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

ISOCOM
COMPONENTS

NON-BASE LEAD OPTICALLY COUPLED ISOLATOR PHOTOTRANSISTOR OUTPUT

ROHS COMPLIANT

APPROVALS

- UL recognised, File No. E91231
  Package Code " GG "

'X' SPECIFICATION APPROVALS

- VDE 0884 in 3 available lead form : -
  - STD
  G form
  - SMD approved to CECC 00802

- Certified to EN60950 by :-
  Nemko - Certificate No. P01102464

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

Dimensions in mm

2.54 7.0 6.0 1.2
1 6
2 5
3 4

7.62 6.62 4.0 3.0 0.5
3.0 0.5 3.35
7.62 13° Max 0.26

OPTION SM SURFACE MOUNT	OPTION G
0.6 0.1 1.25 0.75 10.46 9.86	7.62 0.26 10.16
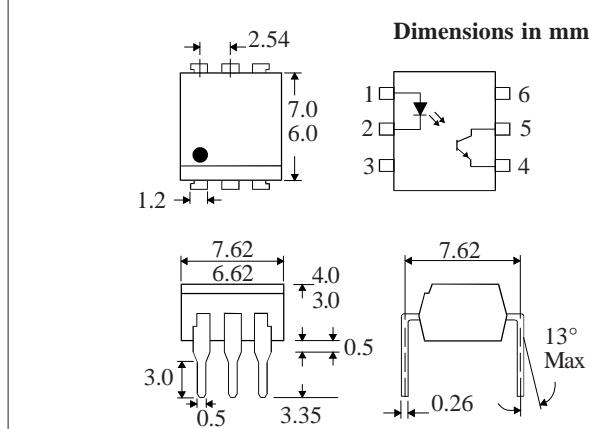
ABSOLUTE MAXIMUM RATINGS
(25°C unless otherwise specified)

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
Collector Current	50mA
Power Dissipation	160mW

POWER DISSIPATION

Total Power Dissipation (derate linearly 2.67mW/°C above 25°C)	200mW
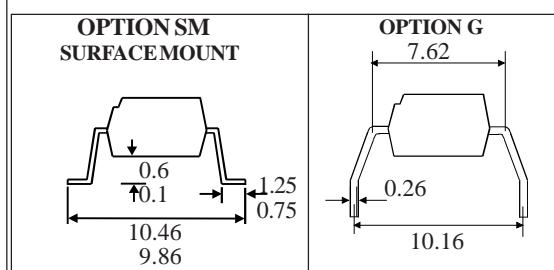
ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless otherwise noted)

	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)	1.0	1.15	1.5	V	$I_F = 10mA$
	Reverse Current (I_R)			10	μA	$V_R = 6V$
Output	Collector-emitter Breakdown (BV_{CEO}) (Note 2)	30			V	$I_C = 1mA$
	Emitter-collector Breakdown (BV_{ECO})	6			V	$I_E = 100μA$
	Collector-emitter Dark Current (I_{CEO})			50	nA	$V_{CE} = 10V$
Coupled	Output Collector Current (I_C) (Note 3)					
	MOC8101	5.0		8.0	mA	10mA I_F, 10V V_{CE}
	MOC8102	7.3		11.7	mA	10mA I_F, 10V V_{CE}
	MOC8103	10.8		17.3	mA	10mA I_F, 10V V_{CE}
	MOC8104	16		25.6	mA	10mA I_F, 10V V_{CE}
	MOC8105	6.5		13.3	mA	10mA I_F, 10V V_{CE}
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$		0.15	0.4	V	5mA I_F, 0.5mA 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	$V_{IO} = 500V$ (note 1)
	Response Time (Rise), tr		2		μs	$V_{CC} = 5V$, $I_F = 10mA$
	Response Time (Fall), tf		2		μs	$R_L = 75Ω$, (FIG 1)

