DEVICE PHYSICAL DIMENSIONS

Figure 12: 28-Lead 8x13.4mm Plastic Thin Small Outline Package (TSOP) Type I (E)

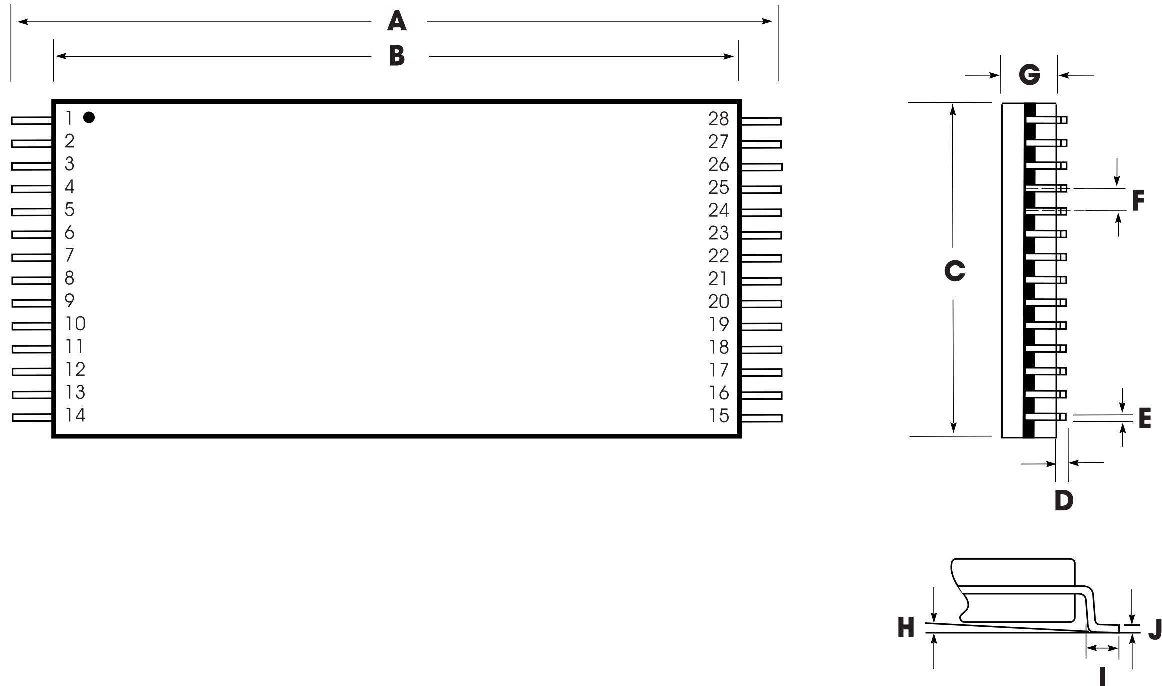


Table 13: Plastic Thin Small Outline Package (TSOP) Type I (E) Dimensions

	INCHES			MILLIMETERS		
	Min	Nom	Max	Min	Nom	Max
A	0.520	0.528	0.535	13.20	13.40	13.60
B	0.461	0.465	0.469	11.70	11.80	11.90
C	0.311	0.315	0.319	7.90	8.00	8.10
D	0.002		0.006	0.05		0.15
E	0.007	0.009	0.011	0.17	0.22	0.27
F		0.0217			0.55	
G	0.037	0.039	0.041	0.95	1.00	1.05
H	0°	3°	6°	0°	3°	6°
I	0.020	0.022	0.028	0.50	0.55	0.70
J	0.004		0.008	0.10		0.21

NOTE: *Lead coplanarity to be within 0.004 inches.*

Figure 13: 28-Lead 0.600-Inch Plastic Dual Inline Package (PDIP) (P)

