Ordering number : EN 1042F

Monolithic Digital IC

SANYO No.1042F

# LB1211 Series

## General-Purpose Transistor Array

The LB1211 series are general-purpose transistor arrays containing 7 channels (5 channels : LB1217 only). They are especially suited for driving LEDs, lamps, small-sized relays, etc. The transistors can be standardized.

### Features

- Common-emitter 7 channels. — LB1211,1212,1213,1214
- Common-collector 7 channels. — LB1215,1216
- Independent 5 channels — LB1217
- Built-in base current limiting resistors. — LB1212,1213,1214,1216
- Built-in Zener diodes for level shift. — LB1212
- Capable of being direct driven with TTL, CMOS, PMOS, etc.
- Wide operating voltage and temperature ranges

### Absolute Maximum Ratings at Ta = 25°C

| | | | | unit |
|---|---|---|---|---|
| Output Supply Voltage | $V_{OUT}$ | LB1212/13/14 only | −0.5 to +50 | V |
| Collector to Emitter Voltage | $V_{CEO}$ | LB1211/15/16/17 only | 35 | V |
| Collector to Base Voltage | $V_{CBO}$ | LB1211/15/16/17 only | 50 | V |
| Output Current | $I_{OUT}$ | | 200 | mA |
| Input Voltage | $V_{IN}1$ | LB1212/13/14 only | −0.5 to +30 | V |
| | $V_{IN}2$ | LB1216 only | −0.5 to +45 | V |
| Input Current | $I_{IN}$ | LB1211/15/17 only | 25 | mA |
| GND Pin Current | $I_{GND}$ | | 500 | mA |
| Allowable Power Dissipation | Pd max | | 960 | mW |
| Operating Temperature | Topr | | −20 to +75 | °C |
| Storage Temperature | Tstg | | −40 to +150 | °C |

### Electrical Characteristics at Ta = 25°C

| | | | min | typ | max | unit |
|---|---|---|---|---|---|---|
| Output Voltage | $V_{OUT}1$ | $I_{IN}$ = 1mA, $I_{OUT}$ = 10mA | | | 0.2 | V |
| | $V_{OUT}2$ | $I_{IN}$ = 2mA, $I_{OUT}$ = 100mA LB1212/13/14 only | | | 0.8 | V |
| | $V_{OUT}3$ | $I_{IN}$ = 3mA, $I_{OUT}$ = 100mA LB1211/15/16/17 only | | | 0.8 | V |
| Output Leakage Current | $I_{OFF}$ | $V_{IN}$ = 0V, $V_{OUT}$ = 25V | | | 10 | μA |
| Output Sustain Voltage | $V_{OUT}$(sus) | $I_{OUT}$ = 100mA | 35 | | | V |
| DC Current Gain | $h_{FE}1$ | $V_{OUT}$ = 10V, $I_{OUT}$ = 10mA LB1212/13/14 only | 50 | | 500 | |
| | $h_{FE}2$ | $V_{OUT}$ = 10V, $I_{OUT}$ = 10mA LB1211/15/16/17 only | 70 | | 500 | |

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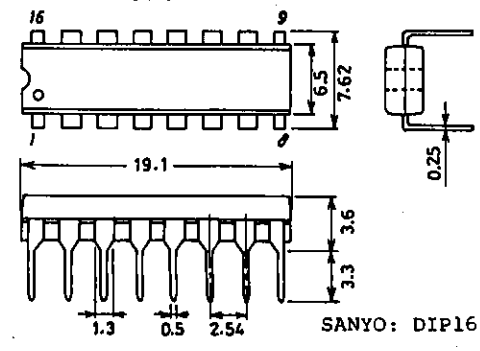
Package Dimensions 3064
(unit : mm)



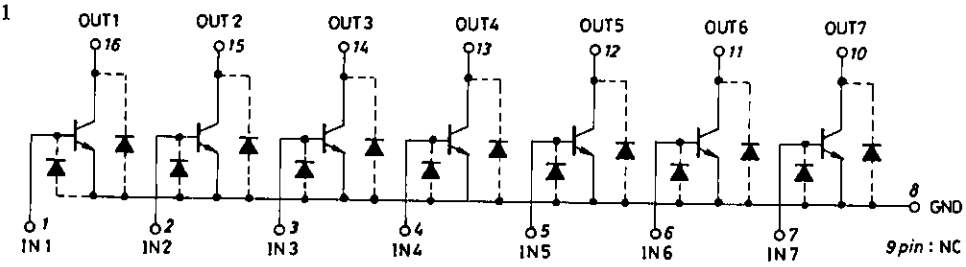

SANYO: DIP16

Continued from preceding page.

