

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

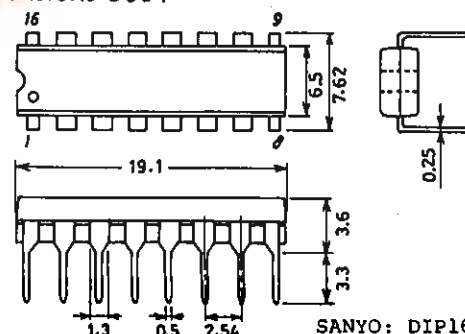
**Absolute Maximum Ratings at Ta = 25°C**

			unit
Output Supply Voltage	V <sub>OUT</sub>	LB1212/13/14 only	-0.5 to +50 V
Collector to Emitter Voltage	V <sub>CEO</sub>	LB1211/15/16/17 only	35 V
Collector to Base Voltage	V <sub>CBO</sub>	LB1211/15/16/17 only	50 V
Output Current	I <sub>OUT</sub>		200 mA
Input Voltage	V <sub>IN1</sub>	LB1212/13/14 only	-0.5 to +30 V
	V <sub>IN2</sub>	LB1216 only	-0.5 to +45 V
Input Current	I <sub>IN</sub>	LB1211/15/17 only	25 mA
GND Pin Current	I <sub>GND</sub>		500 mA
Allowable Power Dissipation	P <sub>d max</sub>		960 mW
Operating Temperature	T <sub>opr</sub>		-20 to +75 °C
Storage Temperature	T <sub>stg</sub>		-40 to +150 °C

**Electrical Characteristics at Ta = 25°C**

			min	typ	max	unit
Output Voltage	V <sub>OUT1</sub>	I <sub>IN</sub> = 1mA, I <sub>OUT</sub> = 10mA			0.2	V
	V <sub>OUT2</sub>	I <sub>IN</sub> = 2mA, I <sub>OUT</sub> = 100mA			0.8	V
	V <sub>OUT3</sub>	LB1212/13/14 only				
		I <sub>IN</sub> = 3mA, I <sub>OUT</sub> = 100mA			0.8	V
		LB1211/15/16/17 only				
Output Leakage Current	I <sub>OFF</sub>	V <sub>IN</sub> = 0V, V <sub>OUT</sub> = 25V			10	μA
Output Sustain Voltage	V <sub>OUT (sus)</sub>	I <sub>OUT</sub> = 100mA	35			V
DC Current Gain	h <sub>FE1</sub>	V <sub>OUT</sub> = 10V, I <sub>OUT</sub> = 10mA	50		500	
	h <sub>FE2</sub>	LB1212/13/14 only				
		V <sub>OUT</sub> = 10V, I <sub>OUT</sub> = 10mA	70		500	
		LB1211/15/16/17 only				