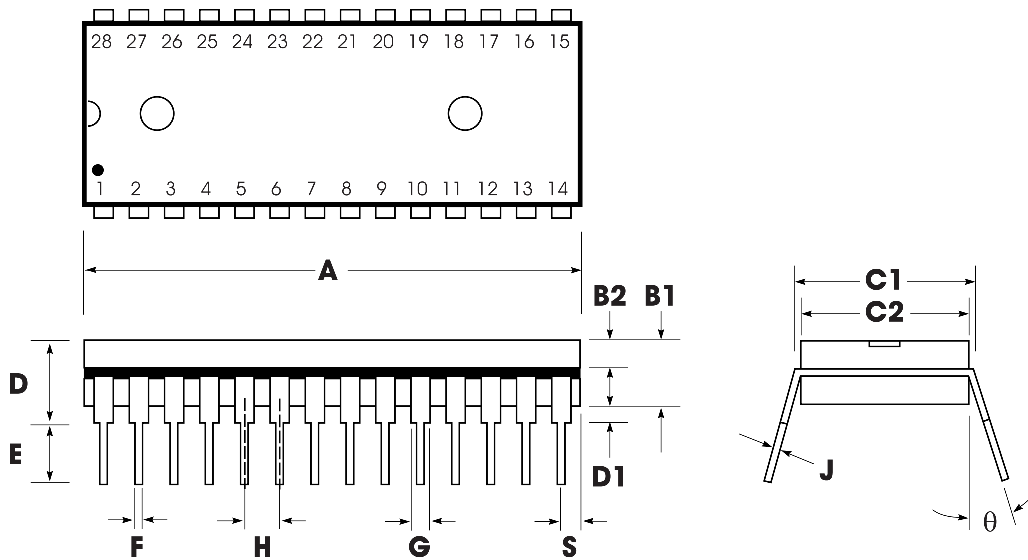


Table 14: Plastic Dual Inline Package (PDIP) (P) Dimensions

	INCHES			MILLIMETERS		
	Min	Nom	Max	Min	Nom	Max
A	1.445	1.450	1.455	36.70	36.83	36.96
B1		0.150			3.81	
B2	0.065	0.070	0.075	1.65	1.78	1.91
C1	0.600		0.625	15.24		15.88
C2	0.530	0.540	0.550	13.46	13.72	13.97
D			0.19			4.83
D1	0.015			0.38		
E	0.125		0.135	3.18		3.43
F	0.015	0.018	0.022	0.38	0.46	0.56
G	0.055	0.060	0.065	1.40	1.52	1.65
H		0.100			2.54	
J	0.008	0.010	0.012	0.20	0.25	0.30
S	0.070	0.075	0.080	1.78	1.91	2.03
q	0°		15°	0°		15°

Figure 14: 28-Lead 0.300-Inch Plastic Small Outline Integrated Circuit (SOIC) (S)

