

Single 2-Input OR Gate

General Description

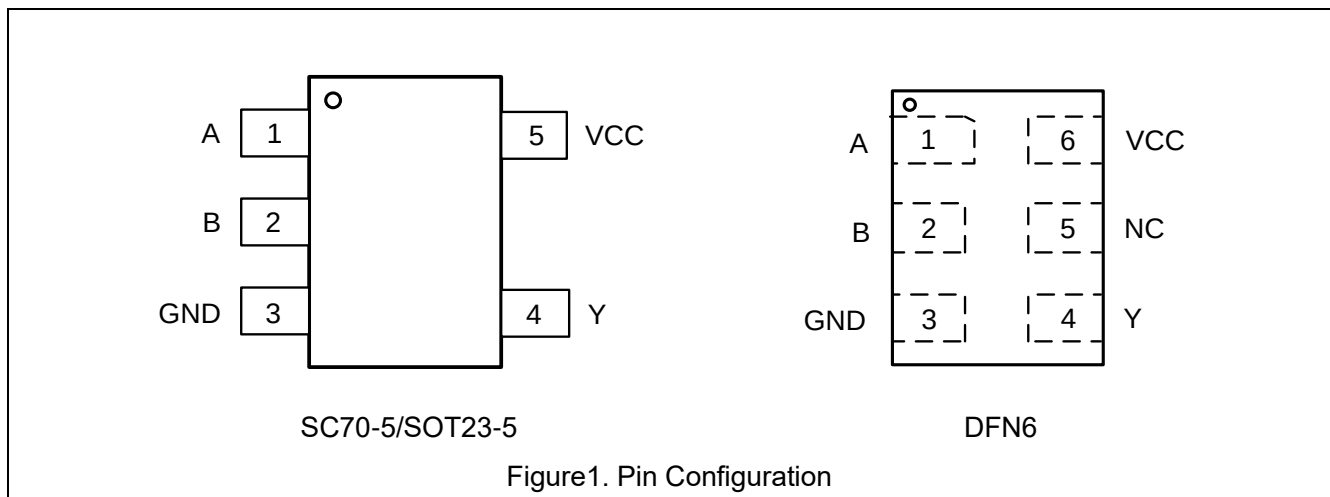
The ET74AHC1G32 is a single 2-input OR Gate in three tiny footprint packages. The device performs much as LCX multi-gate products in speed and drive.

Features

- Designed for 2V to 5.5V V_{CC} Operation
- $\pm 8\text{mA}$ Balanced Output Sink and Source Capability
- Over-voltage Tolerant Inputs Accept Voltages to 5.5V
- These Devices are Pb-Free and RoHS Compliant
- ESD Protection Complies with JESD22 Standard
 - HBM: $\pm 4000\text{V}$ Pass (JEDEC JS-001)
 - CDM: $\pm 1000\text{V}$ Pass (JEDEC JS-002)
- Latch-up Performance Exceeds $\pm 100\text{mA}$ per JEDEC JESD78F
- Part No. and Package Information

Part No.	Package	Packing Option	MSL
ET74AHC1G32	SC70-5 (1.3mm $\times$ 2.1mm)	Tape and Reel, 3K/Reel	1
ET74AHC1G32T	SOT23-5 (1.6mm $\times$ 2.9mm)	Tape and Reel, 3K/Reel	3
ET74AHC1G32Y	DFN6 (1.0mm $\times$ 1.5mm)	Tape and Reel, 3K/Reel	1