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

**FIGURE1**
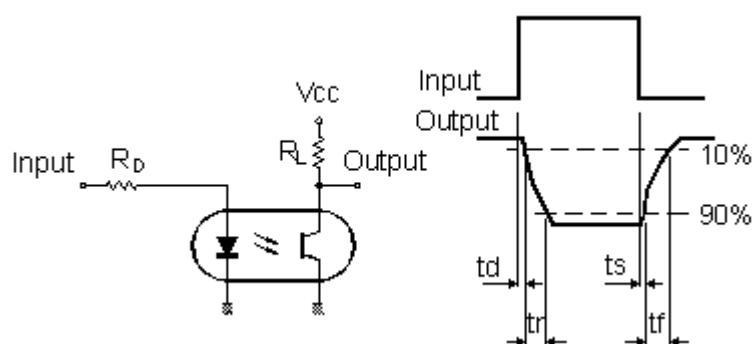
Collector Power Dissipation vs. Ambient Temperature

Collector power dissipation P_C (mW)

Ambient temperature T_A (°C)
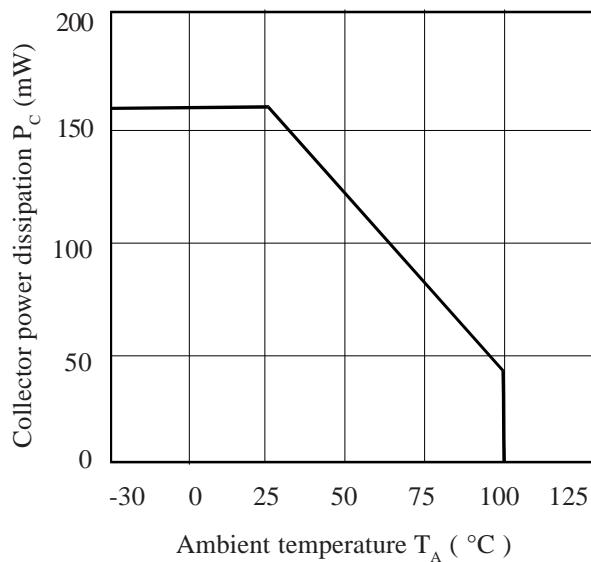
Collector Current vs. Collector-emitter Voltage

Collector current I_C (mA)

$T_A = 25°C$

50

30

20

15

10

$I_F = 5mA$

Collector-emitter voltage V_{CE} (V)
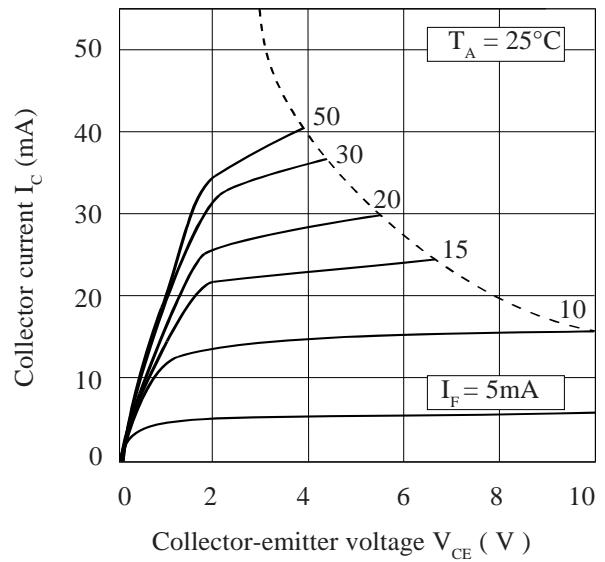
Forward Current vs. Ambient Temperature

Forward current I_F (mA)

Ambient temperature T_A (°C)
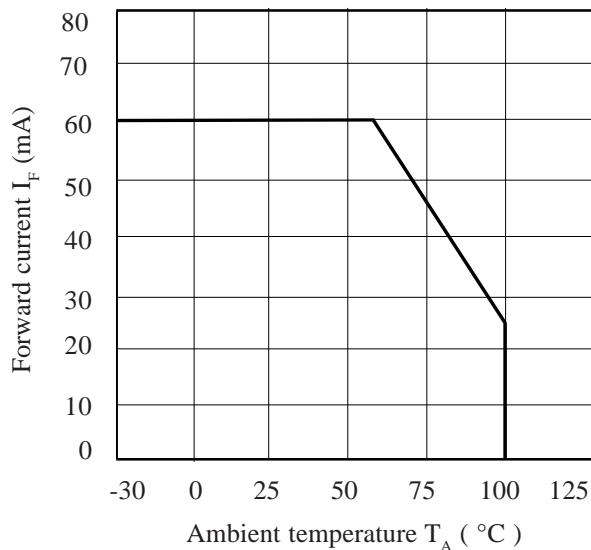
Current Transfer Ratio vs. Forward Current

