

66022 and 66039 MICROCOUPLER FOR HYBRID CIRCUITS



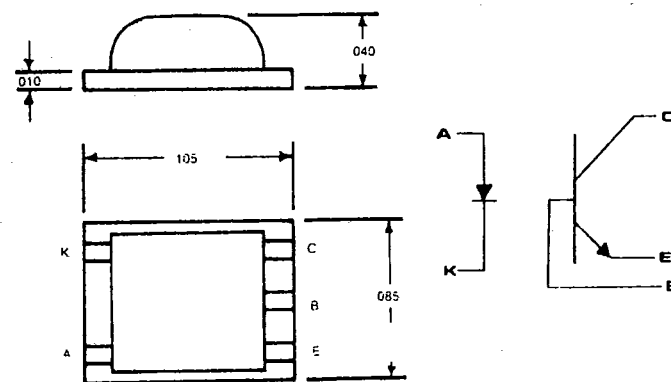
**OPTOELECTRONIC PRODUCTS
DIVISION**

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FEATURES

- Variety of CTR, and Switching speeds available.
- Available in MIL STD 883B Screened versions.†
- Thick film metalized bonding pads or wrap around connections for surface mount applications.

† Fine and Gross Leak Test Excluded.



DESCRIPTION:

The 66022 and 66039 series optocouplers consist of an infrared LED and a silicon photo detector mounted on a thick film metalized substrate which can be easily mounted in the user's hybrid circuit. The 66022 has thick film gold metalized pads for bonding and the 66039 has thick film gold wrap around pads for surface mount applications. Both are available with a variety of current transfer ratios and switching speeds. The microcouplers are available screened to MIL STD 883 B or customer specifications.

ABSOLUTE MAXIMUM RATINGS

Input-to-Output Voltage	± 1 KV
Collector-Base Voltage	.50V
Collector-Emitter Voltage (See Note 1)	.50V
Emitter-Base Voltage	.7V
Input Diode Reverse Voltage	.6V
Input Diode Continuous Forward Current at (or below) 65°C Free-Air Temperature (See Note 2)	.40 mA
Peak Diode Current (See Note 3)	.1A
Continuous Collector Current	.50mA
Continuous Transistor Power Dissipation at (or below) 25°C Free-Air Temperature (See Note 4)	.200 mW
Operating Free-Air Temperature Range	- 55°C to + 125°C
Storage Temperature	- 65°C to + 150°C
Mount Temperature 3min max	300°C

NOTES:

1. This value applies with the emitter-base diode open-circuited and the input-diode current equal to zero.
2. Derate linearly to 125°C free-air temperature at the rate of 0.67 mW/°C above 65°C.
3. This value applies for $t_w \leq 1$ us. PRR < 300 pps.
4. Derate linearly to 125°C free-air temperature at the rate of 2 mW/°C.



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OPTICAL/ELECTRICAL CHARACTERISTICS AT 25°C (UNLESS OTHERWISE SPECIFIED)						
PARAMETER	INPUT DIODE STATIC REVERSE CURRENT	INPUT DIODE STATIC FORWARD VOLTAGE	INPUT TO OUTPUT INTERNAL RESISTANCE	INPUT-TO-OUTPUT CAPACITANCE		COLLECTOR-EMITTER SATURATION VOLTAGE
TEST CONDITION	$V_R = 2V$	$I_f = 50mA$	$V_{in-out} = \pm 1KV$ See Note A	$f = 1 MHz$ $V_{in-out} = 0$ See Note A		$I_f = \text{As shown}$ $I_B = 0$ $I_C = \text{As shown}$
SYMBOL	I_r	V_f	R_{io}	C_{io}		$V_{CE(SAT)}$
UNIT	μA	VDC		pF		VDC
	MAX	MAX	MIN	TYP	MAX	I_f I_c MAX
- XX2	100	1.7	10^{11}	2.5	5	15mA 200 μA 3
- XX3	100	1.7	10^{11}	2.5	5	7mA 200 μA 3
- XX4	100	1.8	10^{11}	2.5	5	15mA 1mA 3

NOTE A — These parameters are measured between all phototransistor leads shorted together and both input diode leads shorted together

PARAMETER	COLLECTOR - BASE BREAKDOWN VOLTAGE	COLLECTOR - EMITTER BREAKDOWN VOLTAGE	EMITTER BASE BREAKDOWN VOLTAGE	ON-STATE COLLECTOR CURRENT	OFF-STATE COLLECTOR CURRENT
TEST CONDITION	$I_C = 100 \mu A$ $I_B = 0$ $I_f = 0$	$I_C = 1mA$ $I_B = 0$ $I_f = 0$	$I_C = 0$ $I_E = 100 \mu A$ $I_f = 0$	$I_f = \text{As Shown}$ $V_{CE} = 5V$ $I_B = 0$	$V_{CE} = 30V$ $I_f = 0$ $I_B = 0$
SYMBOL	$V_{(BR)CBO}$	$V_{(BR)CEO}$	$V_{(BR)EBO}$	$I_{C(ON)}$	I_d
UNIT	V	V	V	mA	nA
	MIN	MIN	MIN	I_f MIN TYP	MAX
- XX2	50	50	—	25mA 2 5	25
- XX3	35	35	7	7mA 2 5	100
- XX4	50	50	—	2mA 1 2	25

NOTE B: This parameter must be measured using pulse techniques. $t_w = 100 \mu s$, duty cycle $\leq 1\%$

* SWITCHING CHARACTERISTICS AT 25 °C FREE-AIR TEMPERATURE (See Note C)										
PARAMETER		TEST CONDITIONS		XX2		XX3		XX4		UNIT
t_r Rise Time	Phototransistor	$I_f = 25\text{ mA}$ $V_{CC} = 5\text{ v}$ $R_C = 100\,\Omega$	TYP	MAX	TYP	MAX	TYP	MAX	$\mu\text{ sec}$	
			—	6	—	5	—	10		
t_f Fall Time	Operation		—	30	—	20	—	20		

NOTE C: Special switch change conditions are used for the XX2. Contact factory for information