Pin Configuration



ET74AHC1G32

Pin Function

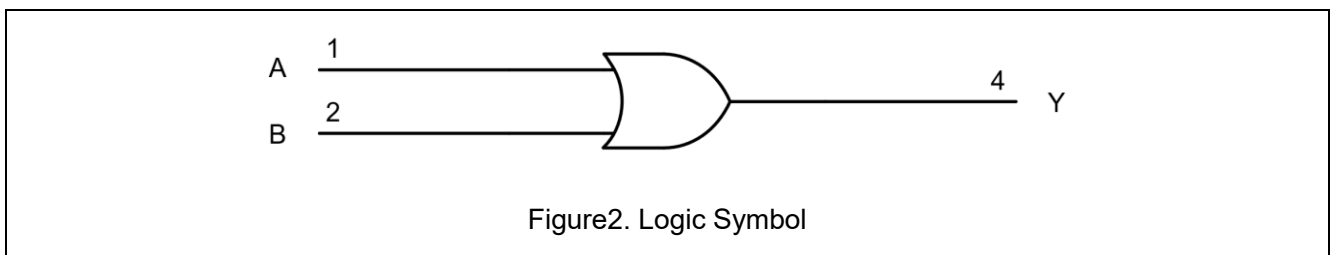
SC70-5/ SOT23-5

Pin No.	Pin Name	Function
1	A	Input A
2	B	Input B
3	GND	Ground
4	Y	Output Y
5	VCC	Supply Voltage

DFN6

Pin No.	Pin Name	Function
1	A	Input A
2	B	Input B
3	GND	Ground
4	Y	Output Y
5	NC	No Connect
6	VCC	Supply Voltage

Block Diagram



Function Table

Input		Output
A	B	Y
L	L	L
L	H	H
H	L	H
H	H	H

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Absolute Maximum Ratings

Symbol	Parameter		Value	Unit
V _{CC}	DC Supply Voltage (VCC Pin)		-0.5 to 7.0	V
V _I	DC Input Voltage ⁽¹⁾		-0.5 ≤ V _I ≤ 7.0	V
V _O	DC Output Voltage Output in Higher or Low State		-0.5 to V _{CC} + 0.5	V
I _{IK}	DC Input Diode Current, V _I < GND		-50	mA
I _{OK}	DC Output Diode Current, V _O < GND, V _O > V _{CC}		±50	mA
I _O	DC Output Sink Current		±50	mA
I _{CC}	DC Supply Current Per Supply Pin		100	mA
I _{GND}	DC Ground Current Per Supply Pin		-100	mA
T _{STG}	Storage Temperature Range		-65 to 150	°C
T _L	Lead Temperature, Soldering 10 Seconds		260	°C
T _J	Max Junction Temperature		150	°C
V _{ESD}	ESD Classification	Human Body Model ⁽²⁾	±4000	V
		Charged Device Model ⁽³⁾	±1000	
I _{LU}	Latch Up Current Above V _{CC} and GND at 125°C ⁽⁴⁾		±100	mA

Stresses exceeding those listed in this table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Note1: I_O absolute maximum rating must be observed.

Note2: HBM tested per JEDEC JS-001.

Note3: CDM tested per JEDEC JS-002.

Note4: Latch up Current Maximum Rating tested per JEDEC JESD78F.

Thermal Characteristics

Symbol	Package	Ratings	Value	Unit
R _{θJA}	SC70-5	Thermal Characteristics, Thermal Resistance, Junction-to-Air	300	°C/W
	SOT23-5		270	
	DFN6		440	
P _D	SC70-5	Power Dissipation in Still Air at 85°C	215	mW
	SOT23-5		260	
	DFN6		150	

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Recommended Operating Conditions

Symbol	Parameter	Min	Max	Unit
V _{CC}	DC Supply Voltage Operating	2	5.5	V
V _I	DC Input Voltage	0	V _{CC}	V
V _O	DC Output Voltage (High or Low State)	0	V _{CC}	V
T _A	Operating Temperature Range	-40	125	°C

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied.

