

M57962L

HYBRID IC FOR DRIVING IGBT MODULES

DESCRIPTION

M57962L 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.

Recommended modules :

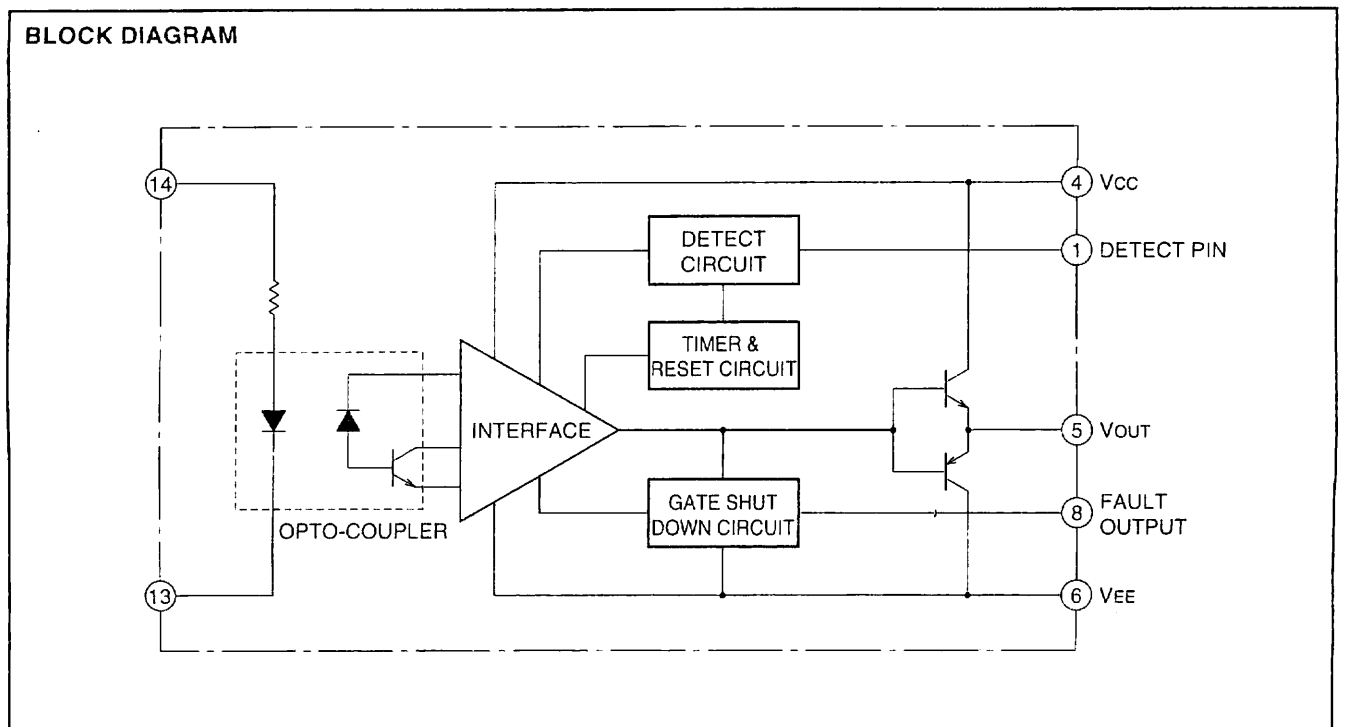
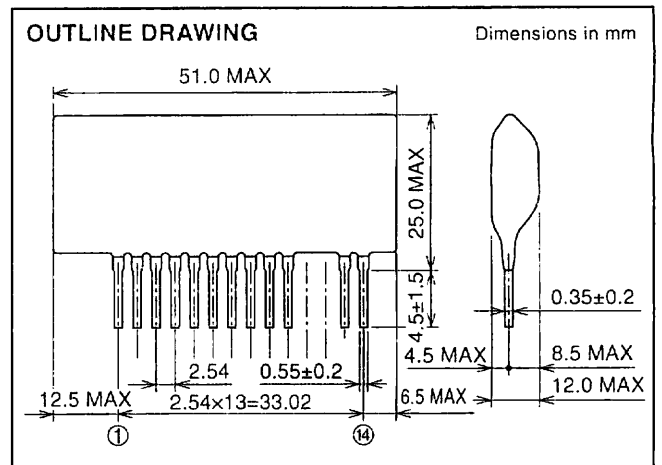
- VCES = 600V series upto 400A class
- VCES = 1200V series upto 400A class

FEATURES

- Electrical isolation between input and output with opto-coupler ($V_{iso} = 2500V_{rms}$ for 1 minute)
- Two supply driver topology
- Built-in short circuit protection circuit (With a pin for fault out)
- TTL compatible input interface

APPLICATION

To drive IGBT modules for inverter or AC servo systems application.



