

# M57915L

HYBRID IC FOR DRIVING TRANSISTOR MODULES

## DESCRIPTION

M57915L is a Hybrid Integrated Circuit designed for driving Transistor Modules QM10XX, QM20XX, etc., in an Inverter application. This device operates as an isolation amplifier for Transistor Modules due to the electrical isolation between the input and output circuits with a opto-coupler, as well as its driving capability which only requires single power supply.

## FEATURES

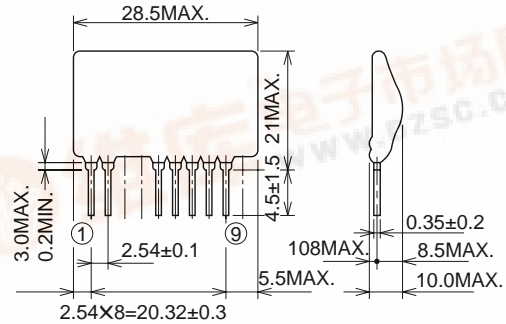
- Electrical isolation between input and output with integrated opto-coupler.  $V_{iso}=2500V_{rms}$
- Applicable with single power supply (7 ~ 9V)
- Applicable with TTL input

## APPLICATION

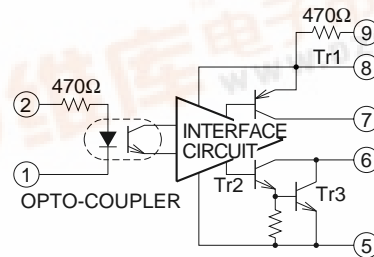
To drive Transistor Modules for Inverter applications

## OUTLINE DRAWING

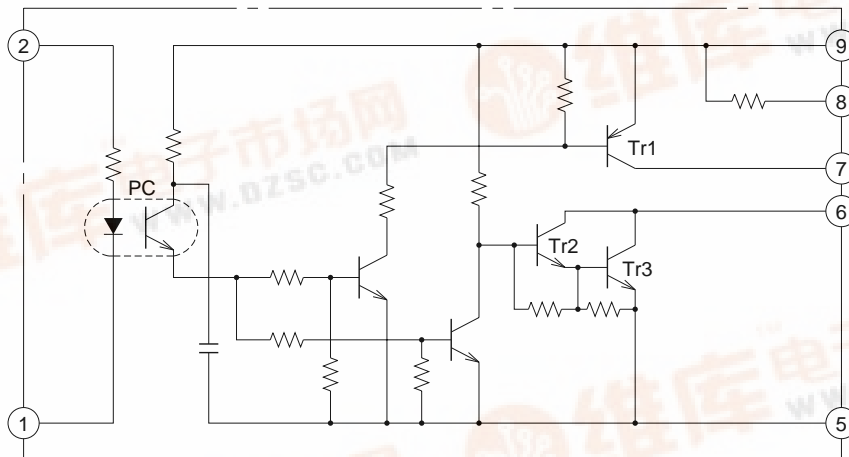
Dimensions in mm



## BLOCK DIAGRAM



## CIRCUIT DIAGRAM



**M57915L**

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**ABSOLUTE MAXIMUM RATINGS** ( $T_a = -20 \sim +70^\circ\text{C}$ , unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V <sub>CC</sub>	Supply voltage	DC	14	V
V <sub>I</sub>	Input voltage	Between terminals ① and ②	-1 ~ 7	V
I <sub>OH</sub>	Output current		-1	A
I <sub>OLP</sub>		Pulse width 10 $\mu$ s, Freq. 2kHz, peak value	3	A
V <sub>iso</sub>	Isolation voltage	Sinewave voltage 60Hz/min. $T_a = 25^\circ\text{C}$	2500	V <sub>rms</sub>
T <sub>j</sub>	Junction temperature		100	$^\circ\text{C}$
T <sub>opg</sub>	Operating temperature		-20 ~ +70	$^\circ\text{C}$
T <sub>stg</sub>	Storage temperature		-25 ~ +100	$^\circ\text{C}$