Electrical Characteristics

DC Electrical Characteristics

Symbol	Parameter	Condition	V _{CC} (V)	T _A = 25°C			-40°C ≤ T _A ≤ 125°C		Unit
				Min	Typ	Max	Min	Max	
V _{IH}	High-Level Input Voltage		2.0	1.5			1.5		V
			3.0	2.1			2.1		
			5.5	3.85			3.85		
V _{IL}	Low-Level Input Voltage		2.0			0.5		0.5	V
			3.0			0.9		0.9	
			5.5			1.65		1.65	
V _{OH}	High-Level Output Voltage	I _{OH} = -50uA	2~5.5	V _{CC} - 0.1	V _{CC}		V _{CC} - 0.1		V
		I _{OH} = -4mA	3	2.58			2.4		
		I _{OH} = -8mA	4.5	3.54			3.7		
V _{OL}	Low-Level Output Voltage	I _{OL} = 50uA	2~5.5			0.1		0.1	V
		I _{OL} = 4mA	3			0.36		0.55	
		I _{OL} = 8mA	4.5			0.36		0.55	
I _{IN}	Input Leakage Current	V _I = 5.5V or GND	0~5.5			0.1		2.0	uA
I _{OFF}	Power Off Leakage Current	V _I = 5.5V or V _O = 5.5V	0			1		10	μA
I _{CC}	Quiescent Supply Current	V _I = 5.5V or GND	5.5			1		40	uA

AC Electrical Characteristics

t_r = t_f = 3ns

Symbol	Parameter	Condition	V _{CC} (V)	T _A = 25°C			-40°C ≤ T _A ≤ 125°C		Unit
				Min	Typ	Max	Min	Max	
t _{PLH} t _{PHL}	Propagation Delay (Figure3 and 4)	C _L = 15pF	3~3.6		7.5	11	1	13.5	ns
		C _L = 50pF	3~3.6		9.5	16	1	19	
		C _L = 15pF	4.5~5.5		6.4	8.4	1	9.9	
		C _L = 50pF	4.5~5.5		7.9	10.4	1	12.4	

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Capacitance Characteristics

Symbol	Parameter	Condition	Typ	Unit
C _{IN}	Input Capacitance	V _{CC} = 5.5V, V _I = 0V or V _{CC}	2.5	pF
C _{PD}	Power Dissipation Capacitance ⁽⁵⁾	10MHz, V _{CC} = 3.3V, V _I = 0V or V _{CC}	21	pF
		10MHz, V _{CC} = 5.5V, V _I = 0V or V _{CC}	21	

Note5: C_{PD} is used to determine the dynamic power dissipation (P_D in μW).

$$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o) \text{ where:}$$

f_i = input frequency in MHz;

f_o = output frequency in MHz;

C_L = output load capacitance in pF;

V_{CC} = supply voltage in V;

N = number of inputs switching;

Σ(C_L × V_{CC}² × f_o) = sum of outputs.

