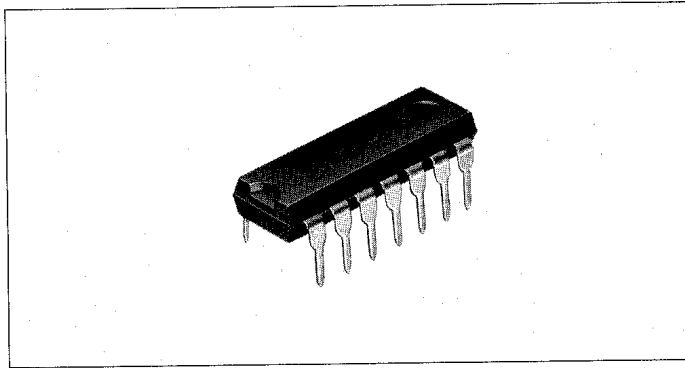


# Large Current Driver BA664



## Dimensions (mm)

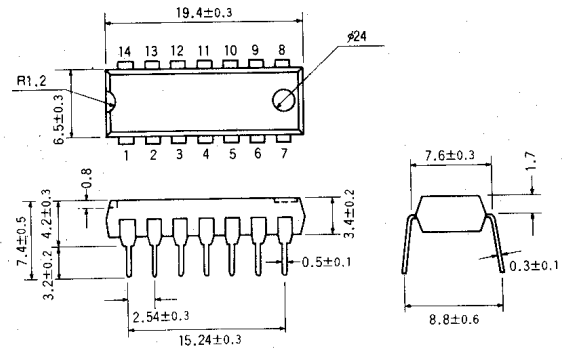


Fig. 1

The BA664 is a monolithic integrated circuit consisting of six Darlington-connected high-current driver circuits in a single package. These circuits have built-in clamping diodes and input resistors, and are designed to operate with a minimum of externally connected components. The device is housed in a 14-pin DIP package with inputs and outputs grouped for simplified wiring.

## Features

1. Six circuits in a single package
2. High maximum drive current of 100mA
3. Inputs and outputs are grouped for simplified wiring layout.
4. Directly connectable to MOS LSI devices
5. High current gain
6. High withstanding voltage (38V for the inputs and 24V for outputs)
7. Built-in clamping diodes have been provided to enable the drive of inductive loads.

## Block Diagram

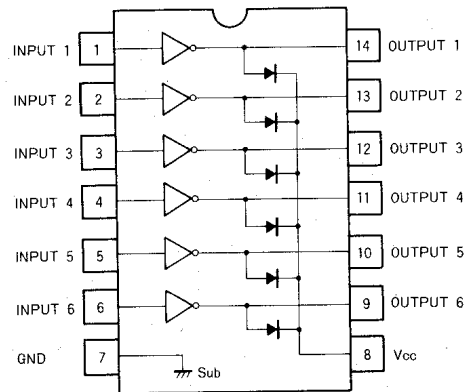


Fig. 2

## Applications

1. Hammer solenoid drivers
2. Relay drivers
3. LED Drivers
4. Small motor drivers
5. Lamps

## Circuit Diagram

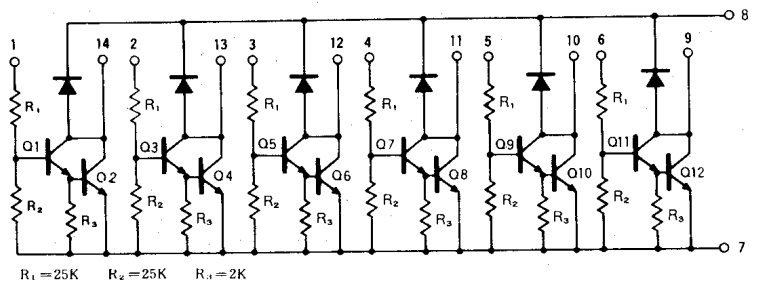


Fig. 3

## Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Limits	Unit
Supply voltage	$V_{CC}$	24	V
Collector current	$I_C$	100	mA
Input pin withstanding voltage (+)	$V_+$	38	V
Input pin withstanding voltage (-)	$V_-$	-0.5	V
Power dissipation	$P_d$	550*	mW
Operating temperature	$T_{opr}$	-25~+75	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55~+125	$^\circ\text{C}$

\* Derating is done at 5.5mW/ $^\circ\text{C}$  for operation above  $T_a = 25^\circ\text{C}$ .

