REVISION A 12/29/00

Features:

- Collector is electrically isolated from the case.
- Overall current gain...1.5 typical (-X03)
- Rugged package
- High gain, high voltage transistor
- +1kV electrical isolation

Applications:

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

DESCRIPTION

The 66083 series optocoupler consist of a Gallium Aluminum Arsenide (GaAlAs) infrared LED and a high gain N-P-N silicon phototransistor packaged in a hermetically sealed LCC case. The ***66083*** can be tested to customer specifications, as well as to MIL-PRF-19500 JAN, JANS, JANTX, and JANTXV quality levels.

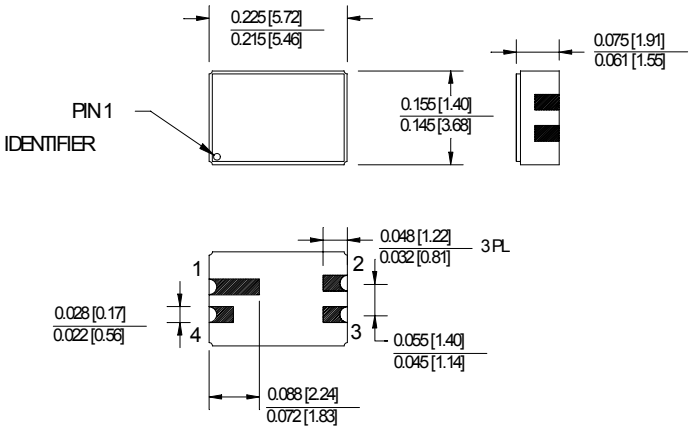
*ABSOLUTE MAXIMUM RATINGS

Input to Output Voltage	±1kV
Emitter-Collector Voltage	5V
Collector-Emitter Voltage	35V
Reverse Input Voltage	2V
Input Diode Continuous Forward Current at (or below) 65°C Free-Air Temperature (see note 1)	40mA
Peak Forward Input Current (Value applies for tw ≤ 1μs, 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 +125°C
Operating Free-Air Temperature Range	-55°C to +125°C
Lead Solder Temperature (1/16" (1.6mm) from case for 10 seconds)	240°C

Notes:
1. Derate linearly to 125°C free-air temperature at the rate of 0.67 mA/°C above 65°C.
2. Derate linearly to 125°C free-air temperature at the rate of 5 mW/°C.

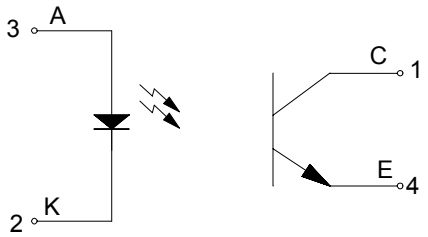
* JEDEC registered data

Package Dimensions



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

Schematic Diagram



*ELECTRICAL CHARACTERISTICS INPUT LED T_A = 25°C Unless otherwise specified

PARAMETER		SYMBOL	MIN	MAX	UNITS	TEST CONDITIONS	NOTE
Input Diode Static Reverse Current		I_R		100	µA	V_R = 2V	
Input Diode Static Forward Voltage	-55°C	V_F	1	1.5	V	I_F = 10mA	
	+25°C		0.8	1.3			
	+100°C		0.7	1.2			

*OUTPUT TRANSISTOR T_A = 25°C Unless otherwise specified

PARAMETER	SYMBOL	MIN	MAX	UNITS	TEST CONDITIONS	NOTE
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	35		V	I_C = 1mA, I_B = 0, I_F = 0	
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5		V	I_C = 0, I_E = 100µA, I_F = 0	

*COUPLED CHARACTERISTICS T_A = 25°C Unless otherwise specified

PARAMETER		SYMBOL	MIN	MAX	UNITS	TEST CONDITIONS	NOTE
On State Collector Current	-X01	$I_{C(ON)}$	0.15		mA	V_{CE} = 5V, I_F = 2mA	
	-X02		0.2				
	-X03		0.4				
On State Collector Current	-X01	$I_{C(ON)}$	2.5		mA	V_{CE} = 5V, I_F = 10mA	
	-X02		6				
	-X03		10				
On State Collector Current	X01	$I_{C(ON)}$	1		MA	V_{CE} = 5V, I_F = 10mA	
	X02		2.5				
-55°C	XO3		4				
On State Collector Current	X01	$I_{C(ON)}$	1		mA	V_{CE} = 5V, I_F = 10mA	
	X02		2.5				
+100° C	X03		4				
Off State Collector Current +25°C		$I_{C(OFF)}$		100	nA	V_{CE} = 20V, I_B = 0, I_F = 0mA	
Off State Collector Current +100°C		$I_{C(OFF)}$		100	µA	V_{CE} = 20V, I_B = 0, I_F = 0mA	
Collector-Emitter Saturation Voltage	-X01	$V_{CE(SAT)}$		0.3	V	I_C = 2.5mA, I_B = 0, I_F = 20mA	
	-X02	$V_{CE(SAT)}$		0.3	V	I_C = 5 mA, I_B = 0, I_F = 20mA	
	-X03	$V_{CE(SAT)}$		0.3	V	I_C = 10 mA, I_B = 0, I_F = 20mA	
Input to Output Resistance		R_{I-O}	10^{11}			V_{IN-OUT} = 1kV	1
Input to Output Capacitance		C_{I-O}		5	pF	F = 1MHz, V_{IN-OUT} = 1kV	1
Rise Time	-X01	t_r		15	µs	V_{CC} = 10V, I_F = 10mA, R_L = 100Ω	
	-X02	t_r		15	µs		
	-X03	t_r		20	µs		
Fall Time	X01	t_f		15	µs	V_{CC} =10V, I_F = 10mA, R_L = 100Ω	
	X02	t_f		15	µs		
	X03	t_f		20	µs		

NOTES:

1. These parameters are measured between all phototransistor leads shorted together and with both input diode leads shorted together.

RECOMMENDED OPERATING CONDITIONS:

PARAMETER	SYMBOL	MIN	MAX	UNITS
Input Current, Low Level	I_{FL}	0	100	µA
Input Current, High Level	I_{FH}	2	10	mA
Supply Voltage	V_{CE}	5	10	V

SELECTION GUIDE

PART NUMBER	PART DESCRIPTION
66083-001	-X01 Optocoupler, 66083 Commercial
66083-002	-X02 Optocoupler, 66083 Commercial
66083-003	-X03 Optocoupler, 66083 Commercial
66083-101	-X01 Optocoupler, 66083TX Screening level
66083-102	-X02 Optocoupler, 66083TX Screening level
66083-103	-X03 Optocoupler, 66083TX Screening level
66083-201	-X01 Optocoupler, 66083TXV Screening level
66083-202	-X02 Optocoupler, 66083TXV Screening level
66083-203	-X03 Optocoupler, 66083TXV Screening level