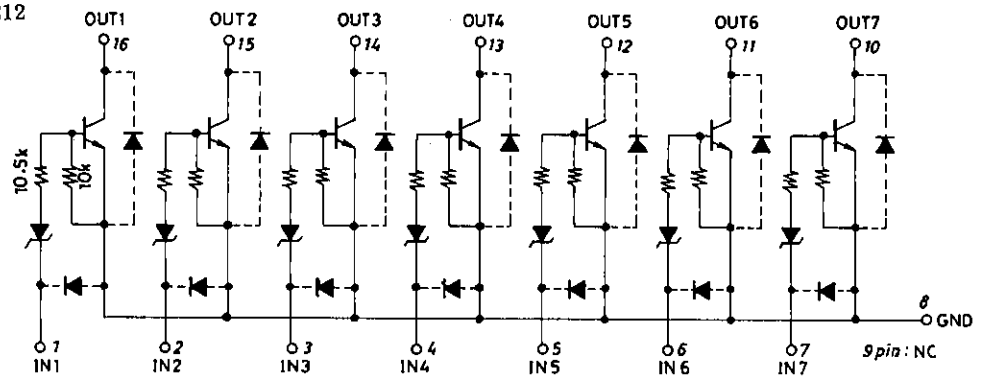
| | | | min | typ | max | unit |
|---|---|---|---|---|---|---|
| Input Voltage | $V_{IN(on)}$ | $I_{IN}$ = 1mA, $I_{OUT}$ = 10mA LB1211/15/16/17 only | 0.4 | | | V |
| Turn-ON Time | $t_{ON}$ | Refer to Test Circuit. | | 50 | | ns |
| Turn-OFF Time | $t_{OFF}$ | Refer to Test Circuit. | | 200 | | ns |

