

DMD 5603

10CH SELECTOR FOR CORDLESSPHONE

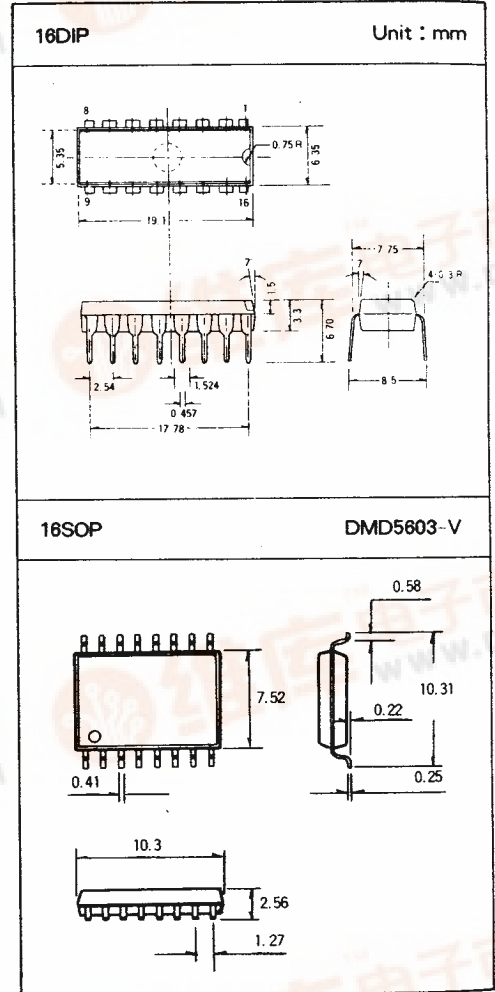
The DMD 5603 channel selector is a CMOS integrated circuit designed specifically to select 10 channels used in 45/48MHz cordless phones. This device has programmable counter, reference frequency generator, ROM for the transmit and receive loop, and phase detector

FEATURES

- 10channel selection with 4-Bit data input
- On-chip oscillator with external crystal(10.24MHz)
- Lock detect signal
- Standby Operation for power savings
- Operating Voltage range : 2.5V~5.5V
- Maximum operating frequency : 60MHz,
 $V_{in}=200mV_{P-P}$

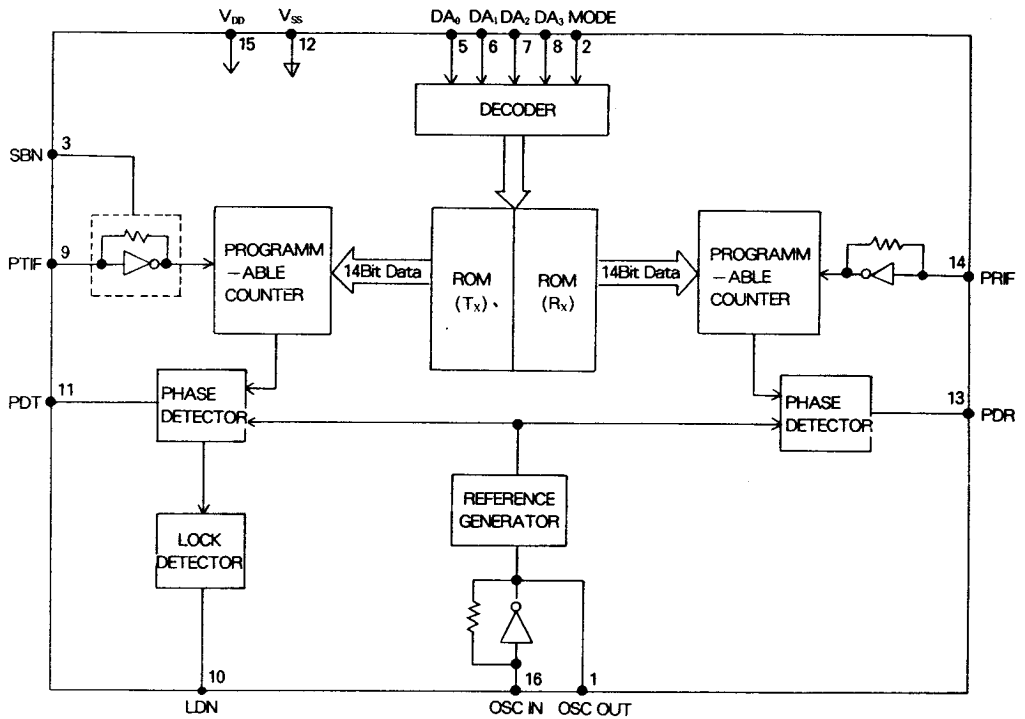
MAXIMUM RATINGS($T_a=25^{\circ}C$)

| CHARACTERSTIC | SYMBOL | RATING | UNIT |
|----------------------------------|-----------|-------------------|-------------|
| Supply Voltage | V_{DD} | -0.5~6.0 | V |
| Input Voltage(All Inputs) | V_{IN} | 0.3~ $V_{DD}+0.5$ | V |
| Output Current(LDN) | I_{out} | 0~3.0 | mA |
| Power Dissipation($V_{DD}=5V$) | P_D | 27 | mw |
| Operating Temperature | T_{opr} | -30~+75 | $^{\circ}C$ |
| Storage Temperature | T_{stg} | -65~+150 | $^{\circ}C$ |