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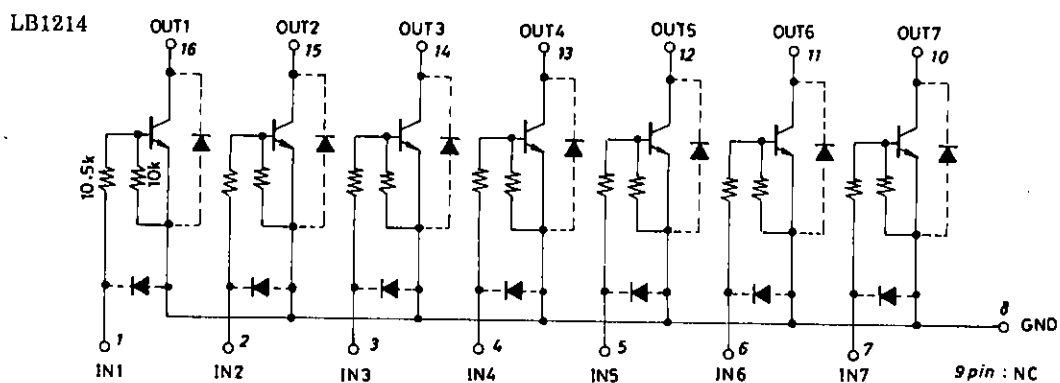
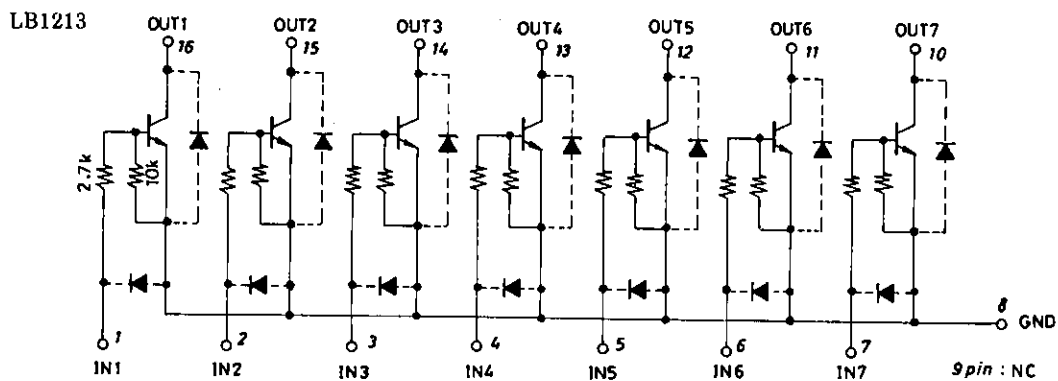
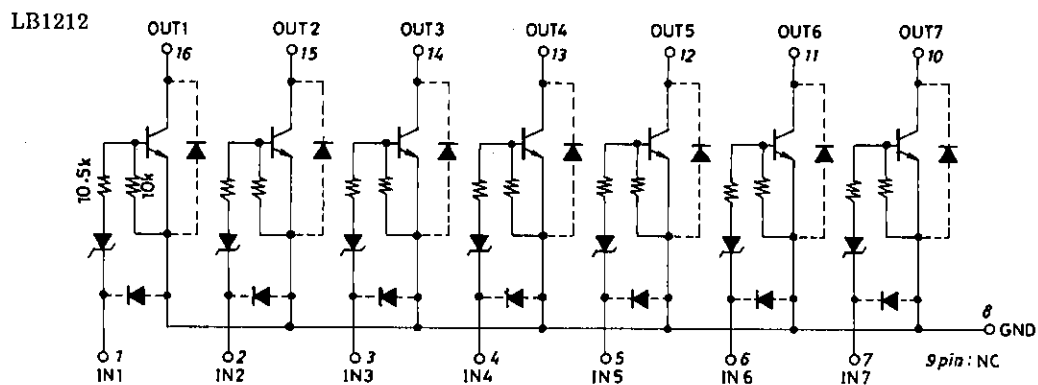
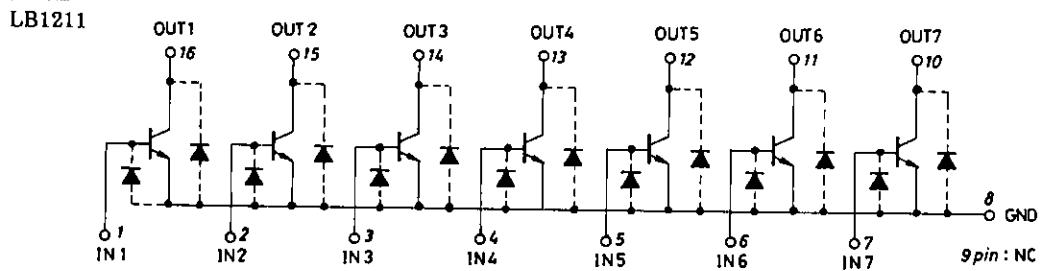
**Package Dimensions 3064**  
(unit : mm)

