

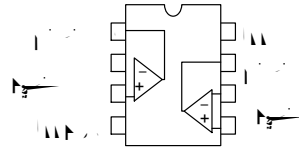
PDIP-8
 N, AN, VN SUFFIX
 CASE 626

8
1

SOIC-8
 D, VD SUFFIX
 CASE 751

8
1

PIN CONNECTIONS



Features

LM258, LM358, LM358A, LM358E, LM2904, LM2904A, LM2904E, LM2904V, NCV2904

MAXIMUM RATINGS ($T_A = +25^\circ\text{C}$, unless otherwise noted.)

Rating	Symbol	Value	Unit
Power Supply Voltages Single Supply Split Supplies	V_{CC} V_{CC}, V_{EE}	32 16	Vdc
Input Differential Voltage Range (Note 1)	V_{IDR}	32	Vdc
Input Common Mode Voltage Range	V_{ICR}	-0.3 to 32	Vdc
Output Short Circuit Duration	t_{SC}	Continuous	
Junction Temperature	T_J	150	$^\circ\text{C}$
Thermal Resistance, Junction-to-Air (Note 2)	Case 846A Case 751 Case 626	$R_{\theta JA}$ 238 212 161	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	Case 751	$R_{\theta JC}$ 72	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Board	Case 751	42	$^\circ\text{C/W}$

LM258, LM358, LM358A, LM358E, LM2904, LM2904A, LM2904E, LM2904V, NCV2904

ELECTRICAL CHARACTERISTICS ($V_{CC} = 5.0\text{ V}$, $V_{EE} = \text{Gnd}$, $T_A = 25^\circ\text{C}$, unless otherwise noted.)

Characteristic	Symbol	LM2904/LM2904E			LM2904A			LM2904V, NCV2904			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Input Offset Voltage $V_{CC} = 5.0\text{ V}$ to 30 V , $V_{IC} = 0\text{ V}$ to $V_{CC} - 1.7\text{ V}$, $V_O = 1.4\text{ V}$, $R_S = 0\ \Omega$ $T_A = 25^\circ\text{C}$ $T_A = T_{\text{high}}$ (Note 7) $T_A = T_{\text{low}}$ (Note 7)	V_{IO}	-	2.0	7.0	-	2.0	7.0	-	-	7.0	mV
Average Temperature Coefficient of Input Offset Voltage $T_A = T_{\text{high}}$ to T_{low} (Note 7)	$\Delta V_{IO}/\Delta T$	-	7.0	-	-	7.0	-	-	7.0	-	$\mu\text{V}/^\circ\text{C}$
Input Offset Current $T_A = T_{\text{high}}$ to T_{low} (Note 7)	I_{IO}	-	5.0	50	-	5.0	50	-	5.0	50	nA
Input Bias Current $T_A = T_{\text{high}}$ to T_{low} (Note 7)	I_{IB}	-	-45	-250	-	-45	-100	-	-45	-250	
		-	-50	-500	-						

|



Figure 6. Large-



Figure 15. Function Generator



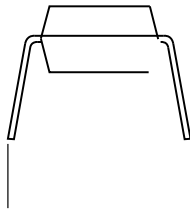
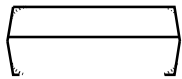
Figure 16. Multiple Feedback Bandpass Filter