MAXIMUM RATINGS (Ta = 25°C, unless otherwise noted)

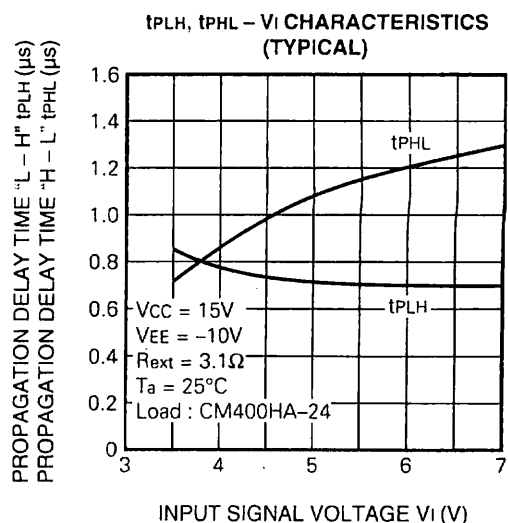
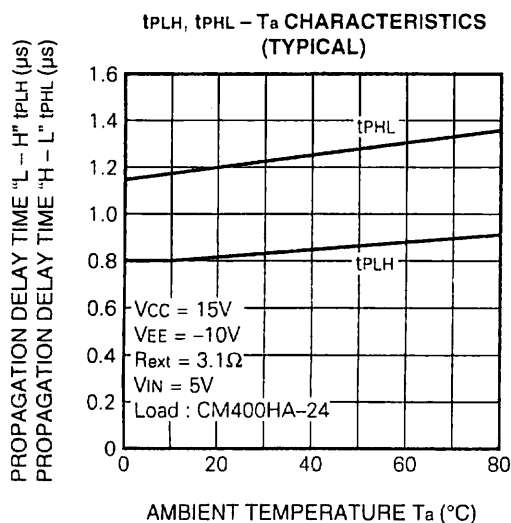
Symbol	Parameter	Conditions	Ratings	Unit
VCC	Supply voltage	DC	18	V
VEE			-15	V
VI	Input voltage	Applied between : ⑭ - ⑬	-1 ~ +7	V
VO	Output voltage	Output voltage "H"	VCC	V
IOHP	Output current	Pulse width 2μs, f = 20kHz	-5	A
IOLP			5	A
Viso	Isolation voltage	Sinewave voltage 60Hz, 1min.	2500	Vrms
Tc	Case temperature		85	°C
Topr	Operating temperature		-20 ~ +60	°C
Tstg	Storage temperature		* -25 ~ +100	°C
IOH	Output current	DC	0.5	A
Ifo	Fault output current	Applied ⑧ pin	20	mA
VR1	Input voltage	Applied ① pin	50	V

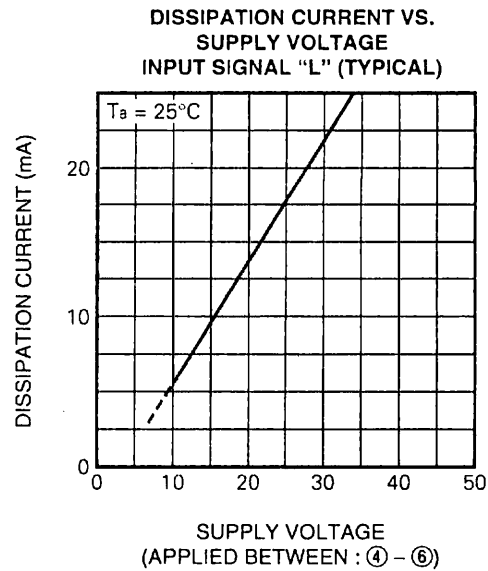
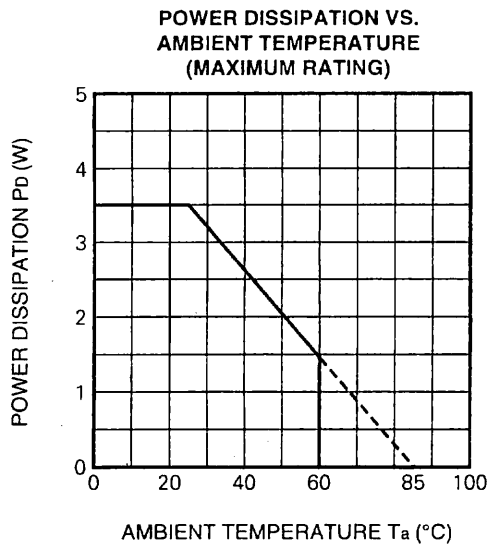
* Differs from H/C condition