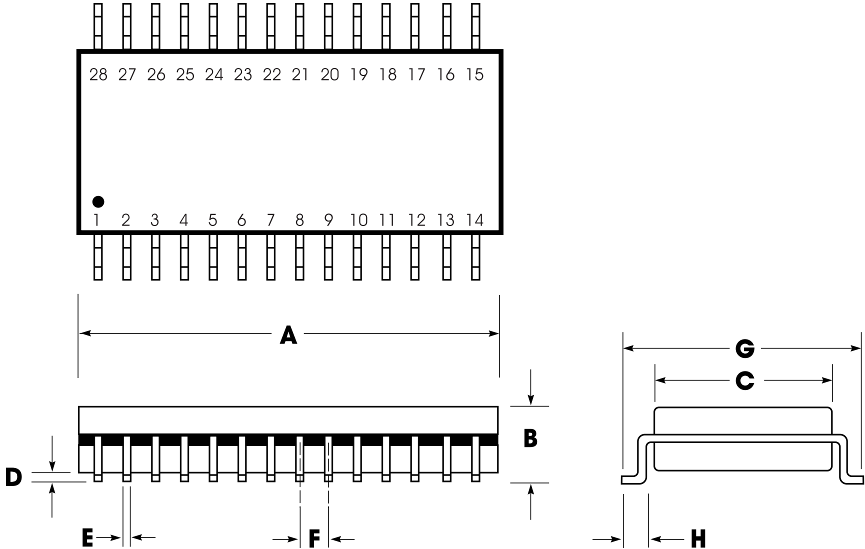


Table 15: Plastic Small Outline Integrated Circuit (SOIC) (S) Dimensions

	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

NOTE: *Lead coplanarity to be within 0.004 inches.*

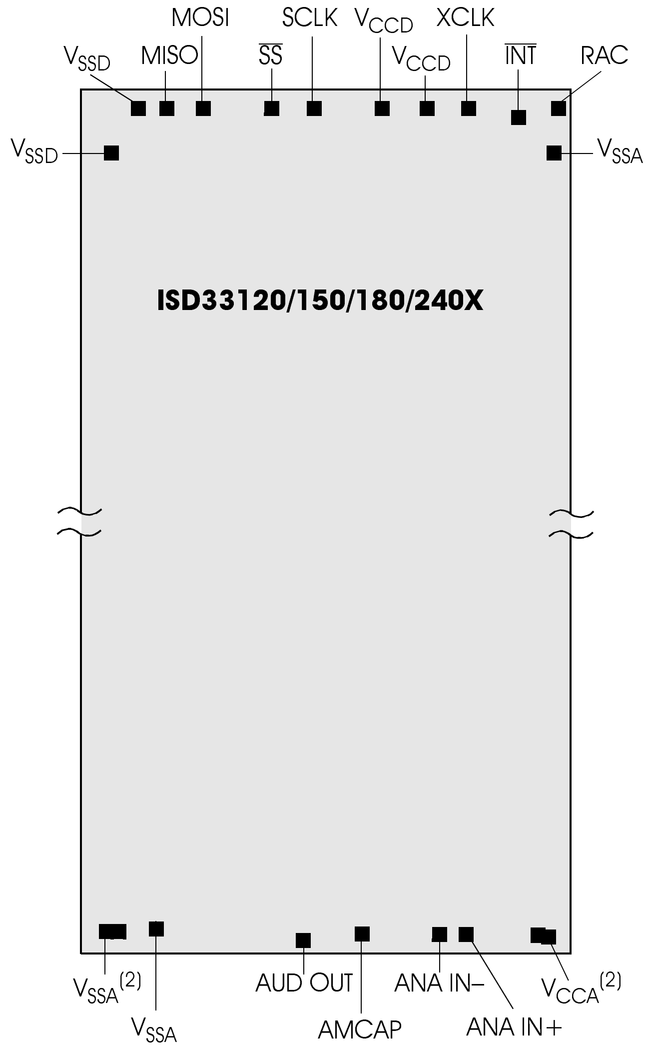
Figure 15: ISD33120/150/180/240 Products Bonding Physical Layout[1] (Unpackaged Die)