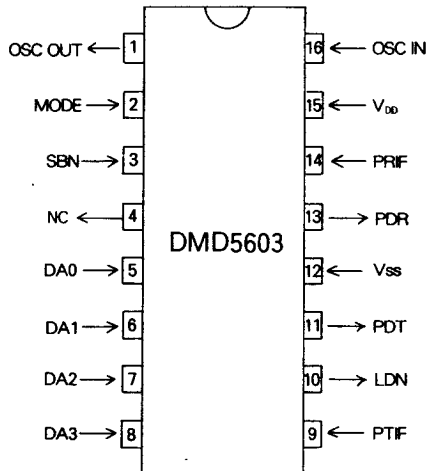


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□ BLOCK DIAGRAM



□ PIN CONFIGURATION



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□ PIN DESCRIPTION

| PIN | | I/O | DESCRIPTION |
|-----------------|----|-------|---|
| NAME | NO | | |
| OSC IN | 16 | I | These pins form a reference when connected to an external parallel resonant crystal (10.24MHz) |
| OSC OUT | 1 | O | |
| MODE | 2 | I | The pin is for selecting handset/base mode. When mode is high, the device is base mode. When mode is low, the device handset mode. This input is normally pull-downed. |
| SBN | 3 | I | This pin is used to save consumption when not transmitting. When SBN is high, both the transmit and receive loops are in operation. When SBN is low, but the transmit loop is disabled. This input is normally pull-downed. |
| NC | 4 | — | No Connection |
| DA0 | 5 | I | These pins are used to select one of 10 channels. The frequency assignments are shown in Table 1 and 2. These pins are normally pull-downed. |
| DA1 | 6 | | |
| DA2 | 7 | | |
| DA3 | 8 | | |
| PTIF | 9 | I | This input to programmable counter for transmit loop. The signal is typically derived from the loop VCO and AC coupled. For large signal, it needs DC coupling. The minimum input voltage is 200mV _{PTIF} . |
| LDN | 10 | O | This pin is used to indicate an unlock condition. It is a p-channel open-drain output. |
| PTD | 11 | O | This is 3-state output of the transmit phase detector for use as loop error signals. |
| Vss | 12 | power | Ground for all internal circuits. |
| PDR | 13 | O | This is 3-state output of the receive phase detector for use as loop error signals. |
| PRIF | 14 | I | This is input to programmable counter for receive loop. This signal is typically derived from the loop VCO and AC coupled. For large signal, it needs DC coupling. The minimum input voltage is 200mV _{PRIF} . |
| V _{DD} | 15 | power | Positive supply voltage |

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□ ELECTRICAL CHARACTERISTICS

| CHARACTERISTIC | SYMBOL | TEST CONDITION | VDD (V) | GUARANTEED LIMIT | | UNIT | |
|--------------------|-----------|--|-------------------|------------------|-------|-------|---------|
| | | | | MIN. | MAX. | | |
| Power Supply Range | V_{DD} | — | — | 2.5 | 5.5 | V | |
| Output Voltage | V_{OL} | $I_{out}=0$ $V_{IN}=V_{DD}$ or 0 | Low | 2.5 | — | 0.05 | V |
| | | | | 5.5 | — | 0.05 | |
| | High | | 2.5 | 2.45 | — | | |
| | | | 5.5 | 5.45 | — | | |
| Input Voltage | V_{IL} | $V_{out}=0.5V$ or $V_{DD}=0.5V$ | Low | 2.5 | — | 0.75 | V |
| | | | | 5.5 | — | 1.65 | |
| | High | | 2.5 | 1.76 | — | | |
| | | | 5.5 | 3.86 | — | | |
| Output Current | I_{OL} | $V_{out}=2.2V$ $V_{out}=5.0V$ | Source | 2.5 | -0.18 | — | mA |
| | | | | 5.5 | -0.55 | — | |
| | I_{OH} | | Sink | 2.5 | 0.18 | — | |
| | | | | 5.5 | 0.55 | — | |
| Input Current | I_{IL} | $V_{IN}=0$ | OSC _{IN} | 2.5 | — | -30 | μA |
| | | | PTIF | 5.5 | — | -66 | |
| | | | PRIF | 2.5 | — | -0.05 | |
| | | | Data SBN Mode | 5.5 | — | -0.11 | |
| | I_{IH} | $V_{IN}=V_{DD}-0.5$ | OSC _{IN} | 2.5 | — | 30 | |
| | | | PTIF | 5.5 | — | 66 | |
| | | | PRIF | 2.5 | — | 50 | |
| | | | Data SBN Mode | 5.5 | — | 121 | |
| Standby Current | I_{DB} | SBN = V _{SS} or open | 2.5 | — | 1.4 | mA | |
| | | | 5.5 | — | 3.6 | | |
| Operating Current | I_{DB} | 200mV _{P-P} Input at PTIF, PRIF, SBN = V _{DD} | 2.5 | — | 2.8 | mA | |
| | | | 5.5 | — | 6.2 | | |
| Input Frequency | F_{IN1} | Input = 200mV _{P-P} | PRIF | 3.0 ~5.0 | — | 60 | MHZ |
| | F_{IN2} | | PTIF | | — | 60 | |
| | F_{OSC} | | osc in | | — | 12 | |