ELECTRICAL CHARACTERISTICS (Ta = 25°C, VCC = 15V, VEE = -10V, unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
VCC	Supply voltage	Recommended range	14	15	—	V
VEE			-7	—	-10	V
VIN	Pull-up voltage on input side	Recommended range	4.75	5	5.25	V
IiH	"H" input current	VIN = 5V, R = 185Ω	—	16	—	mA
VOH	"H" output voltage		13	14	—	V
VOL	"L" output voltage		-8	-9	—	V
tPLH	"L - H" propagation delay time	VI = 0 → 4V, Tj = 85°C	—	1	1.5	μs
tr	"L - H" rise time	VI = 0 → 4V, Tj = 85°C	—	0.6	1	μs
tPHL	"H - L" propagation delay time	VI = 5 → 0V, Tj = 85°C	—	1	1.5	μs
tf	"H - L" fall time	VI = 5 → 0V, Tj = 85°C	—	0.4	1	μs
TRESET	Reset time of protection	Between start and cancel (under input sign "L")	1	—	2	ms
Ifo	Fault output current	R = 4.7kΩ	—	5	—	mA
Vsc	SC detect voltage		15	—	—	V

PERFORMANCE CURVES

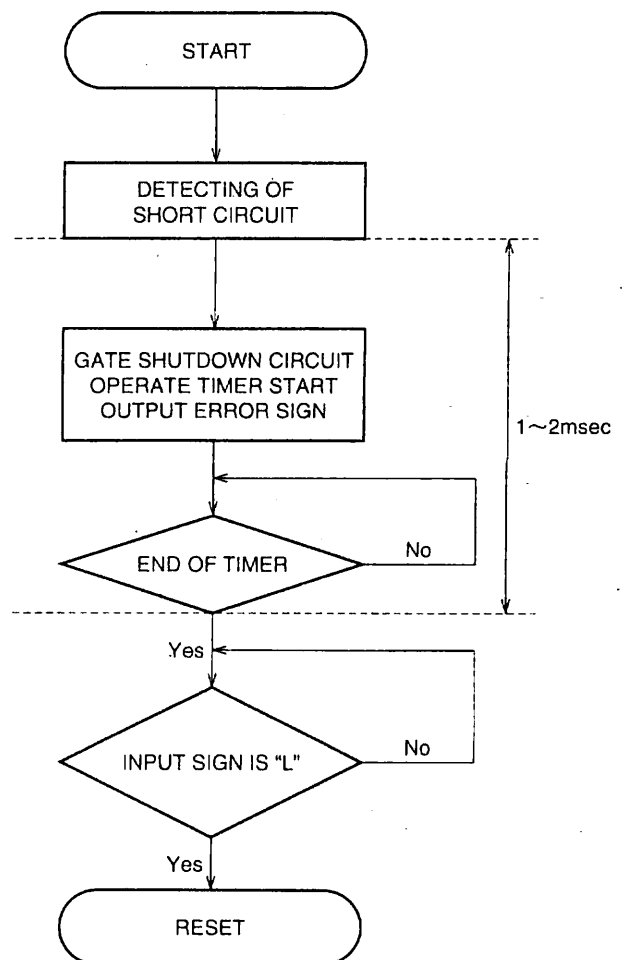




OPERATION OF PROTECTION CIRCUIT

- (1) In case the gate voltage is "H" and the collector voltage is high, this hybrid IC will recognize the circuit as short circuit and immediately reduce the gate voltage. Besides, put out an error sign ("L") which inform that protection circuit is operating at the same time from ⑧ pin.
- (2) The protection circuit reset and resorted to ordinary condition if input sign is "L" when the premised 1~2msec passed. ("L" period needs upto 5μs)

OPERATION FLOW ON DETECTING SHORT CIRCUIT



* "L" output voltage with protection circuit operating is about VEE+2V.