ISD33120/150/180/240X

I. Die Dimensions
X: 188 ±1 mils
Y: 324 ±1 mils

II. Die Thickness
11.8 ±.4 mils

III. Pad Opening (min)
109 microns (4.3 mils)



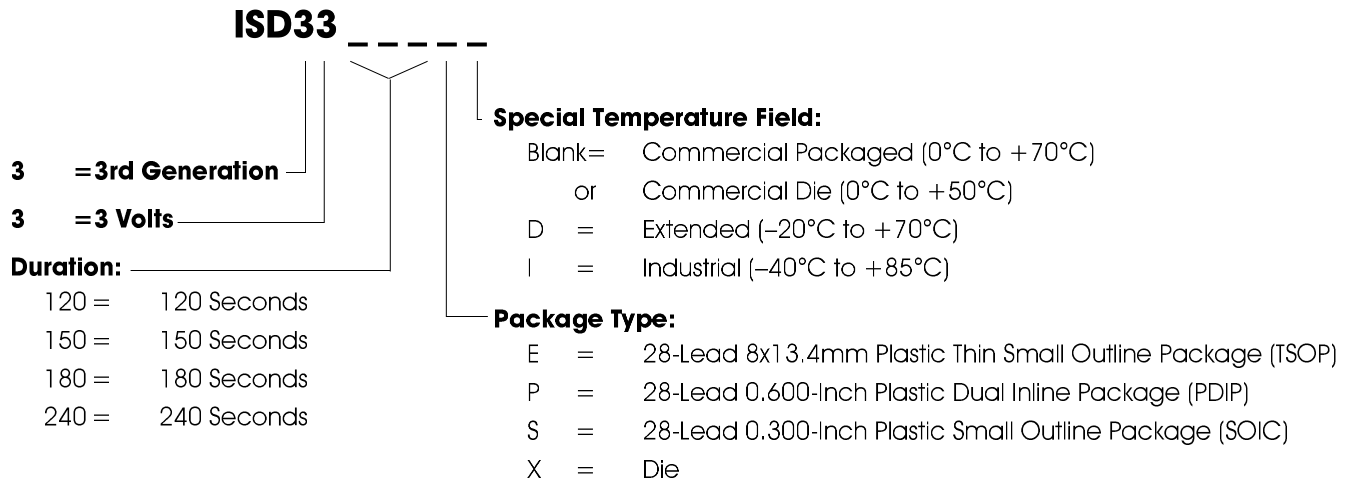
1. *The backside of the die is internally connected to V_{SS}. It **MUST NOT** be connected to any other potential or damage may occur.*
2. *Double bond recommended.*

Table 16: ISD33120/150/180/240 Devices PIN/PAD Designations, with Respect to Die Center (µm)

Pin	Pin Name	X Axis	Y Axis
V_{SSA}	V_{SS} Analog Power Supply	–2120.0	–3894.8
V_{SSA}	V_{SS} Analog Power Supply	–1807.8	–3891.3
AUD OUT	Audio Output	104.7	–3905.1
AMCAP	AutoMute	619.5	–3903.3
ANA IN –	Inverting Analog Input	1686.3	–3878.0
ANA IN +	Noninverting Analog Input	1857.8	–3878.0
V_{CCA}	V_{CC} Analog Power Supply	2117.9	–3884.3
V_{SSA}	V_{SS} Analog Power Supply	2153.2	3385.9
RAC	Row Address Clock	2158.8	3890.3
$\overline{INT}$	Interrupt	1848.0	3890.3
XCLK	External Clock Input	1068.7	3901.5
V_{CCD}	V_{CC} Digital Power Supply	841.1	3908.1
V_{CCD}	V_{CC} Digital Power Supply	587.7	3862.3
SCLK	Slave Clock	–66.3	3900.8
$\overline{SS}$	Slave Select	–294.2	3900.8
MOSI	Master Out Slave In	–1022.1	3900.8
MISO	Master In Slave Out	–1510.3	3888.5
V_{SSD}	V_{SS} Digital Power Supply	–2000.3	3908.1
V_{SSD}	V_{SS} Digital Power Supply	–2196.3	3721.9

ORDERING INFORMATION

Product Number Descriptor Key



When ordering ISD33000 series devices, please refer to the following part numbers, which are supported in volume for this product series. Consult the local ISD Sales Representative or Distributor for availability information.

Part Number	Part Number	Part Number	Part Number
ISD33120E	ISD33150E	ISD33180E	ISD33240E
ISD33120ED	ISD33150ED	ISD33180ED	ISD33240ED
ISD33120EI	ISD33150EI	ISD33180EI	ISD33240EI
ISD33120P	ISD33150P	ISD33180P	ISD33240P
ISD33120PD	ISD33150PD	ISD33180PD	ISD33240S
ISD33120PI	ISD33150PI	ISD33180PI	ISD33240X
ISD33120S	ISD33150S	ISD33180S	
ISD33120SD	ISD33150SD	ISD33180SD	
ISD33120SI	ISD33150SI	ISD33180SI	
ISD33120X	ISD33150X	ISD33180X	

For the latest product information, access ISD’s worldwide website at http://www.isd.com.