

MC022

MICROCOUPLER, SMALL TRANSISTOR OUTPUT

Mii

OPTOELECTRONIC
PRODUCTS{PRIVATE}
DIVISION

Rev A 8/2/02

Features:

- Small phototransistor output
- Small size saves real estate
- Large thick film gold bond pads
- Element evaluation on request

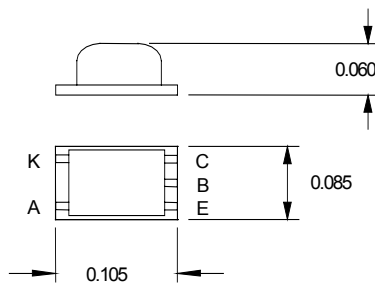
Applications:

- Eliminate ground loops
- Level shifting
- Line receiver
- Solid state switching
- Switching power supplies

DESCRIPTION

The **MC022** microcoupler is a single channel optocoupler consisting of an LED optically coupled to a light sensitive silicon phototransistor. Each microcoupler is provided with full 100% DC testing (+125°C test option upon request) or 100% element evaluation. All microcouplers are capable of operating over the full military temperature range.

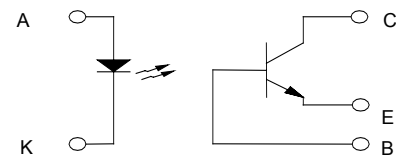
Package Dimensions



ALL TOLERANCES +/- .005

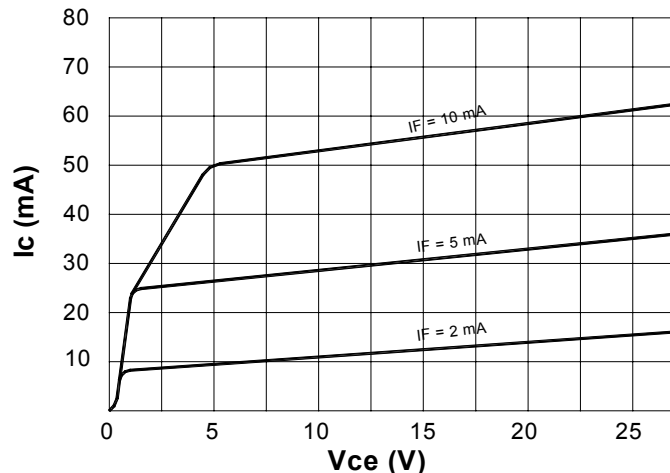
DIMENSIONS ARE IN INCHES

Schematic Diagram



TYPICAL PERFORMANCE CURVES

COLLECTOR CURRENT vs. COLLECTOR-EMITTER VOLTAGE
(TYPICAL, $T_a = 25^\circ\text{C}$)



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ELECTRICAL CHARACTERISTICS

T_A = 25°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Input Diode Reverse Current	I _R			100	μA	V _R = 2V	
Input-to-Output Internal Resistance	R _{IO}	10 ¹¹			Ω	V _{IN-OUT} = 1kV	1
Input-to-Output Capacitance	C _{IO}		2.5	5	pF	V _{CC} = 5.5V, I _F = 20mA	
Input Forward Voltage	V _F		1.5	1.75	V	I _F = 20mA	
Collector-Emitter Saturation Voltage	V _{CE(SAT)}			0.3	V	I _F = 20mA, I _C = 10μA, I _B = 0	
Collector-Base Breakdown Voltage	V _{BR CBO}	50			V	I _C = 100μA, I _B = 0, I _F = 0	
Collector-Emitter Breakdown Voltage	V _{BR CEO}	50			V	I _C = 1mA, I _B = 0, I _F = 0	
Emitter-Base Breakdown Voltage	V _{BR EBO}	7			V	I _C = 0, I _E = 10 0μA, I _F = 0	
On State Collector Current	I _{C(ON)}	10	25		mA	I _F = 10mA, V _{CE} = 5V, I _B = 0	
Off-State Collector Current	I _D			100	nA	I _F = 0mA, V _{CE} = 30V, I _B = 0	
Rise Time (Phototransistor Mode)	t _r		10	25	μs	I _F = 5mA, V _{CE} = 10V, R _L = 100Ω	
Fall Time (Phototransistor Mode)	t _f		10	25	μs	I _F = 5mA, V _{CE} = 10V, R _L = 100Ω	

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

RECOMMENDED OPERATING CONDITIONS:

PARAMETER	SYMBOL	MIN	MAX	UNITS
Input Current	I _F	1	50	mA
Supply Voltage	V _{CE}	5	30	V
Operating Temperature	T _A	-55	125	°C