

M57916L

HYBRID IC FOR DRIVING TRANSISTOR MODULES

DESCRIPTION

M57916L 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, and includes two independent circuits.

FEATURES

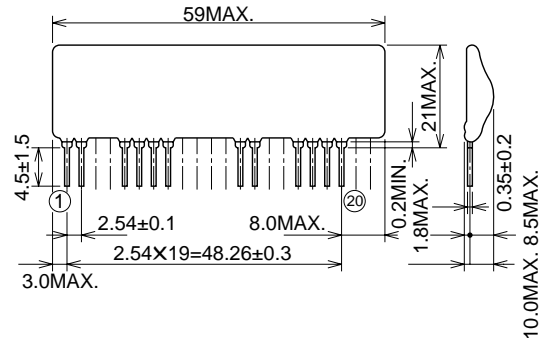
- Two independent circuits are included.
Isolation voltage: $V_{iso}=2500V_{rms}$
- Each circuit can be driven by single power supply (7 ~ 9V)

APPLICATION

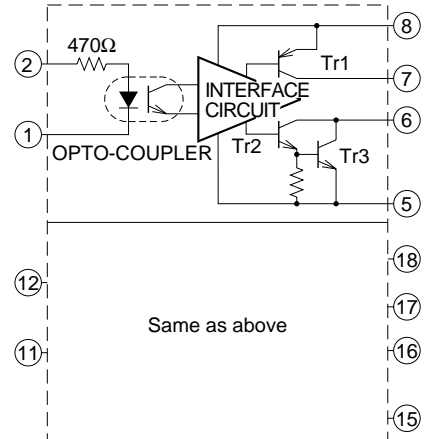
To drive Transistor Modules for Inverter applications