AC Test Circuit

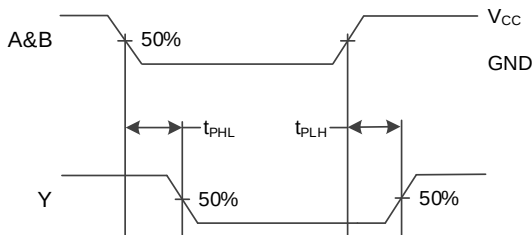


Figure3. Switching Waveform

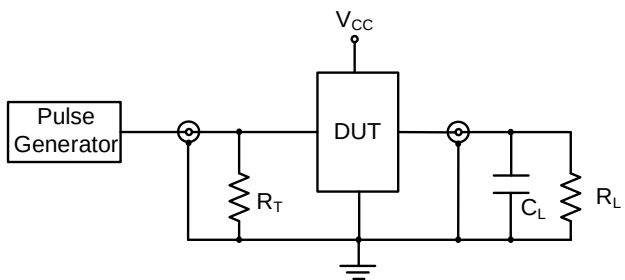


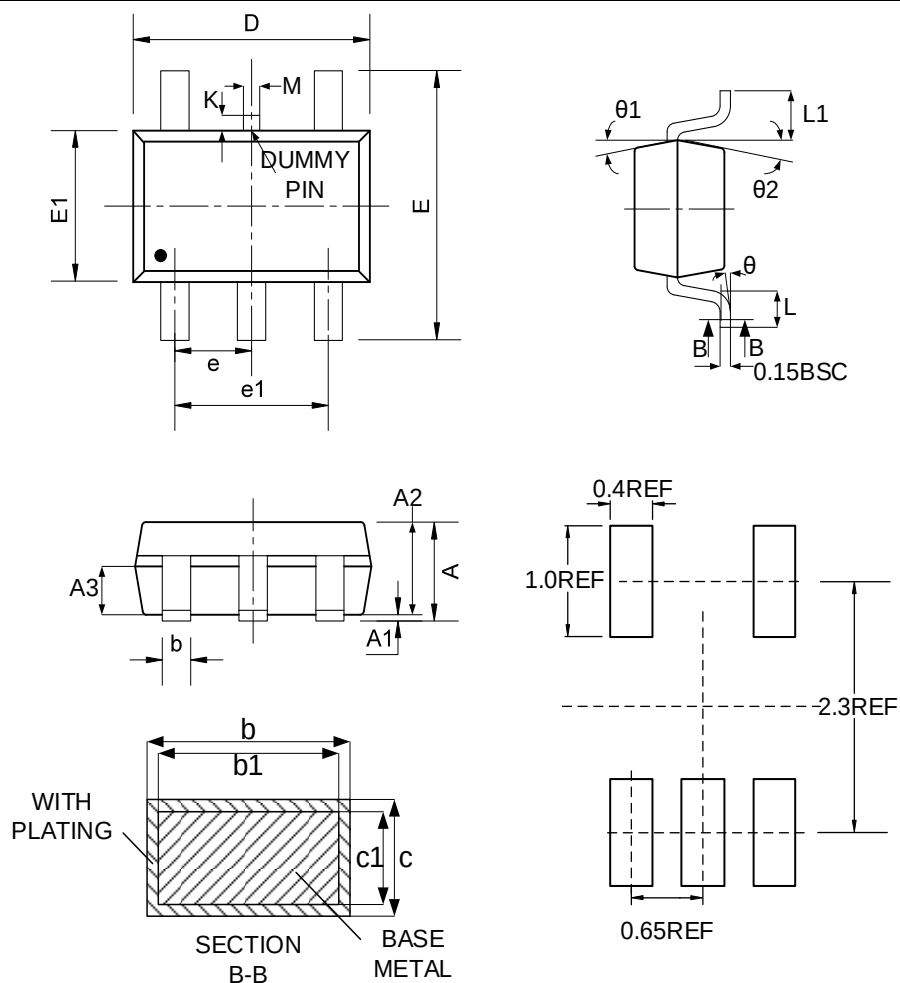
Figure4. Test Circuit

Note6: This electric circuit only supplies for reference. It is recommended to ground the unused I/O ports and ensure they are **not left floating**.

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Package Dimension

SC70-5 (1.3mm × 2.1mm)



