

66015 **3N243**
3N244
3N245

SINGLE CHANNEL OPTOCOUPLERS
(REPLACEMENT FOR TIL 120, TIL 121)

Mii
OPTOELECTRONIC PRODUCTS
DIVISION

Features:

- High Reliability
- Base lead eliminated for improved noise immunity
- Rugged package
- Stability over wide temperature
- 1kV electrical isolation

Applications:

- Eliminate ground loops
- Level shifting
- Line receiver
- Switching power supplies
- Motor control

DESCRIPTION

The **66015** contains a gallium arsenide infrared LED optically coupled to a silicon planar phototransistor. The optocoupler is built in a TO-46 Package. The collector of the phototransistor is electrically connected to the case. This optocoupler is capable of transmitting signals between two galvanic sources. The potential difference between transmitter and receiver should not go over the maximum isolation voltage. The internal base connection has been eliminated for improved noise immunity.

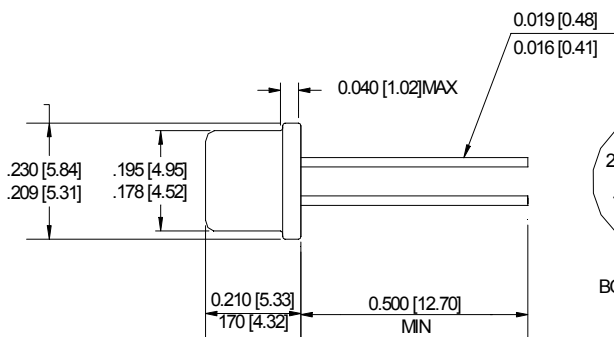
ABSOLUTE MAXIMUM RATINGS

Input to Output Voltage	1000V
Emitter-Collector Voltage	5V
Collector-Emitter Voltage (V_{CEO} , $I_F = 0$)	30V
Reverse Input Voltage	2V
Input Diode Continuous Forward Current at (or below) 65°C Free-Air Temperature (see note 1)	50mA
Peak Forward Input Current (Value applies for $t_w \leq 1\mu s$, $PRR < 300$ pps)	1A
Continuous Collector Current	50mA
Continuous Transistor Power Dissipation at (or below) 25°C Free-Air Temperature (see Note 2)	300mW
Storage Temperature.....	-65°C to +150°C
Operating Free-Air Temperature Range	-55°C to +125°C
Lead Solder Temperature (10 seconds max.)	240°C

Notes:

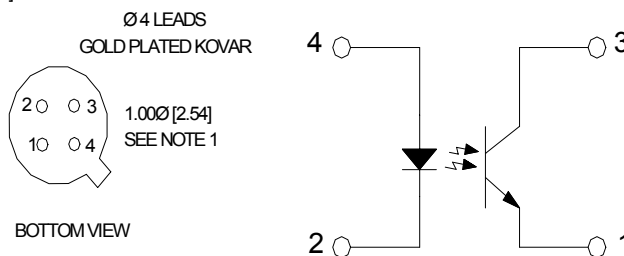
1. Derate linearly to 100°C free-air temperature at the rate of 1.42 mA/°C above 65°C.
2. Derate linearly to 100°C free-air temperature at the rate of 8.57 mW/°C.

Package Dimensions



NOTE 1: THIS DIMENSION IS CONTROLLED AT THE HOUSING SURFACE.
 DIMENSIONS ARE IN INCHES [MILLIMETERS]

Schematic Diagram



THE COLLECTOR IS IN ELECTRICAL CONTACT WITH THE CASE

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SINGLE CHANNEL OPTOCOUPLER

ELECTRICAL CHARACTERISTICS
INPUT LED

T_A = 25°C

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode Static Forward Voltage	3N243	V _F	1.15	1.3	V	I _F = 10mA
	3N244	V _F	1.15	1.3	V	
	3N245	V _F	1.15	1.3	V	

OUTPUT TRANSISTOR

T_A = 25°C

PARAMETER		SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Collector-Emitter Breakdown Voltage	3N243	V _{(BR)CEO}	30			V	I _C = 1mA, I _F = 0
	3N244		30			V	
	3N245		30			V	
Collector-Emitter Dark Current	3N243	I _D			100	nA	V _{CE} = 10V, I _F = 0mA
	3N244				100	nA	
	3N245				100	nA	

COUPLED CHARACTERISTICS

T_A = 25°C unless otherwise specified.

PARAMETER		SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
On State Collector Current	3N243	I _{C(ON)}	1.5			mA	V _{CE} = 10V, I _F = 10mA
	3N244		3.0				
	3N245		6.0				
Collector-Emitter Saturation Voltage	3N243	V _{CE(SAT)}			0.3	V	I _F = 20mA, I _C = 1.5mA I _F = 20mA, I _C = 3mA I _F = 20mA, I _C = 6mA
	3N244				0.3	V	
	3N245				0.3	V	
DC Isolation Voltage	3N243	V _{dc}	1000			V	
	3N244		1000			V	
	3N245		1000			V	
Rise Time	3N243	t _r		10		μs	V _{CC} = 10V, I _F = 10mA, R _L = 100Ω
	3N244			10			
	3N245			15			
Fall Time	3N243	t _f		10		μs	V _{CC} = 10V, I _F = 10mA, R _L = 100Ω
	3N244			10			
	3N245			15			

RECOMMENDED OPERATING CONDITIONS:

PARAMETER	SYMBOL	MIN	MAX	UNITS
Input Current, Low Level	I _{FL}	0	1	μA
Input Current, High Level	I _{FH}	10	20	mA
Supply Voltage	V _{CE}	5	10	V

SELECTION GUIDE

PART NUMBER	PART DESCRIPTION
66015-001	Single Channel 3N243 Optocoupler, commercial (0° to 70°C)
66015-002	Single Channel 3N244 Optocoupler, commercial (0° to 70°C)
66015-003	Single Channel 3N245 Optocoupler, commercial (0° to 70°C)
66015-101	Single Channel 3N243 Optocoupler, Mil-temp with JTX screening
66015-102	Single Channel 3N244 Optocoupler, Mil-temp with JTX screening
66015-103	Single Channel 3N245 Optocoupler, Mil-temp with JTX screening