
APPLICATIONS BRIEF 19A — ISD SOIC PACKAGE TO BE MORE STANDARD SIZE

OVERVIEW

ISD's integrated circuits are renowned for their high sound quality. This is due to ISD's proprietary direct storage methodology as well as the quality standards ISD imposes on its products. As the technology improves and migrates to smaller geometries it becomes possible to put existing products into smaller packages. The existing products in our current SOIC package are being converted to a narrower SOIC package. This new package is a more universal 0.300" (7.6 mm) package width rather than the current 0.350" (8.9 mm) ISD SOIC package width. This provides a 15 percent reduction in printed circuit board area required.

DETAILS

The actual pinout has *not* changed. The pin-to-pin spacing will remain the same at 50 mils (1.27 mm). The length of the package will decrease slightly by 8 mils (0.2 mm). The significant changes will be to the width. Dimension C, the body width, will reduce by 50 mils (1.27 mm). Dimension G, the total package and pin footprint, will reduce by 64 mils (1.63 mm). Dimension B, the package thickness, will increase slightly by 0.004" (0.1 mm). Note that dimension B is defined differently for SOIC package "S" (0.300" package) than SOIC package "G" (0.300" package).

EFFECT OF THIS CHANGE

There should be no effect on new customer designs. Customers will be able to design their sockets for programming or their printed circuit board (PCB) layouts to the standard 300 mil (7.6 mm) SOIC package footprint.

Current designs may need to have the PCB changed depending upon how the original footprint was put on the board. The new package body will be physically 0.050" (1.27 mm) narrower and the total footprint will be 0.064" (1.63 mm) narrower. Thus, the traces on the board may not be long enough to accommodate reliable solder bonding of the packages to the PCB. This will have to be determined by inspection and comparison with QA standards for soldering.

In some cases the customer may have used the 0.300" (7.6 mm) footprint and just opened the solder mask somewhat to accommodate the 0.350" (8.9 mm) ISD SOIC package originally. There, no change would actually be required to convert to the new package. This technique will also allow for using *both* the old and new packages on the same PCB.

For those customers that use zero insertion force (ZIF) sockets to test or program the devices it will require new sockets. In the past we have had to take standard 300 mil ZIF sockets and mechanically modify them (with an Xacto knife) to fit the wider package. Unfortunately, the 300 mil units drop right through these modified sockets, not making adequate contact.

CONCLUSION

ISD has taken another step towards making the ChipCorder the industry's easiest to use audio storage device. With this new package, customer PCB designs will be even more standardized and require less space.

Figure 22: 28-Lead 0.350-Inch Plastic Small Outline Integrated Circuit (SOIC) (G)

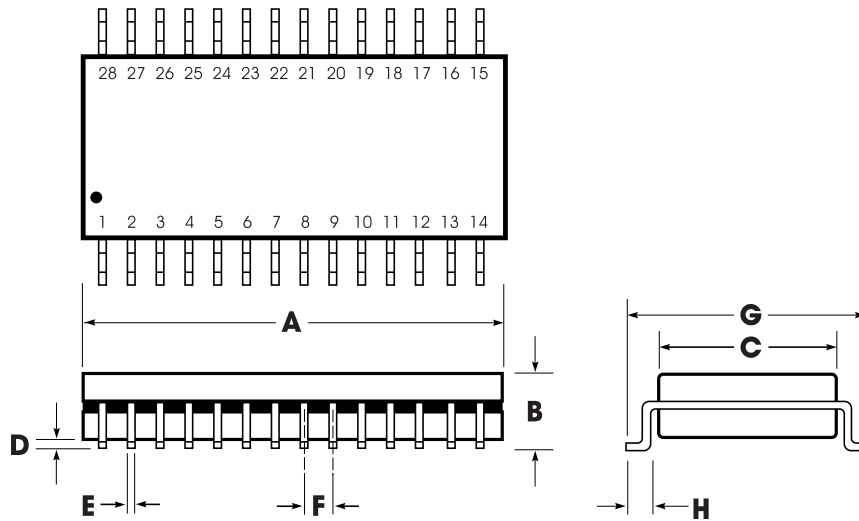


Table 9: Outline Drawing and Dimensions for Old 0.350-Inch Package (G)

	INCHES			MILLIMETERS		
	Min	Nom	Max	Min	Nom	Max
A	0.706	0.714	0.718	17.93	18.14	18.24
B	0.086	0.088	0.090	2.188	2.232	2.286
C	0.340	0.346	0.350	8.640	8.790	8.890
D	0.004	0.007	0.010	0.102	0.178	0.254
E	0.014	0.016	0.020	0.360	0.410	0.480
F		0.050			1.270	
G	0.463	0.470	0.477	11.76	12.00	12.12
H	0.020	0.031	0.042	0.51	0.79	1.07

Figure 23: 28-Lead 0.300-Inch Plastic Small Outline Integrated Circuit (SOIC) (S)

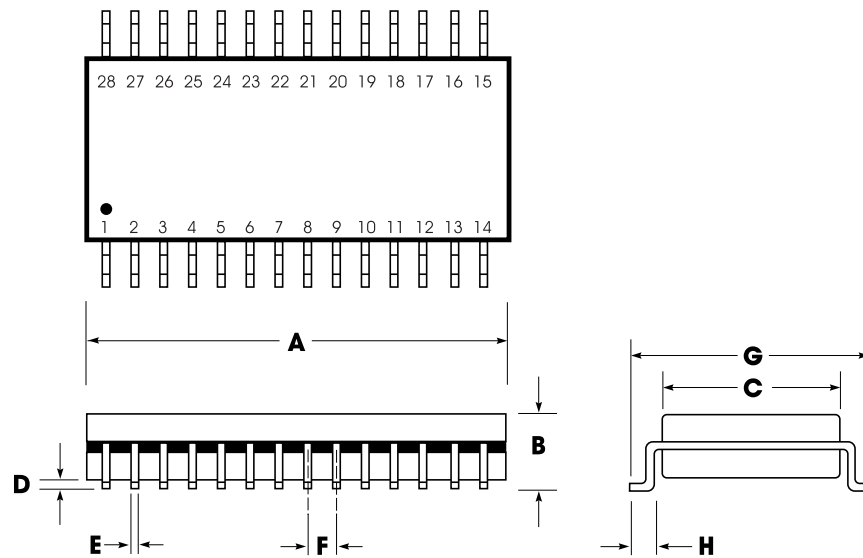


Table 10: Outline Drawing and Dimensions for New 0.300-Inch Package (S)

	INCHES			MILLIMETERS		
	Min	Nom	Max	Min	Nom	Max
A	0.701	0.706	0.711	17.81	17.93	18.06
B	0.097	0.101	0.104	2.46	2.56	2.64
C	0.292	0.296	0.299	7.42	7.52	7.59
D	0.005	0.009	0.0115	0.127	0.22	0.29
E	0.014	0.016	0.019	0.35	0.41	0.48
F		0.050			1.27	
G	0.400	0.406	0.410	10.16	10.31	10.41
H	0.024	0.032	0.040	0.61	0.81	1.02