## Electrical Characteristics (T<sub>a</sub>)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions	Test circuit
Supply voltage (output voltage)	V <sub>CC</sub>	—	—	20	V		—
Output leakage current	I <sub>L</sub>	—	—	100	μA	V <sub>c</sub> = 20V, V <sub>IN</sub> = 0V	Fig. 7
Collector saturation voltage	V <sub>CE(sat)</sub>	—	1.4	2.2	V	I <sub>OUT</sub> = 75mA, V <sub>in</sub> = 17V	Fig. 10
Input current	I <sub>in</sub>	—	1.6	3.2	mA	V <sub>in</sub> = 35V, I <sub>OUT</sub> = 0mA	Fig. 8
Diode leakage current	I <sub>D</sub>	—	—	100	μA	V <sub>R</sub> = 20V	Fig. 9
Diode forward voltage	V <sub>F</sub>	—	1.2	—	V	I <sub>F</sub> = 75mA	Fig. 11

## Electrical Characteristic Curves

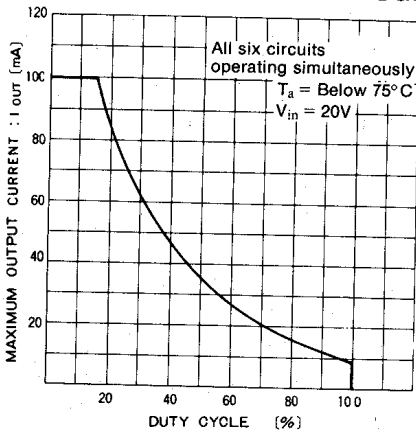


Fig. 4 Maximum output current vs. duty cycle

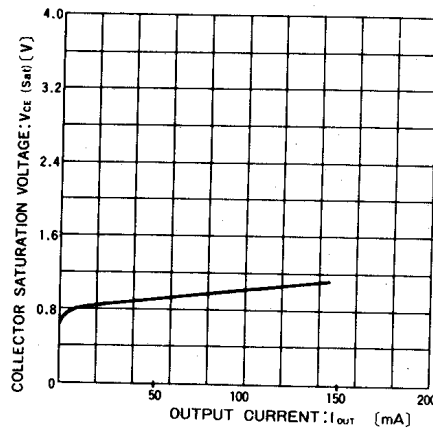


Fig. 5 Collector saturation voltage vs. output current

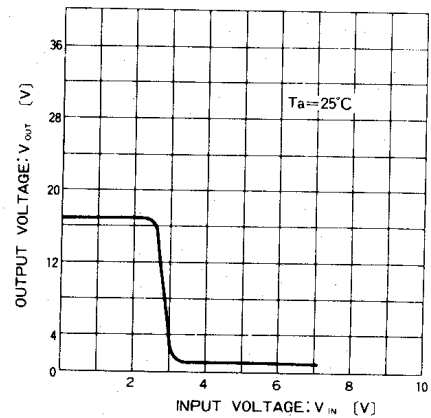


Fig. 6 Output voltage vs. input voltage

## Test Circuits

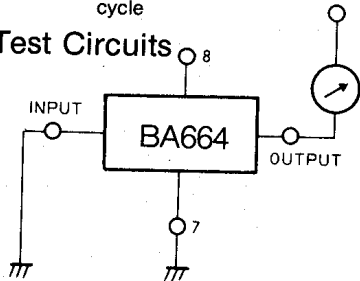


Fig. 7

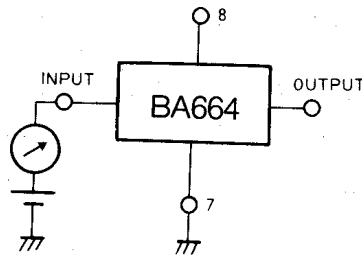


Fig. 8

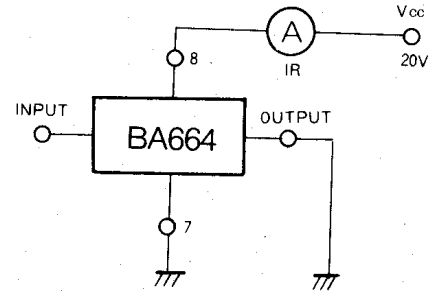


Fig. 9

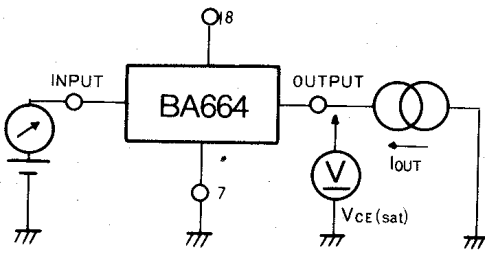


Fig. 10

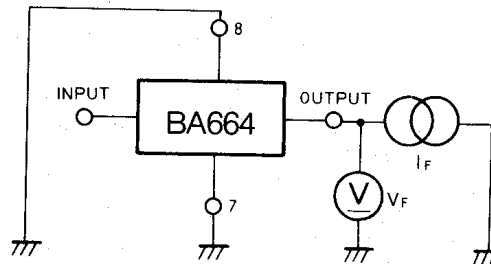


Fig. 11

## Application Example

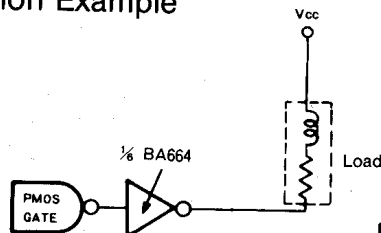


Fig. 12

The connection as shown in Fig. 12 should be used for driving inductive loads. (Pin 8 is connected to V<sub>CC</sub>)