

MOC8101X,MOC8102X,MOC8103X,MOC8104X,MOC8105X
MOC8101, MOC8102, MOC8103,MOC8104,MOC8105



**NON-BASE LEAD
OPTICALLY COUPLED ISOLATOR
PHOTOTRANSISTOR OUTPUT**

APPROVALS

- UL recognised, File No. E91231
- 'X' SPECIFICATION APPROVALS
- VDE 0884 in 3 available lead forms : -
 - STD
 - G form
 - SMD approved to CECC 00802
- Certified to EN60950 by the following Test Bodies :-
 - Nemko - Certificate No. P96101299
 - Fimko - Registration No. 190469-01..22
 - Semko - Reference No. 9620076 01
 - Demko - Reference No. 305567

DESCRIPTION

The MOC8101, MOC8102, MOC8103, MOC8104, MOC8105 series of optically coupled isolators consist of infrared light emitting diode and NPN silicon photo transistor in a standard 6 pin dual in line plastic package with the base pin unconnected.

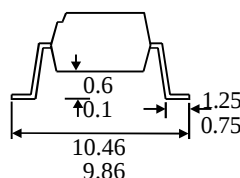
FEATURES

- Options :-
 - 10mm lead spread - add G after part no.
 - Surface mount - add SM after part no.
 - Tape&reel - add SMT&R after part no.
- High Isolation Voltage ($5.3kV_{RMS}$, $7.5kV_{PK}$)
- Base pin unconnected for improved noise immunity in high EMI environment

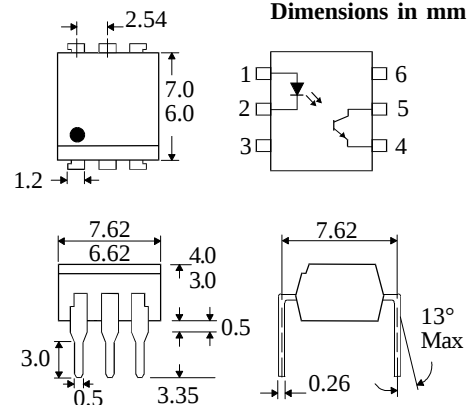
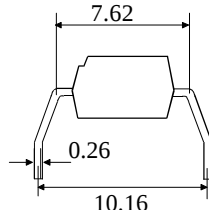
APPLICATIONS

- DC motor controllers
- Industrial systems controllers
- Signal transmission between systems of different potentials and impedances

**OPTION SM
SURFACE MOUNT**



OPTION G



**ABSOLUTE MAXIMUM RATINGS
(25°C unless otherwise specified)**

Storage Temperature _____ -55°C to + 150°C
Operating Temperature _____ -55°C to + 100°C
Lead Soldering Temperature
(1/16 inch (1.6mm) from case for 10 secs) 260°C

INPUT DIODE

Forward Current _____ 60mA
Reverse Voltage _____ 6V
Power Dissipation _____ 105mW

OUTPUT TRANSISTOR

Collector-emitter Voltage BV_{CEO} _____ 30V
Emitter-collector Voltage BV_{ECO} _____ 6V
Power Dissipation _____ 160mW

POWER DISSIPATION

Total Power Dissipation _____ 200mW
(derate linearly 2.67mW/°C above 25°C)

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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)	1.0	1.15	1.5	V	$I_F = 10\text{mA}$
	Reverse Voltage (V_R)	6			V	$I_R = 10\mu\text{A}$
	Reverse Current (I_R)			10	μA	$V_R = 6\text{V}$
Output	Collector-emitter Breakdown (BV_{CEO}) (Note 2)	30			V	$I_C = 1\text{mA}$
	Emitter-collector Breakdown (BV_{ECO})	6			V	$I_E = 100\mu\text{A}$
	Collector-emitter Dark Current (I_{CEO})			50	nA	$V_{CE} = 10\text{V}$
Coupled	Output Collector Current (I_C) (Note 3)					
	MOC8101	5.0		8.0	mA	$10\text{mA } I_F, 10\text{V } V_{CE}$
	MOC8102	7.3		11.7	mA	$10\text{mA } I_F, 10\text{V } V_{CE}$
	MOC8103	10.8		17.3	mA	$10\text{mA } I_F, 10\text{V } V_{CE}$
	MOC8104	16		25.6	mA	$10\text{mA } I_F, 10\text{V } V_{CE}$
	MOC8105	6.5		13.3	mA	$10\text{mA } I_F, 10\text{V } V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$		0.15	0.4	V	$5\text{mA } I_F, 0.5\text{mA } I_C$
	Input to Output Isolation Voltage V_{ISO}	5300			V_{RMS}	See note 1
		7500			V_{PK}	See note 1
	Input-output Isolation Resistance R_{ISO}	5×10^{10}			Ω	$V_{IO} = 500\text{V}$ (note 1)
	Turn-on Time t_{on}		7.5	20	μs	$V_{CC} = 10\text{V},$
	Turn-off Time t_{off}		5.7	20	μs	$I_C = 2\text{mA}, R_L = 100\Omega$
	Output Rise Time t_r		3.2		μs	
	Output Fall Time t_f		4.7		μs	

