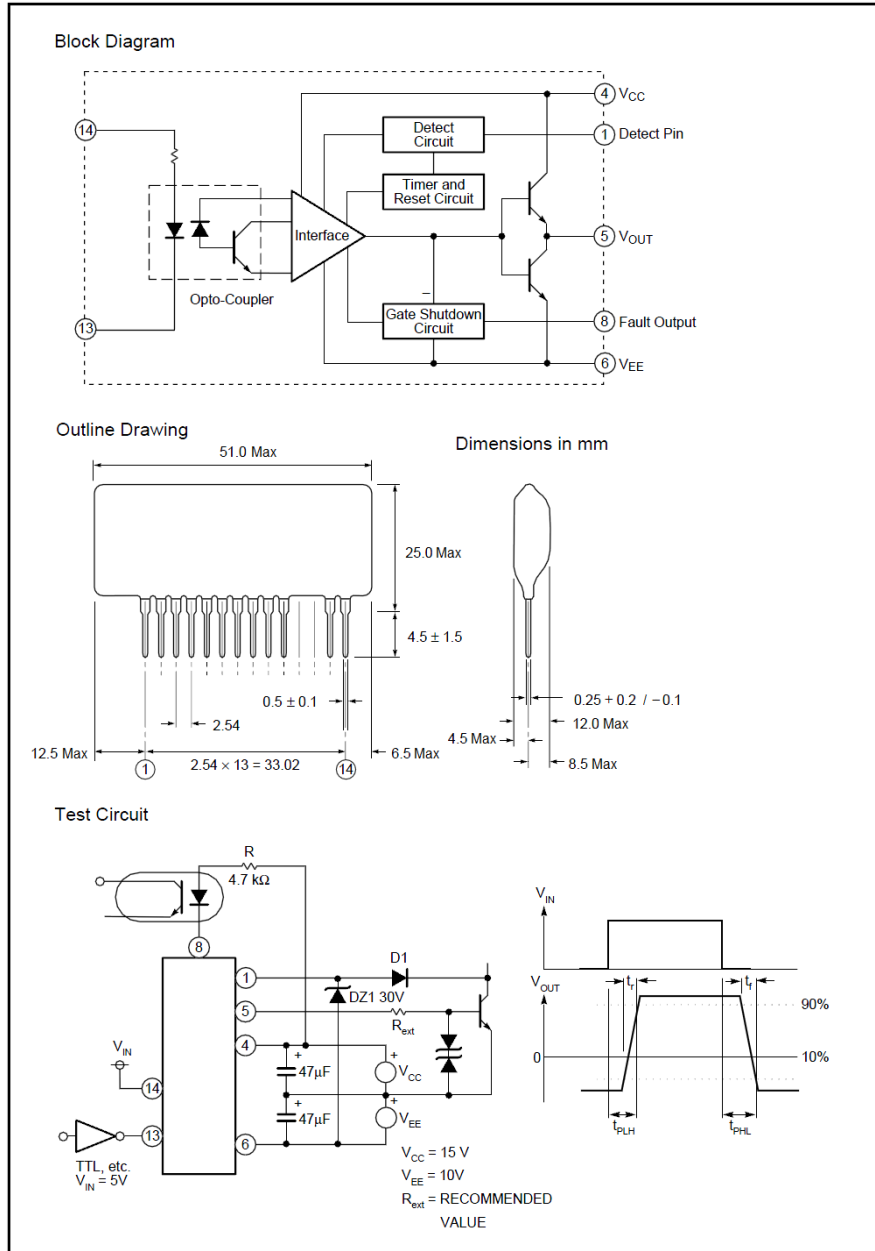




**THE DATASHEET OF  
M57962L-71R-02**





### Hybrid Integrated Circuit For Driving IGBT Modules

#### Description:

M57962L-71R-02 is a hybrid integrated circuit designed for driving n-channel IGBT modules in any gate amplifier application. This device operates as an isolation amplifier for these modules and provides the required electrical isolation between the input and output with an opto-coupler.

Short circuit protection is provided by a built-in desaturation detector. A fault signal is provided if the short circuit protection is activated.

#### Features:

- Built-in high CMRR opto-coupler ( $V_{CMR}$ : Typical 30 kV/ $\mu\text{s}$ , Min. 15 kV/ $\mu\text{s}$ )
- Electrical Isolation between input and output with opto-couplers ( $V_{ISO} = 2500\text{ V}_{RMS}$  for 1 min.)
- TTL compatible input interface
- Two supply drive topology
- Built-in short circuit protection circuit with a pin for fault output

#### Application:

To drive IGBT modules for inverter, AC Servo systems, UPC, CVCF inverter, and welding applications.