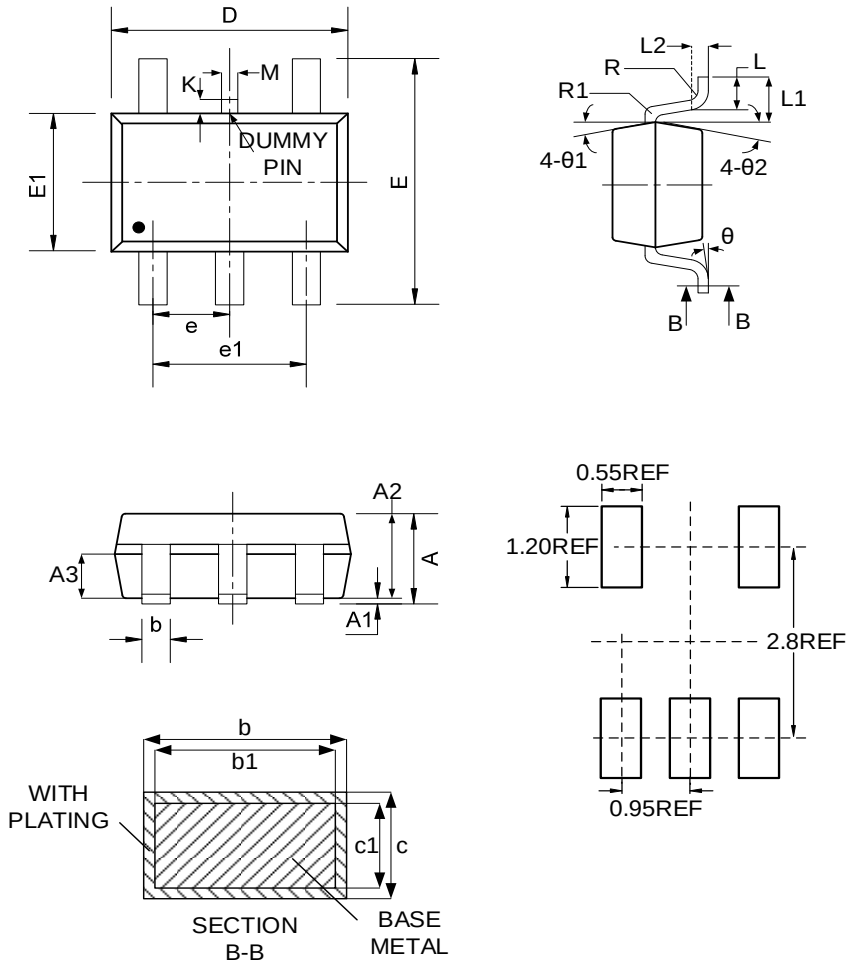
COMMON DIMENSIONS

(Unit: mm)

SYMBOL	MIN	NOM	MAX	SYMBOL	MIN	NOM	MAX
A	0.80	-	1.10	e	0.60	0.65	0.70
A1	0.00	-	0.10	e1	1.20	1.30	1.40
A2	0.80	0.90	1.00	L	0.26	0.33	0.46
A3	0.40	0.50	0.60	E1	1.21	1.26	1.31
b	0.17	-	0.30	L1	0.52REF		
b1	0.17	0.22	0.25	M	0.10	0.15	0.20
c	0.12	-	0.20	K	0.00	-	0.20
c1	0.12	0.15	0.16	θ	0°	-	8°
D	2.02	2.07	2.12	θ1	10°	12°	14°
E	2.20	2.30	2.40	θ2	10°	12°	14°

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SOT23-5 (1.6mm × 2.9mm)