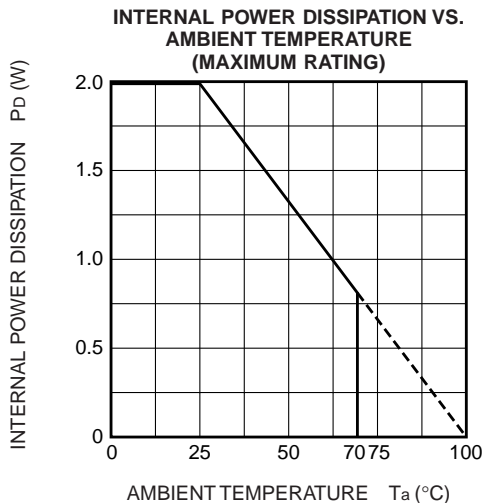
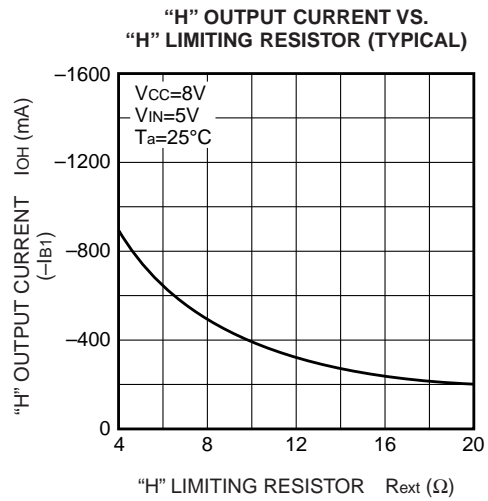
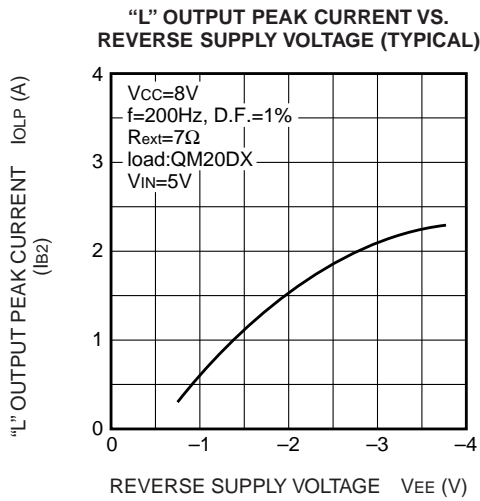
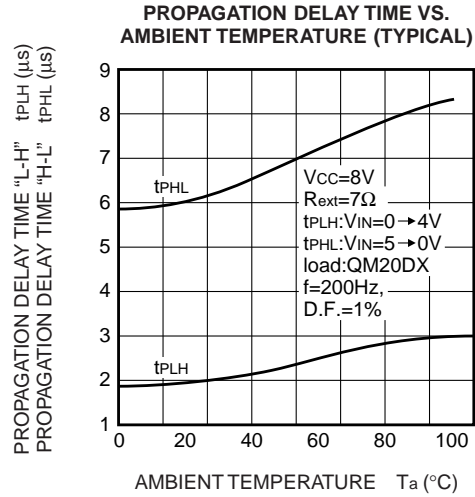
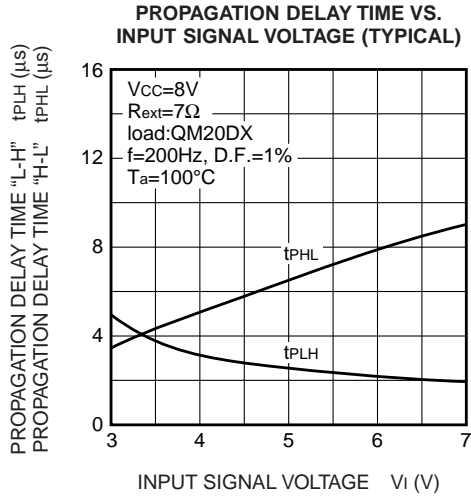
**ELECTRICAL CHARACTERISTICS** ( $T_a = 25^\circ\text{C}$ , V<sub>CC</sub> = 8V, unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I <sub>IH</sub>	"H" input current	V <sub>I</sub> = 5V	-	7	-	mA
I <sub>OH</sub>	"H" output current	R <sub>ext</sub> = 7 $\Omega$	-	-0.5	-	A
I <sub>OLP</sub>	"L" output peak current	C <sub>ext</sub> = 47 $\mu$ F	-	1	-	A
P <sub>D</sub>	Internal power dissipation	I <sub>OH</sub> = -0.5A, I <sub>OLP</sub> = 1A, f = 2kHz, D.F. = 50%	-	0.8	-	W
t <sub>PLH</sub>	"L-H" propagation delay time	V <sub>I</sub> = 0 $\rightarrow$ 4V, T <sub>j</sub> = 100 $^\circ\text{C}$	-	5	10	$\mu$ s
t <sub>PHL</sub>	"H-L" propagation delay time	V <sub>I</sub> = 5 $\rightarrow$ 0V, T <sub>j</sub> = 100 $^\circ\text{C}$	-	8	15	$\mu$ s

