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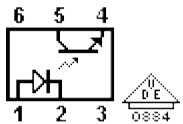
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## MOC 8101 /2,/3,/4,/G OPTICALLY COUPLED ISOLATORS

### Circuit



### Features

- Convenient plastic Dual-In-Line Package.
- High Input-Output Isolation Guaranteed 3750 Vac(rms).
- UL recognized.
- VDE approved per standard 0883/6.80.
- Special lead form available which satisfies VDE0883/6.80 requirement for 8 mm minimum creepage distance between input and output solder pads.

### Description

The MOC 8101/2/3/4/G series are constructed from a Gallium Arsenide Infrared Emitting Diode optically coupled to a monolithic silicon phototransistor detector. They have been designed and specified to meet the requirements of switchmode power supplies and other applications requiring very closely matched current transfer ratios (CTR), linearity and stable performance over the temperature range. The internal base-to-pin 6 connection has been eliminated for improved noise immunity. Surface Mount Option Available.

# Maximum Ratings

## Input LED

Forward Current - Continuous:	60mA
Forward Current - Peak:	1A (p.w.=100μs, 120pps)
Reverse Voltage:	6V
LED Power Dissipation:	120mW
Derate Linearly:	1.14mW/°C above 25°C

## Output Transistor

Collector-Emitter Voltage:	30V
Emitter-Collector Voltage:	7V
Collector Current - Continuous:	150mA
Detector Power Dissipation:	150mW
Derate Linearly:	1.76mW/°C above 25°C

## Total Device

Input-Output Isolation Voltage:	3750Vac(rms) (f=60Hz, t=1s; <a href="#">note 1</a> )
Total Device Power Dissipation:	250mW
Derate Linearly:	2.94mW/°C above 25°C
Ambient Operating Temperature Range:	-55 to +100°C
Storage Temperature Range:	-55 to +150°C
Lead Soldering:	260°C for 10s, 1.6mm from case

## Electro-Optical Characteristics (Ta=25°C)

INPUT LED	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =10mA	1	1.15	1.5	V
I <sub>R</sub>	Reverse Leakage Current	V <sub>R</sub> =5.0V	5	0.05	10	μA
C	Capacitance			18		pF
OUTPUT TRANSISTOR						
I <sub>CEO1</sub>	Collector-Emitter Dark Current	V <sub>CE</sub> =10V, T <sub>A</sub> =25°C		1	50	nA
I <sub>CEO2</sub>		V <sub>CE</sub> =10V, T <sub>A</sub> =100°C		1		μA
V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage	I <sub>C</sub> =1.0mA	30	45		V
V <sub>(BR)ECO</sub>	Emitter-Collector Breakdown Voltage	I <sub>E</sub> =100μA	7	7.8		V
C <sub>CE</sub>	Collector-Emitter Capacitance	f=1.0MHz, V <sub>CE</sub> =0		7		V
COUPLED	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
I <sub>C</sub>	Output Collector Current					
	MOC8101		5	6.5	8	mA
	MOC8102	I <sub>F</sub> =10mA, V <sub>CE</sub> =10V	7.3	9	1.7	mA

	MOC8103		10.8	14	17.3	mA
	MOC8104		16	20	25.6	mA
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	$I_C=500\mu A, I_F=5.0mA$		0.15	0.4	V
$t_{ON}$	Turn-On Time	$I_C=2.0mA, V_{CC}=10V, R_L=100ohm$		7.5	20	$\mu s$
$t_{OFF}$	Turn-off Time			5.7	20	$\mu s$
$t_R$	Rise Time			3.2		$\mu s$
$t_F$	Fall Time			4.7		$\mu s$
$V_{ISO}$	Isolation Voltage	$f=60Hz, t=1.0s$				Vac(rms)
$R_{ISO}$	Isolation Resistance	$V_{IO}=500V$				ohm
$C_{ISO}$	Isolation Capacitance	$V_{IO}=0, f=1.0MHz$		0.2		pF

## Notes

1. Input-Output Isolation Voltage,  $V_{ISO}$ , is an internal device dielectric breakdown rating. For this test, Pins 1 and 2 are common, and Pins 4, 5 and 6 are common.

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