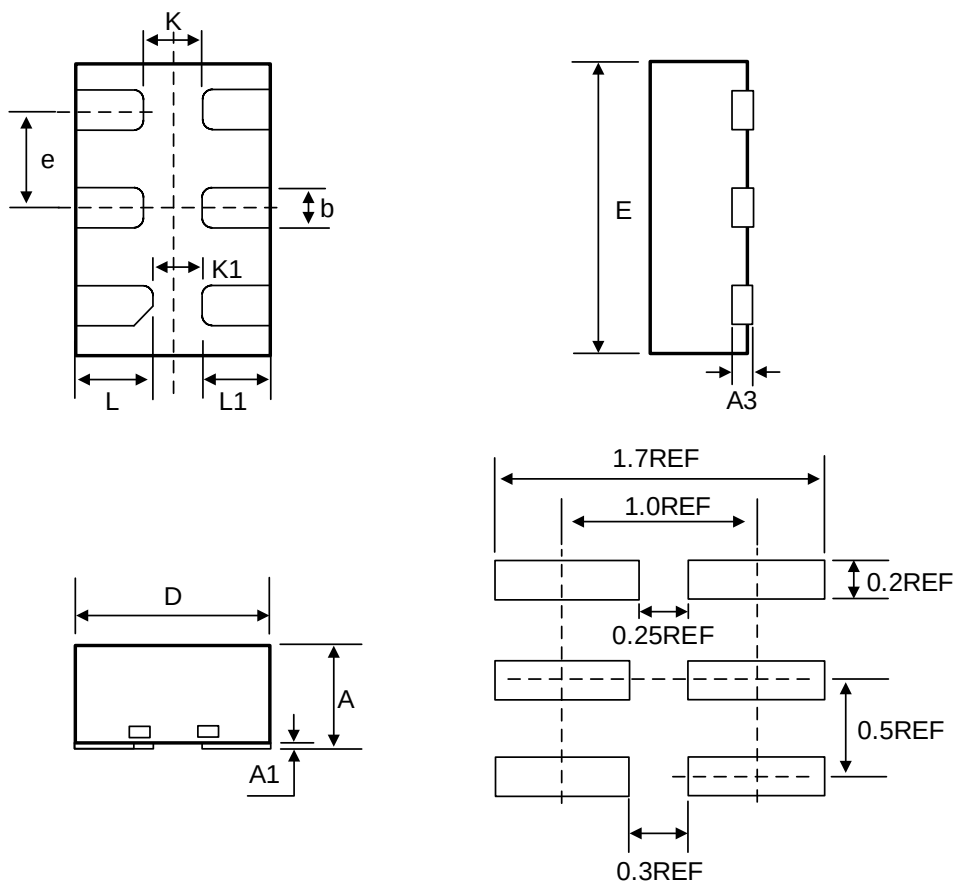
COMMON DIMENSIONS

(Unit: mm)

SYMBOL	MIN	NOM	MAX	SYMBOL	MIN	NOM	MAX
A	-	-	1.25	K	0	-	0.20
A1	0.00	-	0.15	M	0.10	0.15	0.20
A2	1.00	1.10	1.20	L	0.30	0.40	0.60
A3	0.60	0.65	0.70	L1	0.59REF		
b	0.34	-	0.45	L2	0.25BSC		
b1	0.34	0.38	0.41	R	0.05	-	0.20
c	0.12	-	0.20	R1	0.05	-	0.20
c1	0.12	0.15	0.16	θ	0°	-	8°
D	2.826	2.926	3.026	$\theta 1$	8°	10°	12°
E	2.60	2.80	3.00	$\theta 2$	10°	12°	14°
E1	1.526	1.626	1.70				
e	0.90	0.95	1.00				
e1	1.80	1.90	2.00				

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DFN6 (1.0mm × 1.5mm)



COMMON DIMENSIONS

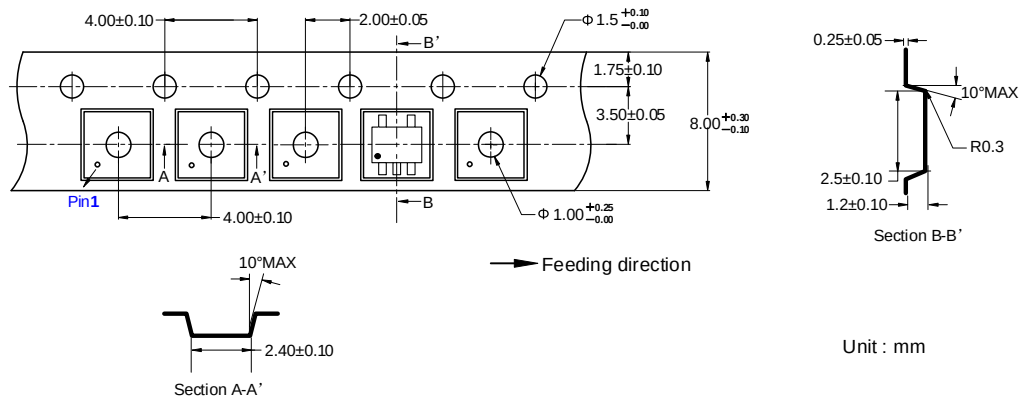
(Unit: mm)