# LB1211,1212,1213,1214,1215,1216,1217

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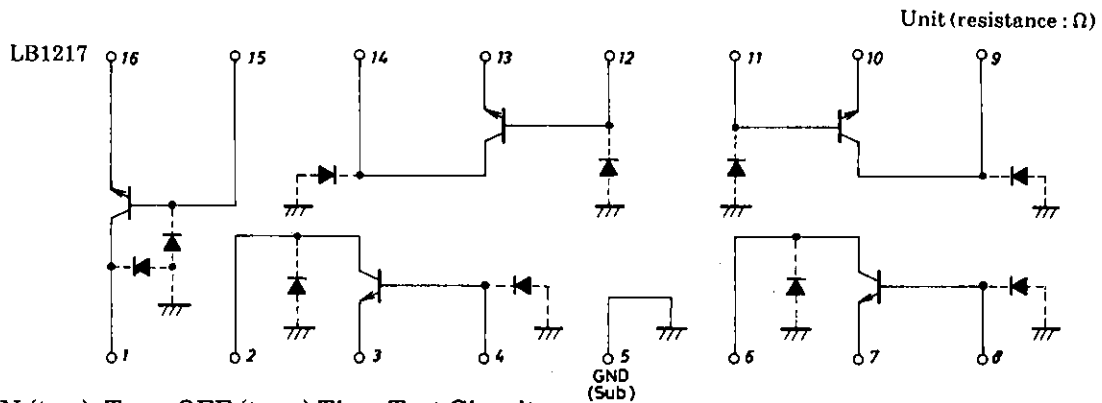
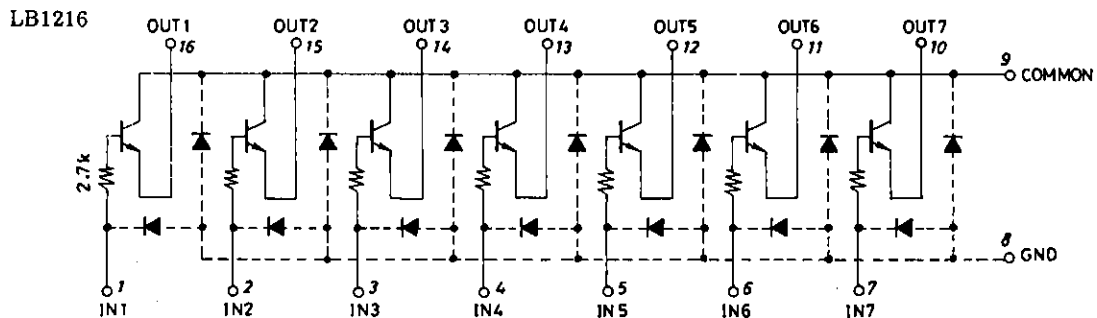
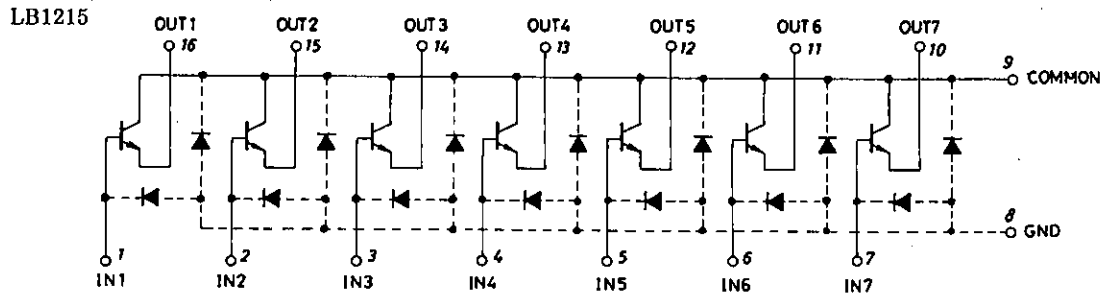
			min	typ	max	unit
Input Voltage	$V_{IN(on)}$	$I_{IN}=1mA, I_{OUT}=10mA$ LB1211/15/16/17 only	0.4			V
Turn-ON Time	$t_{ON}$	Refer to Test Circuit.		50		ns
Turn-OFF Time	$t_{OFF}$	Refer to Test Circuit.		200		ns

