

General Description

The S2560G is a modified version of the S2560A Pulse Dialer with complete pin/function compatibility. It is recommended to be used in all new and existing designs. Most electrical specifications for both devices are identical. Please refer to S2560A data sheet for details.

Differences between the two devices are summarized below:

| | S2560G | S2560A |
|------------------------------------|---|--|
| Operating Voltage, Dialing: | 2.0V to 3.5V | 1.5V to 3.5V |
| Operating Voltage, Voice Mode: | 1.5V to 3.5V | 1.5V to 3.5V |
| Data Retention Voltage (Minimum): | 1.0V | 1.0V |
| I _{DD} Operating Current: | 200μA @ 2.0V 1000μA @ 3.5V | 100μA @ 1.5V 500μA @ 3.5V |
| I _{DD} Standby Current: | 5μA @ 1V | 750nA @ 1V |
| Keyboard Debounce Time: | 10msec | 16msec |
| X-Y Keyboard Interface: | Does not need capacitors | Capacitors required between column inputs and V _{SS} |
| Redial Buffer: | 22 digits | 20 digits |
| Dialing Characteristics: | Can dial more than 22 digits. Redial disabled if more than 22 digits are entered. | Accepts a maximum of 20 digits. Will not dial additional digits. |
| Inter-digit pause timing | Follows dial pulses. | Precedes dial pulses |

Application Suggestions

1) In most existing designs, the S2560G will work in place of S2560A without any modifications. Problems may arise however, if the keyboard bounce time exceeds 10ms. In such a case, the device may interpret a single key entry as a double key. To avoid this false detection, the keyboard debounce time can be easily increased from 10ms to 20ms by changing the Oscillator Frequency from 2400Hz down to 1200Hz. This is done by changing the value of the capacitor connected to pin 7 from 270pF to 470pF. To preserve the dialing rate at 10pps and IDP at 800ms the DRS and IDP pins now must be connected to V_{DD} instead of V_{SS}. Figure 1 shows the implementation details. Note, that interfacing with X-Y keyboard no longer requires capacitors to V_{SS} from column pins.

2) The hookswitch Input pin (pin 5) must be protected from spikes that can occur when the phone goes from off-hook condition to on-hook. Voltage exceeding V_{DD} on this pin can cause the device to draw excessive current. This will discharge the capacitor across V_{DD} and V_{SS} causing the supply voltage to drop. If the voltage drops below 1 volt (data retention voltage) the device could lose redial memory. To prevent the voltage on the hookswitch pin from exceeding V_{DD}, an external diode must be added on the hookswitch pin as shown in Figure 1.

Figure 1. Transient Protection Technique Using Diode Between V_{DD} and \overline{HS}