#### Recommended Modules:

$V_{CES} = 600\text{ V Series}$   
(up to 600A Class)

$V_{CES} = 1200\text{ V Series}$   
(up to 400A Class)

**Absolute Maximum Ratings,  $T_a \sim 20^\circ\text{C}$  to  $70^\circ\text{C}$  unless otherwise specified**

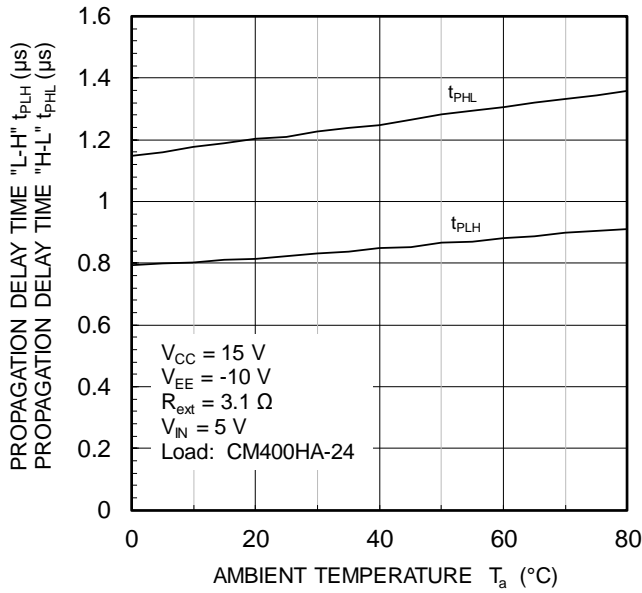
| Item                  | Symbol    | Test Conditions                            | Limit     | Units            |
|-----------------------|-----------|--|-----------|------------------|
| Supply Voltage*       | $V_{CC}$  | DC   | 18        | Volts            |
|                       | $V_{EE}$  | DC   | -15       | Volts            |
| Input Voltage         | $V_I$     |  | -1 ~ 7    | Volts            |
| Output Voltage        | $V_O$     | Output Voltage "H"                         | $V_{CC}$  | Volts            |
| Output Current        | $I_{OHP}$ | Pulse Width 2 $\mu\text{s}$ , $f = 20$ kHz | -5        | Amperes          |
|                       | $I_{OLP}$ | Pulse Width 2 $\mu\text{s}$ , $f = 20$ kHz | 5         | Amperes          |
| Output Current        | $I_{OH}$  | $f = 20$ kHz, 50% Duty Cycle               | 0.5       | Amperes          |
| Isolation Voltage     | $V_{RMS}$ | Sine wave Voltage 60 kHz, 1 min.           | 2500      | Volts            |
| Junction Temperature  | $T_J$     |  | 85        | $^\circ\text{C}$ |
| Operating Temperature | $T_{opg}$ |  | -20 ~ 60  | $^\circ\text{C}$ |
| Storage Temperature   | $T_{stg}$ | (Differs from H/C Condition)               | -25 ~ 100 | $^\circ\text{C}$ |
| Fault Output Current  | $I_{FO}$  |  | 20        | mA               |
| Input Voltage         | $V_{R1}$  |  | 50        | Volts            |

**Electrical Characteristics,  $T_a = 25^\circ\text{C}$ ,  $V_{CC} = 15\text{V}$ ,  $-V_{EE} = 10\text{V}$  unless otherwise specified**

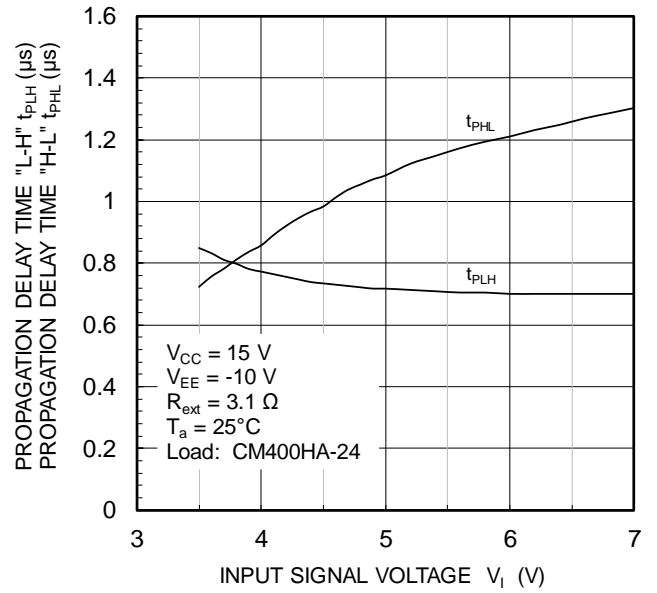
| Characteristics               | Symbol      | Test Conditions                                 | Min. | Typ. | Max. | Units         |
|-------------------------------|-------------|---|------|------|------|---------------|
| Supply Voltage                | $V_{CC}$    | Recommended Range                               | 14   | 15   | —    | Volts         |
|                               | $V_{EE}$    | Recommended Range                               | -7   | —    | -10  | Volts         |
| Pull-up Voltage on Input Side | $V_{IN}$    | Recommended Range                               | 4.75 | 5.00 | 5.25 | Volts         |
| Switching Frequency           | $f$         | Recommended Range                               | —    | —    | 20   | kHz           |
| "H" Input Current             | $I_H$       | $V_{IN} = 5\text{V}$                            | —    | 16   | —    | mA            |
| Gate Resistance               | $R_G$       | Recommended Range                               | 2    | —    | —    | $\Omega$      |
| "H" Output Voltage            | $V_{OH}$    | Recommended Range                               | 13   | 14   | —    | Volts         |
| "L" Output Voltage            | $V_{OL}$    | Recommended Range                               | -8   | -9   | —    | Volts         |
| "L-H" Propagation Time        | $t_{PLH}$   | $I_H = 16$ mA                                   | —    | 1.0  | 1.5  | $\mu\text{s}$ |
| "L-H" Rise Time               | $t_r$       | $I_H = 16$ mA                                   | —    | 0.6  | 1.0  | $\mu\text{s}$ |
| "H-L" Propagation Time        | $t_{PHL}$   | $I_H = 16$ mA                                   | —    | 1.0  | 1.5  | $\mu\text{s}$ |
| "H-L" Rise Time               | $t_f$       | $I_H = 16$ mA                                   | —    | 0.4  | 1.0  | $\mu\text{s}$ |
| Reset Time of Protection      | $t_{RESET}$ | Between start and cancel (under input sign "L") | 1    | —    | 2    | Ms            |
| Fault Output Current          | $I_{FO}$    |   | —    | 5    | —    | mA            |
| SC Detect Voltage             | $V_{SC}$    |   | 15   | —    | —    | Volts         |