OUTLINE DRAWING

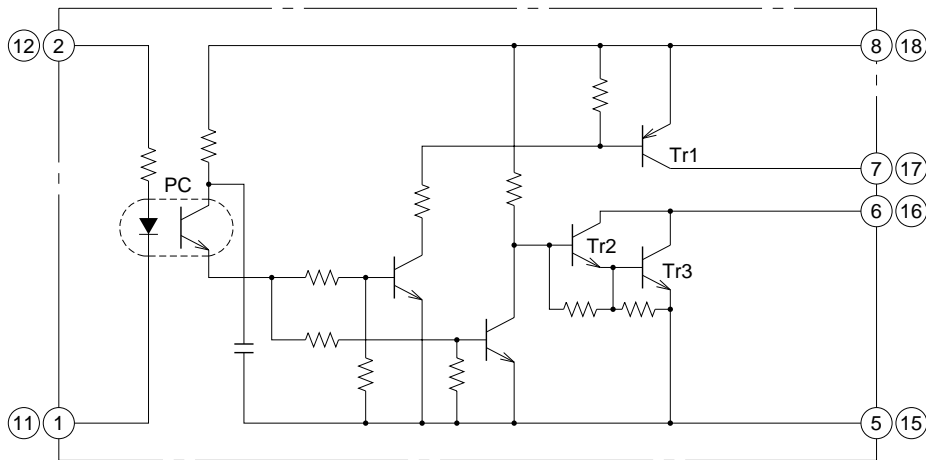
Dimensions in mm



BLOCK DIAGRAM



CIRCUIT DIAGRAM



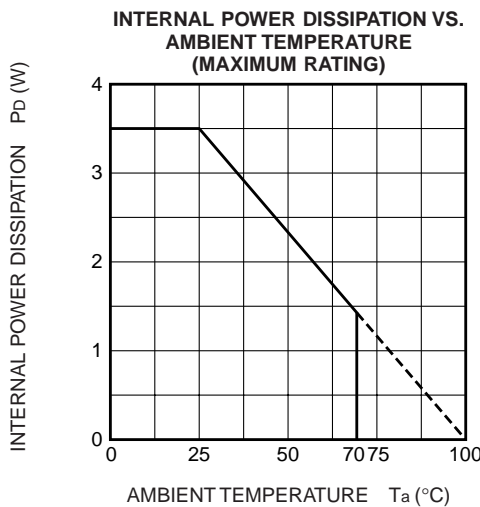
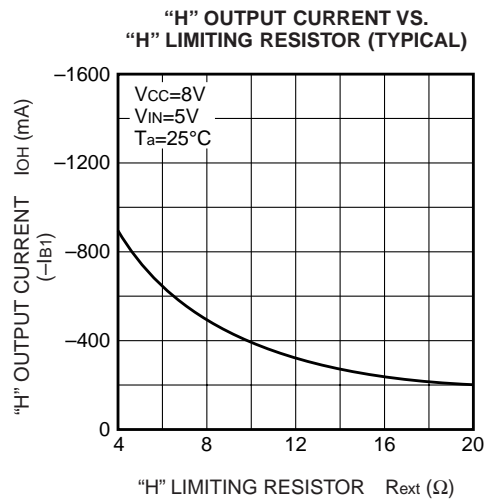
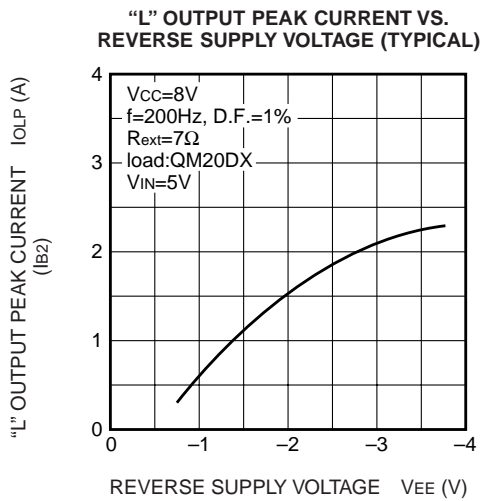
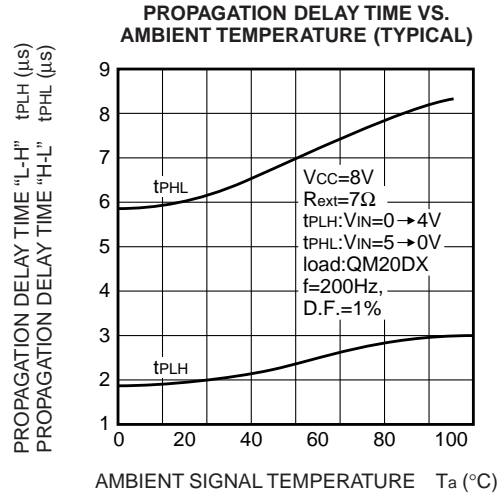
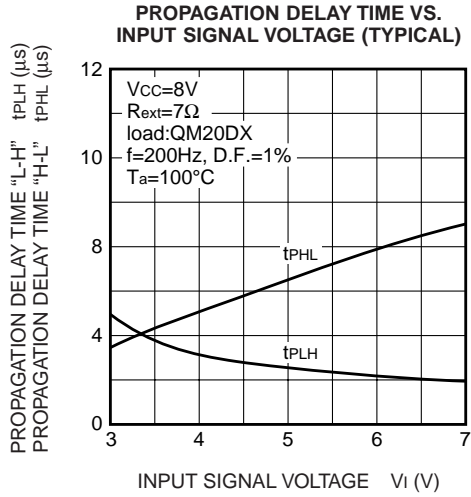
ABSOLUTE MAXIMUM RATINGS ($T_a = -20 \sim +70^\circ\text{C}$, unless otherwise noted)

| Symbol | Parameter | Conditions | Ratings | Unit |
|--------|--|---|------------|------------------|
| VCC | Supply voltage | DC | 14 | V |
| VI | Input voltage | Between terminals ① and ② | -1 ~ 7 | V |
| IOH | Output current | Pulse width 10 μ s, Freq. 2kHz, peak value | -1 | A |
| IOLP | | | 3 | A |
| Viso | Isolation voltage between two currents | Sinewave voltage 60Hz/min. $T_a = 25^\circ\text{C}$ | 2500 | Vrms |
| Tj | Junction temperature | | 100 | $^\circ\text{C}$ |
| Topg | Operating temperature | | -20 ~ +70 | $^\circ\text{C}$ |
| Tstg | Storage temperature | | -25 ~ +100 | $^\circ\text{C}$ |

