

MOC8111X, MOC8112X, MOC8113X  
MOC8111, MOC8112, MOC8113



**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
- BSI approved - Certificate No. 8001

**DESCRIPTION**

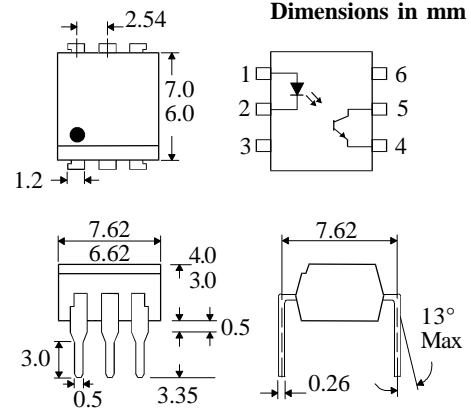
The MOC8111, MOC8112, MOC8113 series of optically coupled isolators consist of infrared light emitting diode and NPN silicon photo transistor in a standard 6 pin dual in line plastic package with the base pin unconnected.

**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<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- 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



**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**

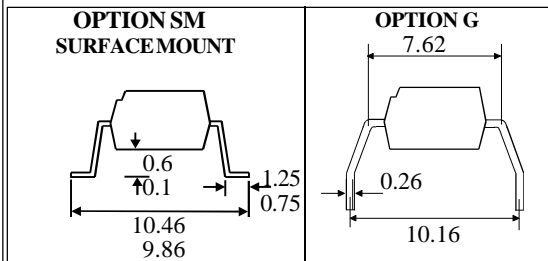
Forward Current \_\_\_\_\_ 60mA  
Reverse Voltage \_\_\_\_\_ 6V  
Power Dissipation \_\_\_\_\_ 105mW

**OUTPUT TRANSISTOR**

Collector-emitter Voltage BV<sub>CEO</sub> \_\_\_\_\_ 30V  
Emitter-collector Voltage BV<sub>ECO</sub> \_\_\_\_\_ 6V  
Power Dissipation \_\_\_\_\_ 160mW

**POWER DISSIPATION**

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



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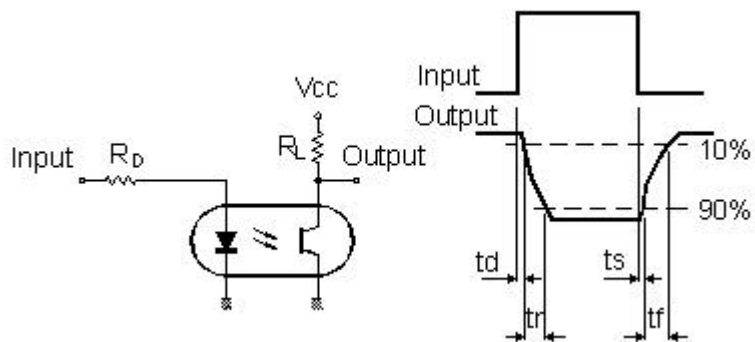


**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ )		1.15	1.5	V	$I_F = 10\text{mA}$
	Reverse Current ( $I_R$ )			10	$\mu\text{A}$	$V_R = 6\text{V}$
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 ( $I_C$ ) MOC8111	2			mA	$10\text{mA } I_F, 10\text{V } V_{CE}$
	MOC8112	5			mA	$10\text{mA } I_F, 10\text{V } V_{CE}$
	MOC8113	10			mA	$10\text{mA } I_F, 10\text{V } V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$		0.15	0.4	V	$10\text{mA } I_F, 0.5\text{mA } I_C$
	Input to Output Isolation Voltage $V_{ISO}$	5300 7500			$V_{RMS}$ $V_{PK}$	See note 1 See note 1
	Input-output Isolation Resistance $R_{ISO}$	$5 \times 10^{10}$			$\Omega$	$V_{IO} = 500\text{V}$ (note 1)
	Response Time (Rise), tr Response Time (Fall), tf		2 2		$\mu\text{s}$ $\mu\text{s}$	$V_{CC} = 5\text{V}, I_F = 10\text{mA}$ $R_L = 75\Omega$ (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.