Information presented is based upon manufacturers testing and projected capabilities.  
 This information is subject to change without notice.  
 The manufacturer makes no claim as to the suitability of use, reliability, capability,  
 or future availability of this product.

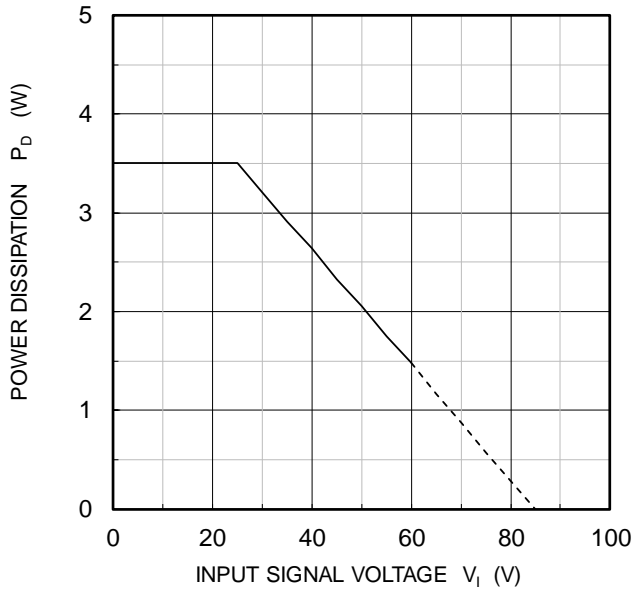
**$t_{PLH}$ ,  $t_{PHL}$  -  $T_a$  CHARACTERISTICS  
(TYPICAL)**



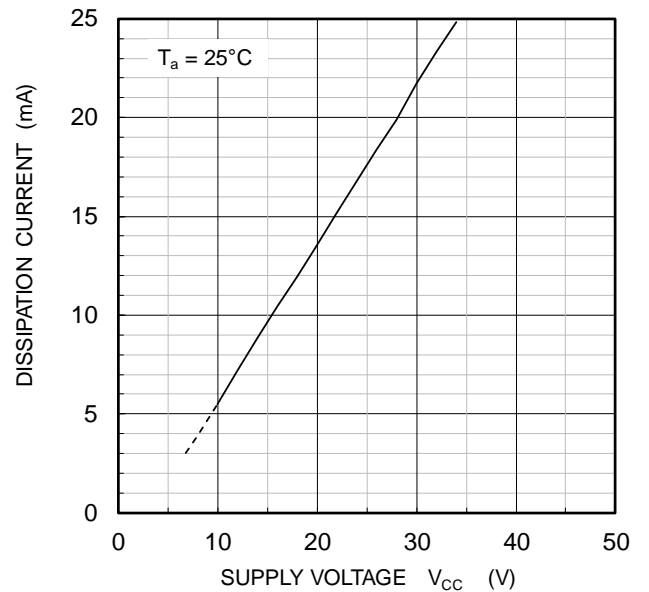
**$t_{PLH}$ ,  $t_{PHL}$  -  $V_i$  CHARACTERISTICS  
(TYPICAL)**



**POWER DISSIPATION VS.  
AMBIENT TEMPERATURE  
(MAXIMUM RATING)**



**DISSIPATION CURRENT VS.  
SUPPLY VOLTAGE  
INPUT SIGNAL "L" (TYPICAL)**



## Looking for pricing, stock, or lifecycle information?

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