SYMBOL	MIN	NOM	MAX
A	0.50	--	0.60
A1	0.00	0.02	0.05
A3	0.10REF		
b	0.15	0.20	0.25
D	0.90	1.00	1.10
E	1.40	1.50	1.60
e	0.50BSC		
K	0.30REF		
K1	0.25REF		
L	0.35	0.40	0.45
L1	0.30	0.35	0.40

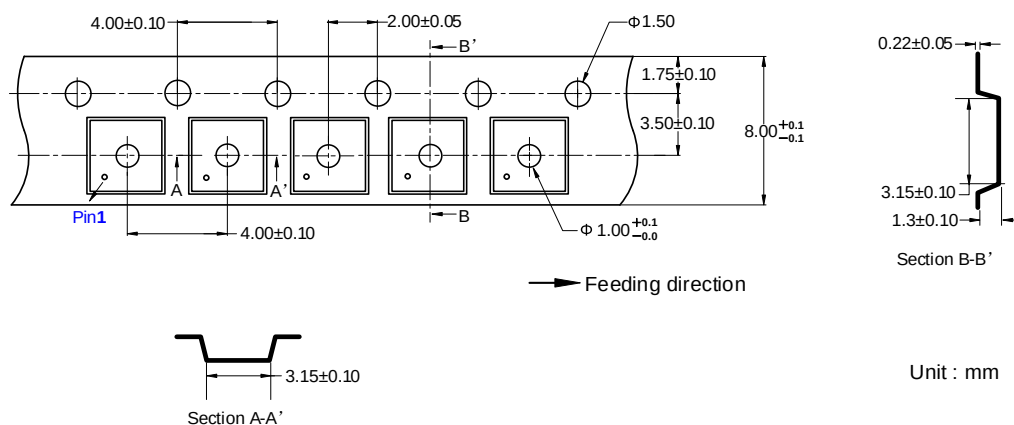
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Tape Information

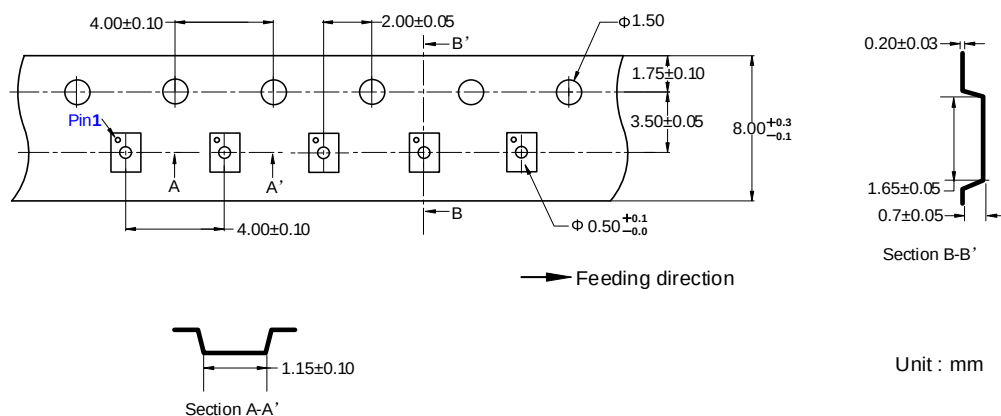
SC70-5 (1.3mm × 2.1mm)



SOT23-5 (1.6mm × 2.9mm)



DFN6 (1.0mm × 1.5mm)



ET74AHC1G32

Marking Information

1G32X ● ET74AHC1G32 1G32 = Part Number X = Tracking Number	C132 XXXXX ● ET74AHC1G32T C132 = Part Number XXXXX = Tracking Number
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Revision History and Checking Table

Version	Date	Revision Item	Modifier	Function & Spec Checking	Package & Tape Checking
1.0	2025-09-05	Original Version	Wang anran	Yang xiaoxu	Liu jiaying
1.1	2026-7-31	Update Package	Lu Shao jie	Yang Xiao xu	Liu Jiaying