

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/ μs , Min. 15 kV/ μs)
- 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°C unless otherwise specified

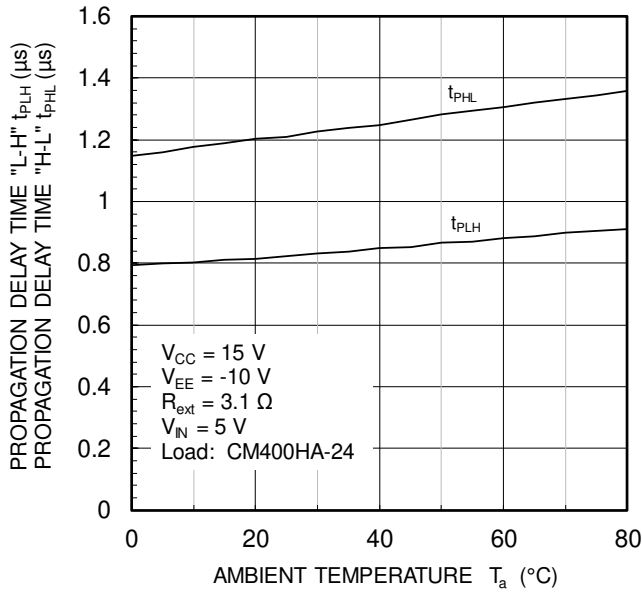
Item	Symbol	Test Conditions	Limit	Units
Supply Voltage*	V_{CC}	DC	18	Volts
	V_{EE}	DC	-15	Volts
Input Voltage	V_I		-1 ~ 7	Volts
Output Voltage	V_O	Output Voltage "H"	V_{CC}	Volts
Output Current	I_{OHP}	Pulse Width 2 μs , $f = 20\text{ kHz}$	-5	Amperes
	I_{OLP}	Pulse Width 2 μs , $f = 20\text{ kHz}$	5	Amperes
Output Current	I_{OH}	$f = 20\text{ kHz}$, 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

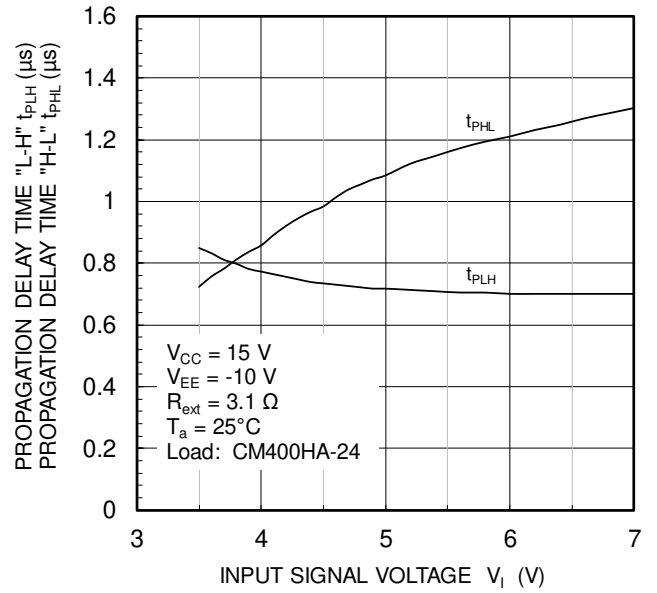
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Supply Voltage	V_{CC}	Recommended Range	14	15	—	Volts
	V_{EE}	Recommended Range	-7	—	-10	Volts
Pull-up Voltage on Input Side	V_{IN}	Recommended Range	4.75	5.00	5.25	Volts
Switching Frequency	f	Recommended Range	—	—	20	kHz
"H" Input Current	I_H	$V_{IN} = 5\text{V}$	—	16	—	mA
Gate Resistance	R_G	Recommended Range	2	—	—	Ω
"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}	$I_H = 16\text{ mA}$	—	1.0	1.5	μs
"L-H" Rise Time	t_r	$I_H = 16\text{ mA}$	—	0.6	1.0	μs
"H-L" Propagation Time	t_{PHL}	$I_H = 16\text{ mA}$	—	1.0	1.5	μs
"H-L" Rise Time	t_f	$I_H = 16\text{ mA}$	—	0.4	1.0	μs
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.

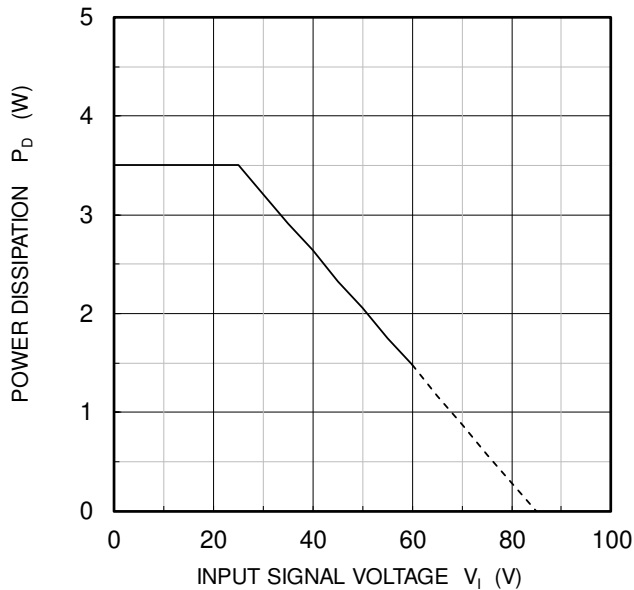
**t_{PLH} , t_{PHL} - T_a CHARACTERISTICS
(TYPICAL)**



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



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



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