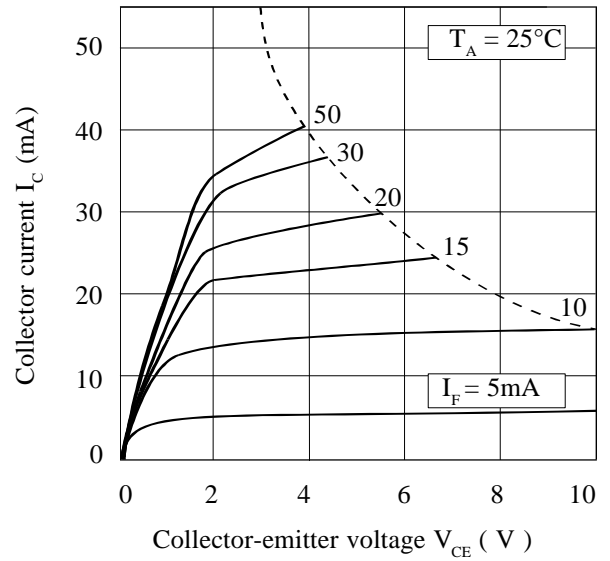
**FIGURE1**



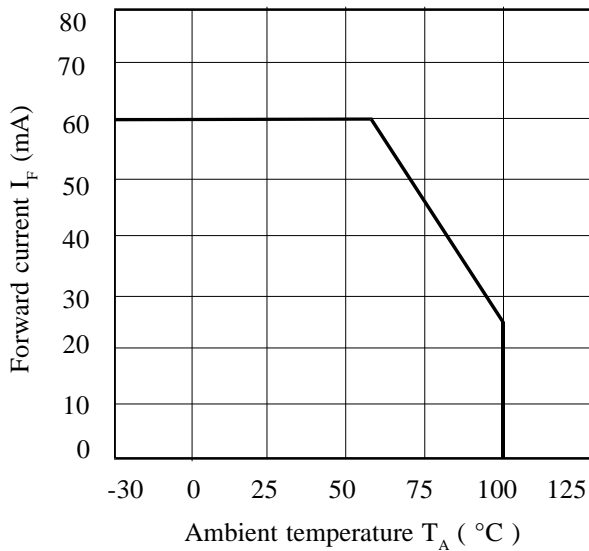
**Collector Power Dissipation vs. Ambient Temperature**



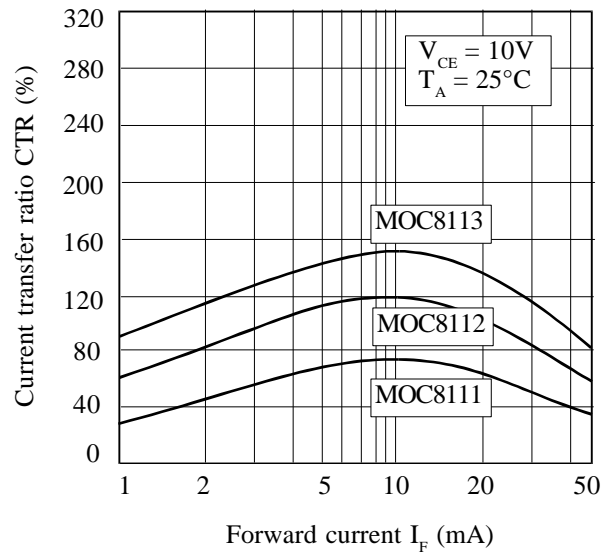
**Collector Current vs. Collector-emitter Voltage**



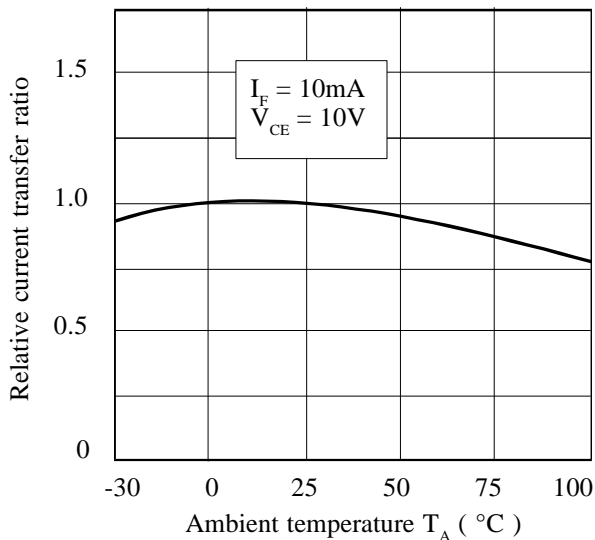
**Forward Current vs. Ambient Temperature**



**Current Transfer Ratio vs. Forward Current**



**Relative Current Transfer Ratio vs. Ambient Temperature**



**Collector-emitter Saturation Voltage vs. Ambient Temperature**