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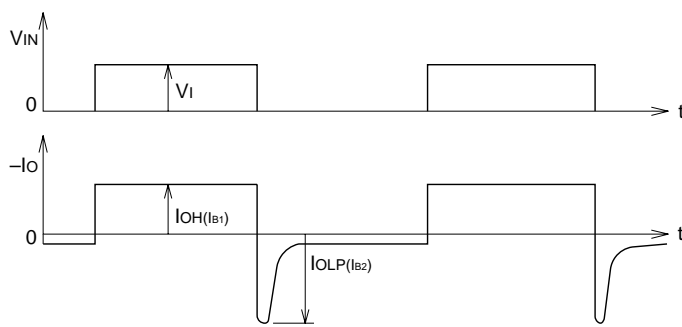
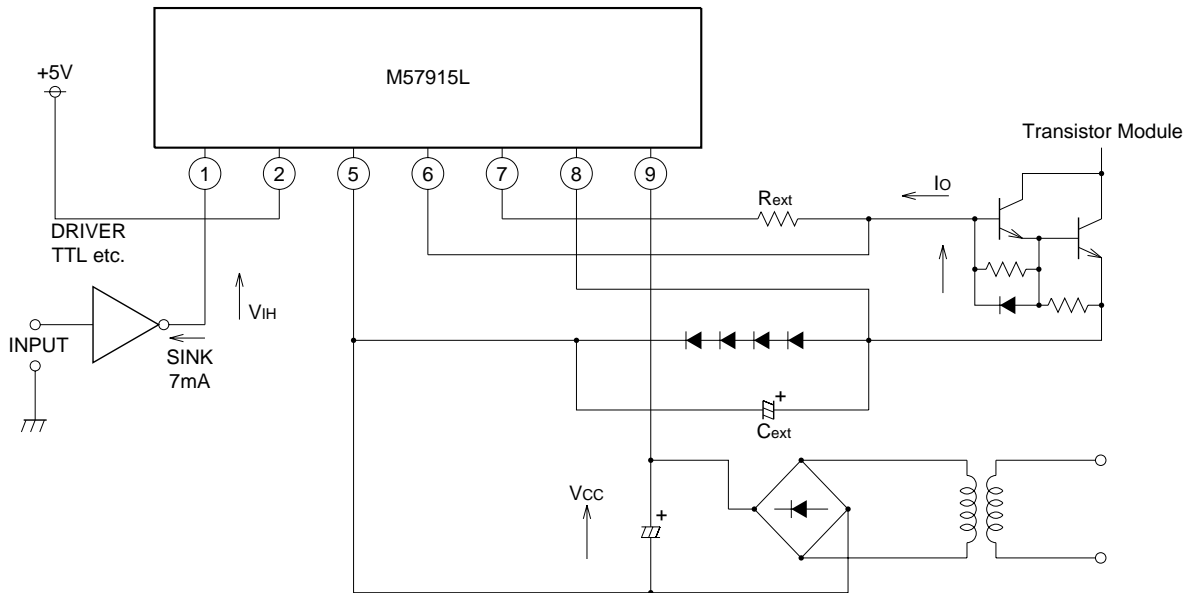
## PERFORMANCE CURVES



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## TEST CIRCUIT AND APPLICATION CIRCUIT EXAMPLE



**Note:** IOH and IOLP correspond to base forward current IB1 and base reverse current IB2 of the transistor module to be driven respectively.