## Equivalent Circuit



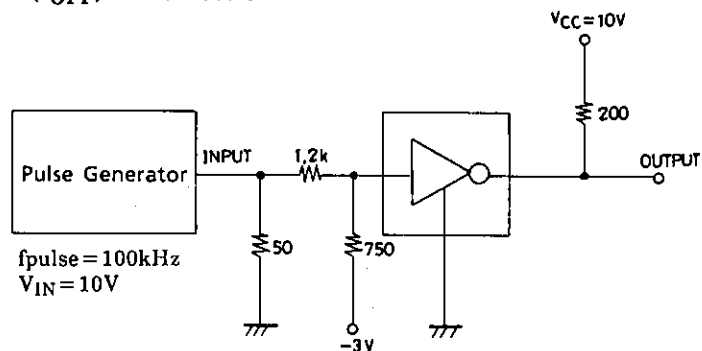
Unit (resistance :  $\Omega$ )

# LB1211,1212,1213,1214,1215,1216,1217

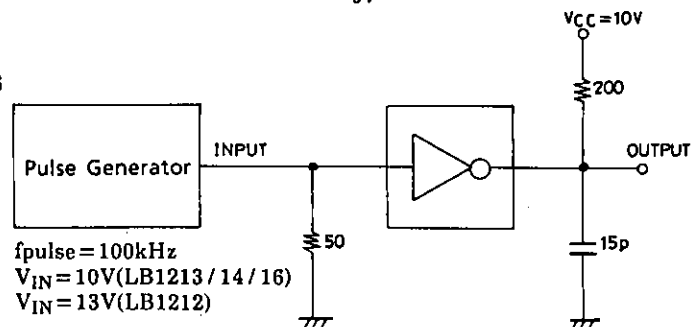


Turn-ON ( $t_{ON}$ ), Turn-OFF ( $t_{OFF}$ ) Time Test Circuits

LB1211/15/17

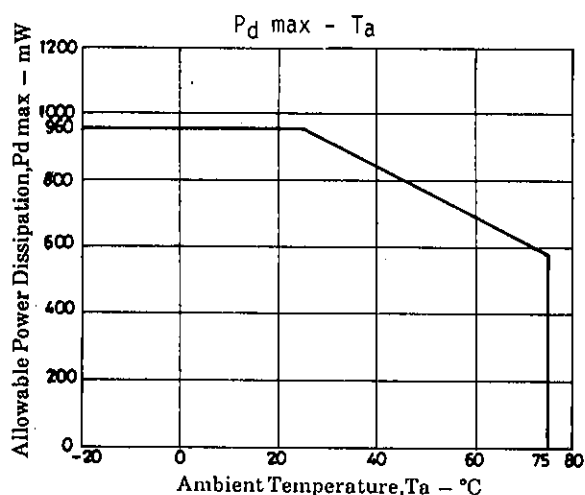
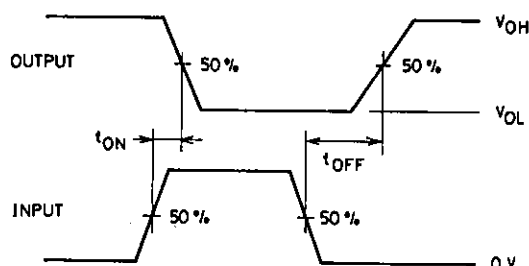


LB1212/13/14/16



Unit (resistance:  $\Omega$ , capacitance: F)

## Input/Output Waveforms



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