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BASESET FORQUENCIES(Mode= High)

| CH | CHANNEL DATA | | | | RECEIVE | | | TRANSMIT | | |
|----|--------------|-----|-----|-----|-----------------|-----------------|------|-----------------|-----------------|------|
| | DA3 | DA2 | DA1 | DA0 | F _{RX} | F _{IN} | N* | F _{RX} | F _{IN} | N* |
| 1 | 0 | 0 | 0 | 1 | 48.250 | 37.555 | 7500 | 45.250 | 45.250 | 9050 |
| 2 | 0 | 0 | 1 | 0 | 48.275 | 37.580 | 7516 | 45.275 | 45.275 | 9055 |
| 3 | 0 | 0 | 1 | 1 | 48.300 | 37.605 | 7521 | 45.300 | 45.300 | 9060 |
| 4 | 0 | 1 | 0 | 0 | 48.325 | 37.630 | 7526 | 45.325 | 45.325 | 9065 |
| 5 | 0 | 1 | 0 | 1 | 48.350 | 37.655 | 7531 | 45.350 | 45.350 | 9070 |
| 6 | 0 | 1 | 1 | 0 | 48.375 | 37.680 | 7536 | 45.375 | 45.375 | 9075 |
| 7 | 0 | 1 | 1 | 1 | 48.400 | 37.705 | 7541 | 45.400 | 45.400 | 9080 |
| 8 | 1 | 0 | 0 | 0 | 48.425 | 37.730 | 7546 | 45.425 | 45.425 | 9085 |
| 9 | 1 | 0 | 0 | 1 | 48.450 | 37.755 | 7551 | 45.450 | 45.450 | 9090 |
| 10 | 1 | 0 | 1 | 0 | 48.475 | 37.780 | 7556 | 45.475 | 45.475 | 9095 |

Notes : 1. $N^* = F_{IN}/F_{REF}$

where $\left\{ \begin{array}{l} F_{IN} \text{ is the VCO frequency} \\ F_{REF} \text{ is the reference frequency(5KHz)} \end{array} \right.$

2. Other input combinations will be defaulted to channel 10

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HANDSET FREQUENCIES (Mode = Low)

| CH | CHANNEL DATA | | | | RECEIVE | | | TRANSMIT | | |
|----|--------------|-----|-----|-----|-----------------|-----------------|------|-----------------|-----------------|------|
| | DA3 | DA2 | DA1 | DA0 | F _{RX} | F _{IN} | N* | F _{RX} | F _{IN} | N* |
| 1 | 0 | 0 | 0 | 1 | 45.250 | 34.555 | 6911 | 48.250 | 48.250 | 9650 |
| 2 | 0 | 0 | 1 | 0 | 45.275 | 34.580 | 6916 | 48.275 | 48.275 | 9655 |
| 3 | 0 | 0 | 1 | 1 | 45.300 | 34.605 | 6921 | 48.300 | 48.300 | 9660 |
| 4 | 0 | 1 | 0 | 0 | 45.325 | 34.630 | 6926 | 48.325 | 48.325 | 9665 |
| 5 | 0 | 1 | 0 | 1 | 45.350 | 34.655 | 6931 | 48.350 | 48.350 | 9670 |
| 6 | 0 | 1 | 1 | 0 | 45.375 | 34.680 | 6936 | 48.375 | 48.375 | 9675 |
| 7 | 0 | 1 | 1 | 1 | 45.400 | 34.705 | 6941 | 48.400 | 48.400 | 9680 |
| 8 | 1 | 0 | 0 | 0 | 45.425 | 34.730 | 6946 | 48.425 | 48.425 | 9685 |
| 9 | 1 | 0 | 0 | 1 | 45.450 | 34.755 | 6951 | 48.450 | 48.450 | 9690 |
| 10 | 1 | 0 | 1 | 0 | 45.475 | 34.780 | 6956 | 48.475 | 48.475 | 9695 |

Notes : 1. $N^* = F_{IN} / F_{REF}$

where $\left\{ \begin{array}{l} F_{IN} \text{ is the VCO frequency} \\ F_{REF} \text{ is the reference frequency (5KHz)} \end{array} \right.$

2. Other input combinations will be defaulted to channel 10

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TEST AND APPLICATION CIRCUIT

