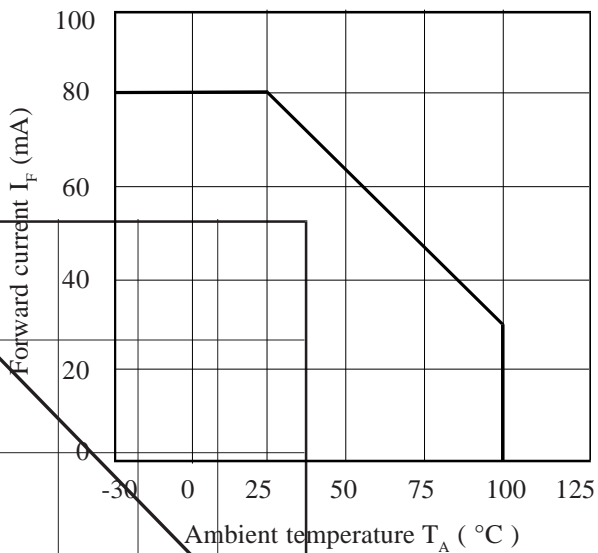
Collector Power Dissipation vs. Ambient Temperature



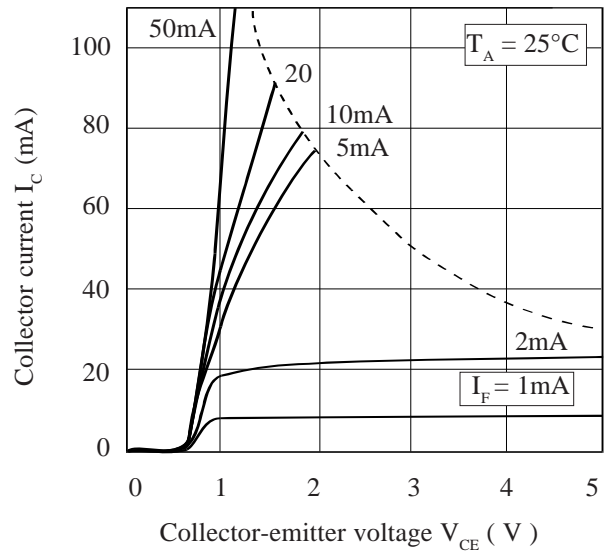
Current Transfer Ratio vs. Forward Current



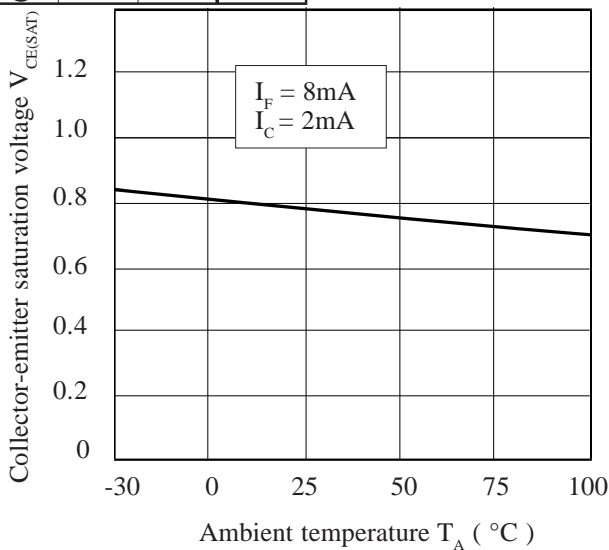
Forward Current vs. Ambient Temperature



Collector Current vs. Collector-emitter Voltage



Collector-emitter Saturation Voltage vs. Ambient Temperature



Relative Current Transfer Ratio vs. Ambient Temperature