**Equivalent Circuit**

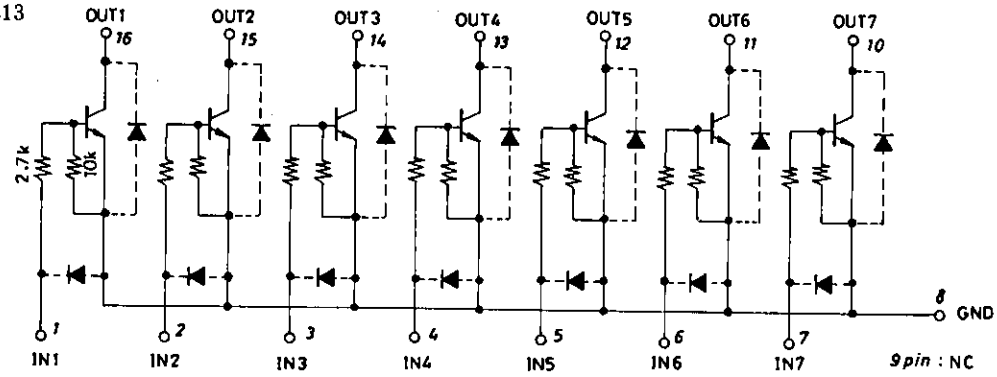
LB1211



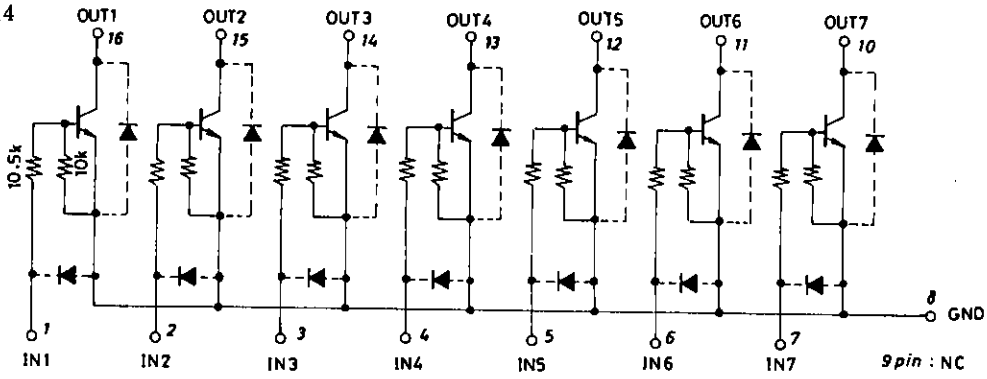

LB1212




LB1213

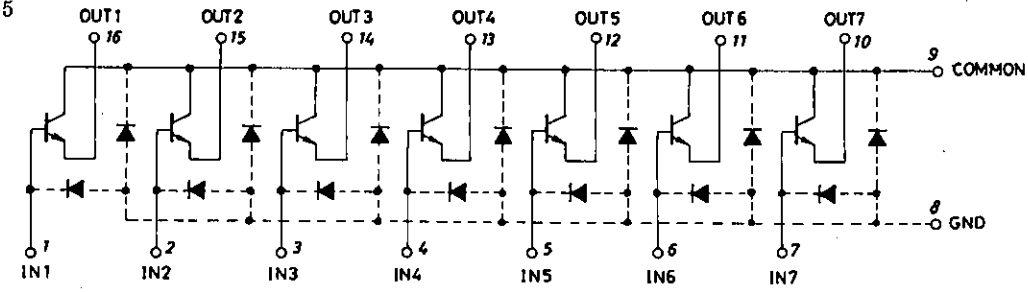



LB1214

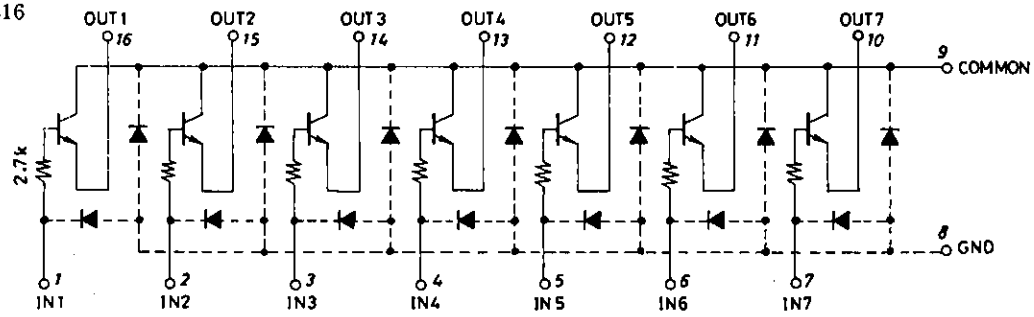



Unit (resistance : Ω)

LB1215

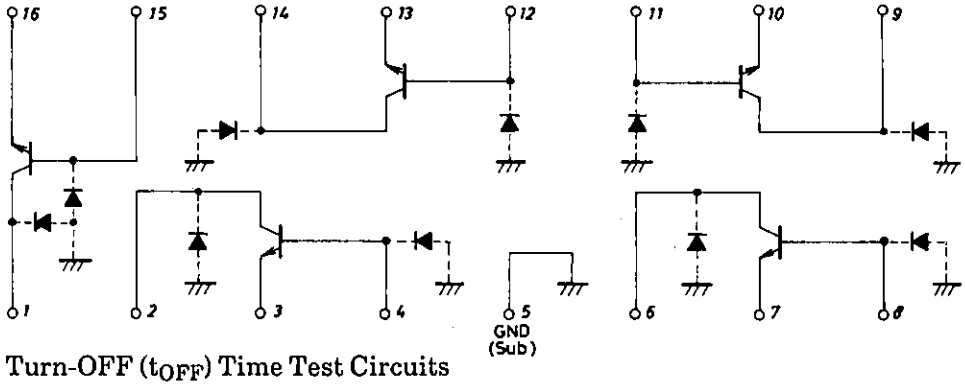



LB1216



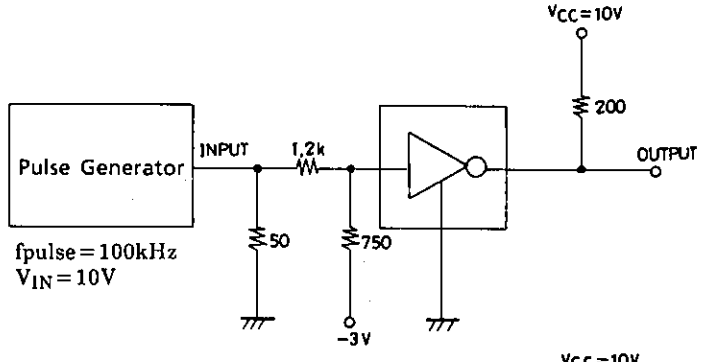

Unit (resistance : Ω)

LB1217



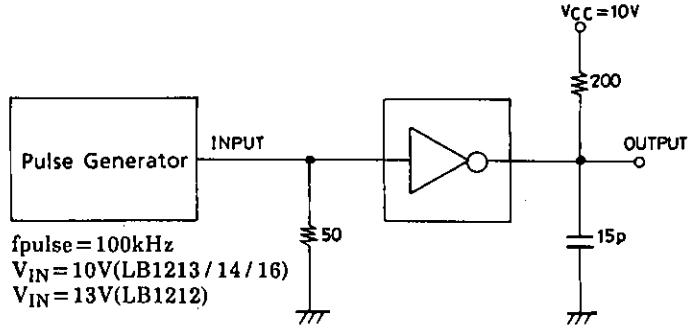

Turn-ON ($t_{ON}$), Turn-OFF ($t_{OFF}$) Time Test Circuits

LB1211 / 15 / 17




fpulse = 100kHz
$V_{IN}$ = 10V

LB1212 / 13 / 14 / 16




fpulse = 100kHz
$V_{IN}$ = 10V(LB1213 / 14 / 16)
$V_{IN}$ = 13V(LB1212)

Unit (resistance: Ω, capacitance: F)

## Input/Output Waveforms