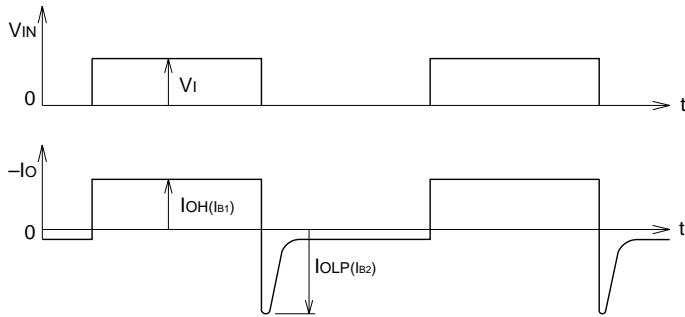
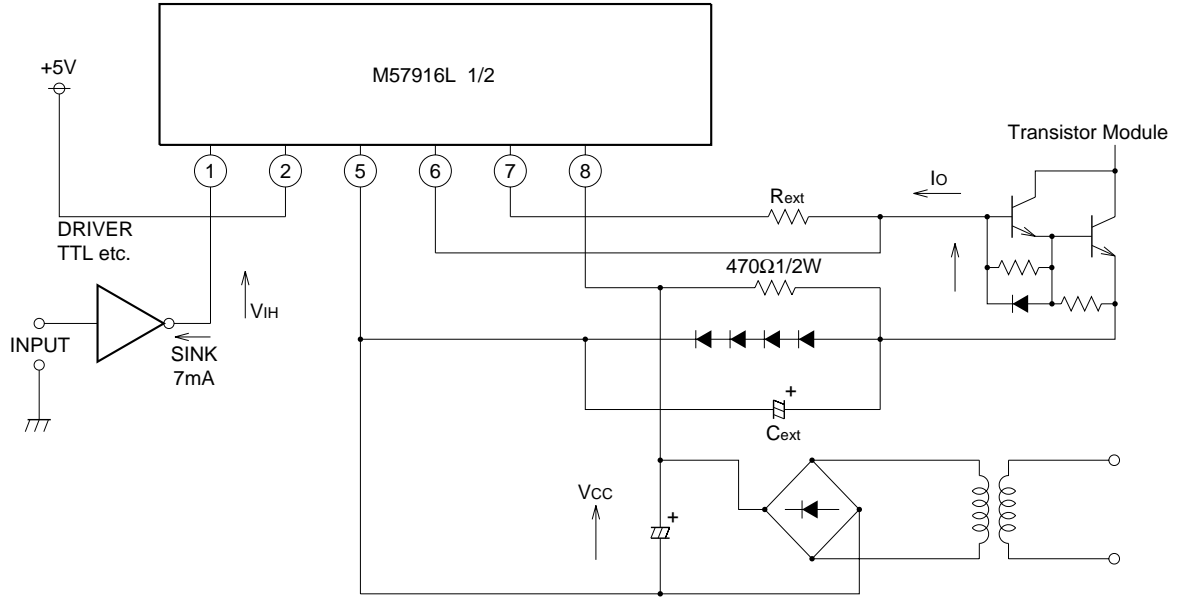
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$, $V_{CC} = 8\text{V}$, unless otherwise noted)

| Symbol | Parameter | Test conditions | Limits | | | Unit |
|--------|------------------------------|--|--------|------|------|---------------|
| | | | Min. | Typ. | Max. | |
| IiH | "H" input current | $V_I = 5\text{V}$ | - | 7 | - | mA |
| IOH | "H" output current | $R_{ext} = 7\Omega$ | - | -0.5 | - | A |
| IOLP | "L" output peak current | $C_{ext} = 47\mu\text{F}$ | - | 1 | - | A |
| PD | Internal power dissipation | $I_{OH} = -0.5\text{A}$, $I_{OLP} = 1\text{A}$, $f = 2\text{kHz}$, D.F. = 50% | - | 1.25 | - | W |
| tPLH | "L-H" propagation delay time | $V_I = 0 \rightarrow 4\text{V}$, $T_j = 100^\circ\text{C}$ | - | 5 | 10 | μs |
| tPHL | "H-L" propagation delay time | $V_I = 5 \rightarrow 0\text{V}$, $T_j = 100^\circ\text{C}$ | - | 8 | 15 | μs |

PERFORMANCE CURVES



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.