g†
& Reel
Rail
& Reel
& Reel
& Reel
Rail
Rail
& Reel

MARKING DIAGRAMS

PDIP-8
N SUFFIX
CASE 626

SOIC-8
D SUFFIX
CASE 751



-X-

- - - -

⊕ 0. (0.010) ○ ○

-Y-

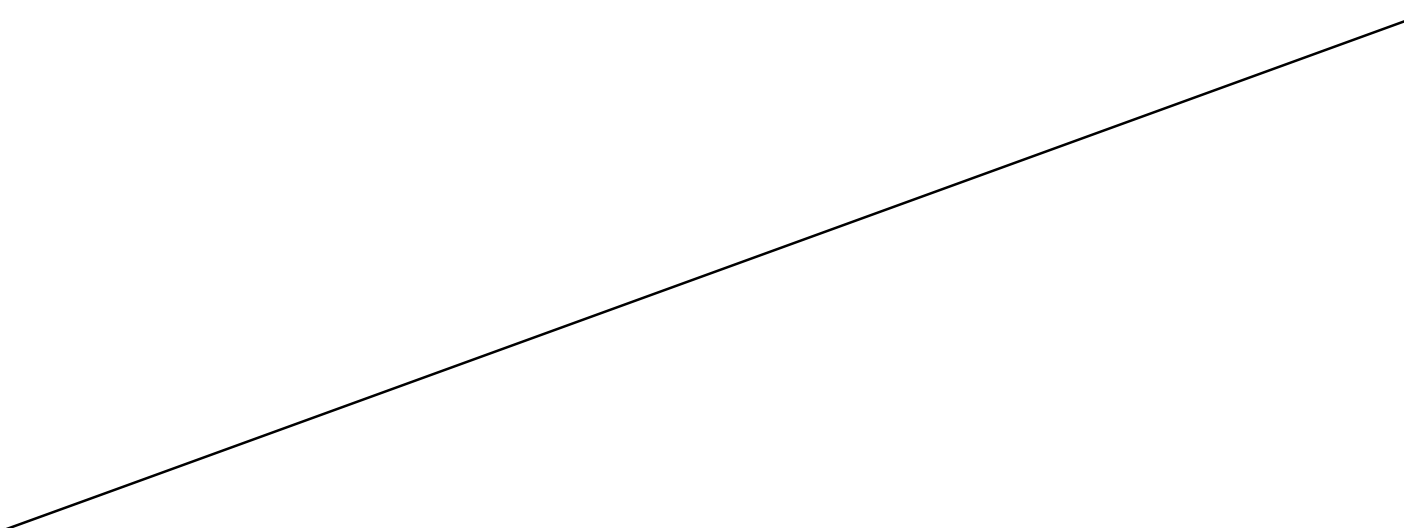
- - - -

G

-Z-

C	1.35	1.75	0.053	0.069
D	0.33	0.51	0.013	0.020
G	1.27 BSC		0.050 BSC	
H	0.10	0.25	0.004	0.010
J	0.19	0.25	0.007	0.010
K	0.40	1.27	0.016	0.050
M	0	8	0	8
N	0.25	0.50	0.010	0.020
S	5.80	6.20	0.228	0.244

0. (0.010) ○ 101100 1.000 0.1 1011. 100 0001.1 1001 1 0()01.1 100111.1 10000 5.80 6.20 0.228 0.244 1.0 0 1000 0.)





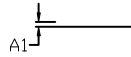
SCALE 2:1

Micro8
CASE 846A-02
ISSUE K

DATE 16 JUL 2020

NOTES:

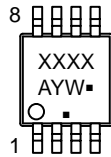
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. CONTROLLING DIMENSION: MILLIMETERS
3. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE PROTRUSION SHALL BE 0.10 mm IN EXCESS OF



DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSION

$\Delta |0.038 \text{ } \langle 0.0015 \rangle$

GENERIC MARKING DIAGRAM*



- XXXX = Specific Device Code
- A = Assembly Location
- Y = Year
- W = Work Week
- = Pb-Free Package

(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

RECOMMENDED MOUNTING FOOTPRINT

DIM	MILLIMETER		
	MIN.	NOM.	
A	---	---	
A1	0.05	0.08	
c	0.13	0.18	
E			

- STYLE 1:
- PIN 1. SOURCE
 - 2. SOURCE
 - 3. SOURCE
 - 4. GATE
 - 5. DRAIN
 - 6. DRAIN
 - 7. DRAIN
 - 8. DRAIN

- STYLE 2:
- PIN 1. SOURCE 1
 - 2. GATE 1
 - 3. SOURCE 2
 - 4. GATE 2
 - 5. DRAIN 2
 - 6. DRAIN 2
 - 7. DRAIN 1
 - 8. DRAIN 1

- STYLE 3:
- PIN 1. N-SOURCE
 - 2. N-GATE
 - 3. P-SOURCE
 - 4. P-GATE
 - 5. P-DRAIN
 - 6. P-DRAIN
 - 7. N-DRAIN
 - 8. N-DRAIN

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