Current transfer ratio CTR (%)

$V_{CE} = 10V$
$T_A = 25°C$

MOC8104

MOC8103

MOC8102

MOC8101

Forward current I_F (mA)
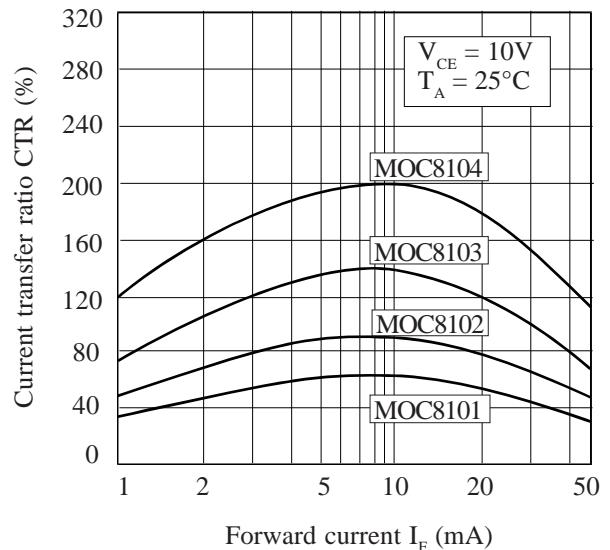
Relative Current Transfer Ratio vs. Ambient Temperature

Relative current transfer ratio

$I_F = 10mA$
$V_{CE} = 10V$

Ambient temperature T_A (°C)
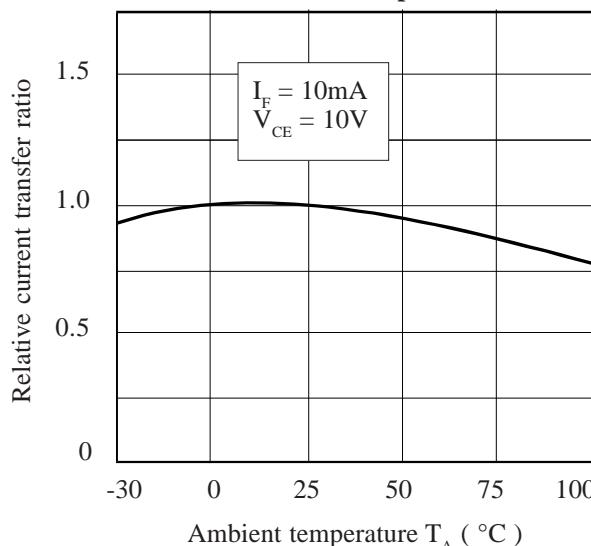
Collector-emitter Saturation Voltage vs. Ambient Temperature

Collector-emitter saturation voltage $V_{CE(SAT)}$ (V)

$I_F = 5mA$
$I_C = 0.5mA$

Ambient temperature T_A (°C)

16/9/08

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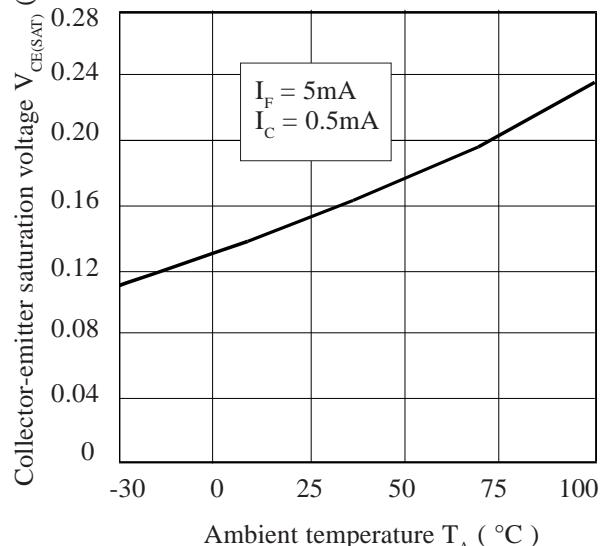
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