Note 1 Measured with input leads shorted together and output leads shorted together.

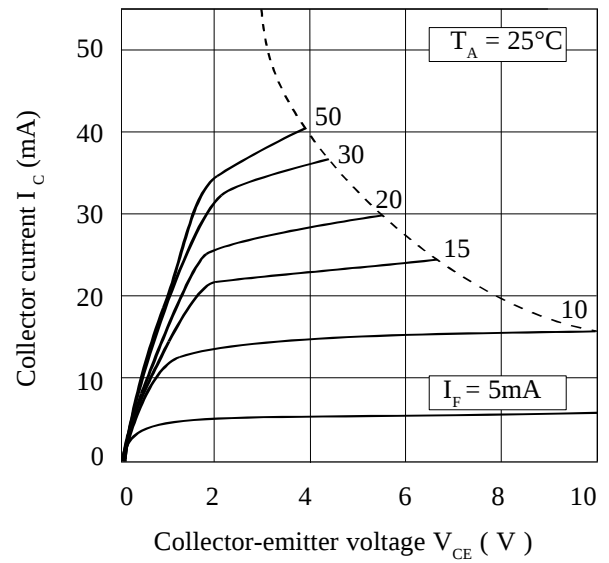
Note 2 Special Selections are available on request. Please consult the factory.

Note 3 Production testing - limits verified with pulse test

Collector Power Dissipation vs. Ambient Temperature



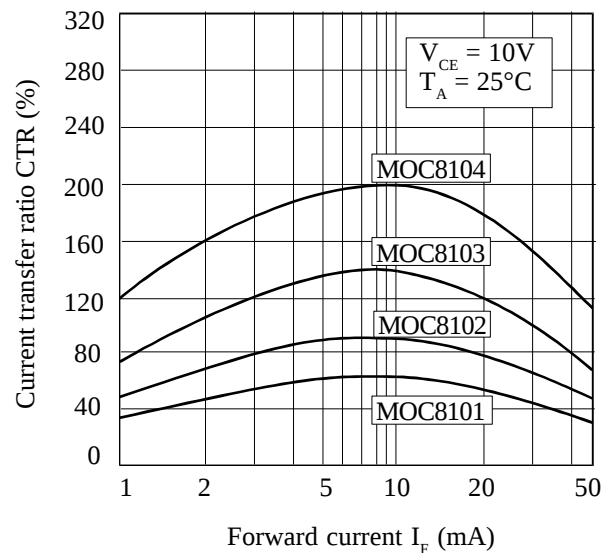
Collector Current vs. Collector-emitter Voltage



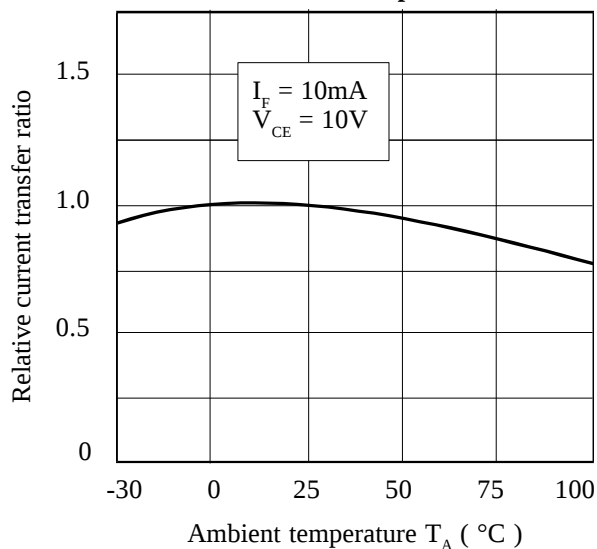
Forward Current vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current



Relative Current Transfer Ratio vs. Ambient Temperature



Collector-emitter Saturation Voltage vs. Ambient Temperature

