

MOC8111 PHOTOTRANSISTOR NO BASE CONNECTION OPTOCOUPLER

FEATURES

- **Current Transfer Ratio 20% Min.**
- **No Base Terminal Connection for Improved Common Mode Interface Immunity**
- **Field-Effect Stable by TRIOS (TRansparent IOn Shield)**
- **Long Term Stability**
- **Industry Standard Dual-in-Line Package**
- **Underwriters Lab File #E52744**
-  **VDE 0884 Available with Option 1**

DESCRIPTION

The MOC8111 is an optocoupler consisting of a Gallium Arsenide infrared emitting diode optically coupled to a silicon planar phototransistor detector in a plastic plug-in DIP 6 pin package.

The coupling device is suitable for signal transmission between two electrically separated circuits. The potential difference between the circuits to be coupled is not allowed to exceed the maximum permissible reference voltages.

In contrast to the IL1 the base terminal is not connected, resulting in a substantially improved common-mode interference immunity.

Maximum Ratings (T_A=25°C)

Emitter

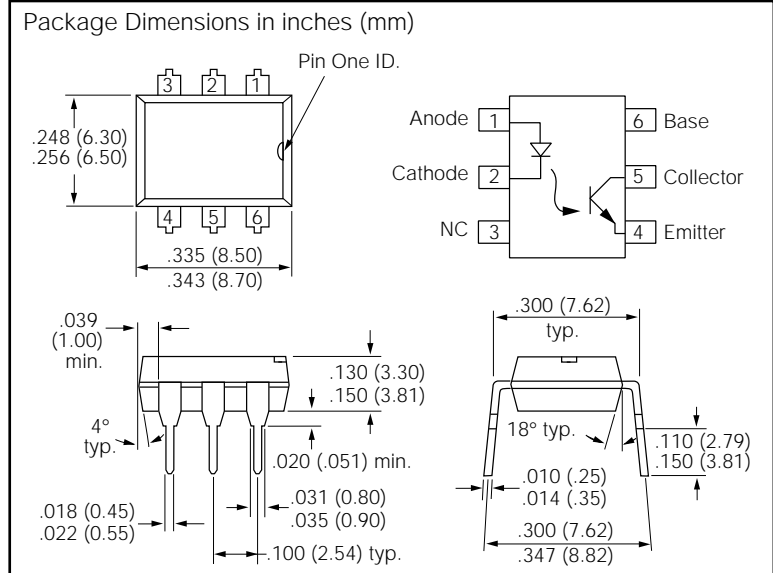
Reverse Voltage 6 V
DC Forward Current 60 mA
Surge Forward Current (t≤10 μs) 2.5 A
Total Power Dissipation..... 100 mW

Detector

Collector-Emitter Breakdown Voltage 30 V
Collector Current 50 mA
Collector Current (t≤1 ms) 150 mA
Total Power Dissipation..... 150 mW

Package

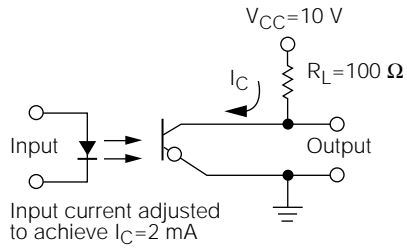
Isolation Test Voltage between
Emitter and Detector, Refer to
Standard Climate 23/50
DIN 500145300 VAC_{RMS}
Creepage≥7 mm
Clearance≥7 mm
Isolation Thickness between
Emitter and Detector≥0.4 mm
Comparative Tracking Index
per DIN IEC 112/VDE 0303, part 1 175
Isolation Resistance
V_{IO}=500 V, T_A=25°C 10¹²Ω
V_{IO}=500 V, T_A=100°C 10¹¹Ω
Storage Temperature Range -55°C to +150°C
Ambient Temperature Range..... -55°C to +100°C
Soldering Temperature (max. 10 s,
dip soldering distance to
seating plane ≥1.5 mm)260°C



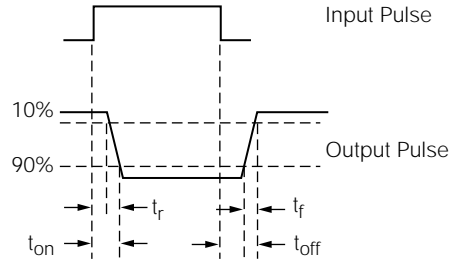
Electrical Characteristics (T_A=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Emitter						
Forward Voltage	V _F		1.15	1.5	V	I _F =10 mA
Reverse Leakage Current	I _R		0.05	10	μA	V _R =6 V
Capacitance	C _J		25		pF	V=0, f=1 MHz
Detector						
Collector-Emitter Breakdown Voltage	BV _{CEO}	30			V	I _C =1 μA
Collector-Emitter Leakage Current	I _{CEO}		1	50	nA	V _{CE} =10 V
Emitter-Collector Breakdown Voltage	V _{ECO}	7			V	I _E =10 μA
Collector-Emitter Capacitance	C _{CE}		7		pF	V _{CE} =0 V, f=1 MHz
Package						
Collector Saturation Voltage	V _{CESAT}		0.15	0.4	V	I _C =500 μA I _F =10 mA
Output Collector Current	I _C	2	5		mA	I _F =10 mA V _{CE} =10 V
Turn On Time	T _{ON}		7.5	20	μs	V _{CC} =10 V R _L =100 Ω, I _C =2 mA, see Figure 1
Turn Off Time	T _{OFF}		5.7	20	μs	

Figure 1. Switching times



Test Circuit



Waveforms