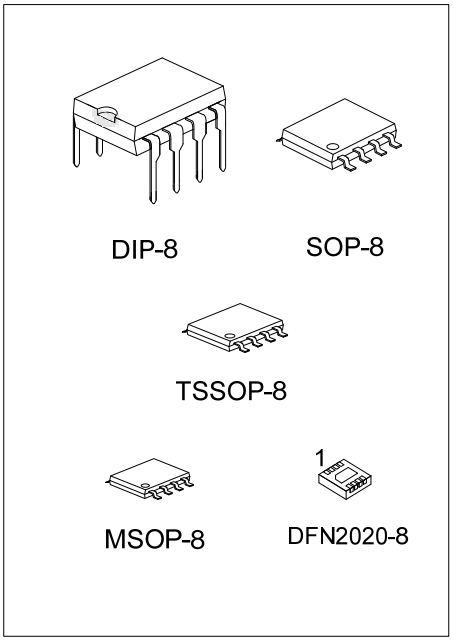
LM2903B

LINEAR INTEGRATED CIRCUIT

DUAL DIFFERENTIAL COMPARATOR



■ DESCRIPTION

The UTC **LM2903B** consists of two independent voltage comparators, designed specifically to operate from a single power supply over a wide voltage range.

■ FEATURES

* Single or dual supply operation
* Wide operating supply range
  (V_{CC}=2V ~ 36V or ±1 ~ ±18V)
* Input common-mode voltage includes ground
* Low supply current drain I_{CC}=0.4mA (Typical)
* Open Collector Outputs for Wired and Connection
* Low Output Saturation Voltage
* Output compatible with TTL, DTL, and CMOS logic system
* High ESD (2kV, HBM)

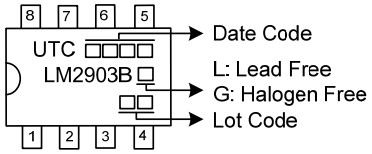
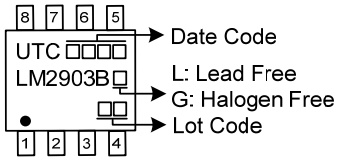
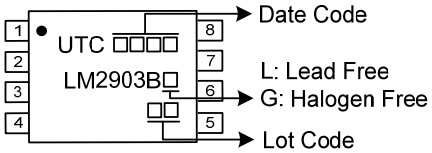
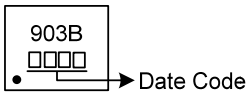
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen-Free		
LM2903BL-D08-T	LM2903BG-D08-T	DIP-8	Tube
LM2903BL-S08-R	LM2903BG-S08-R	SOP-8	Tape Reel
LM2903BL-P08-R	LM2903BG-P08-R	TSSOP-8	Tape Reel
LM2903BL-SM1-R	LM2903BG-SM1-R	MSOP-8	Tape Reel
LM2903BL-K08-2020-R	LM2903BG-K08-2020-R	DFN2020-8	Tape Reel

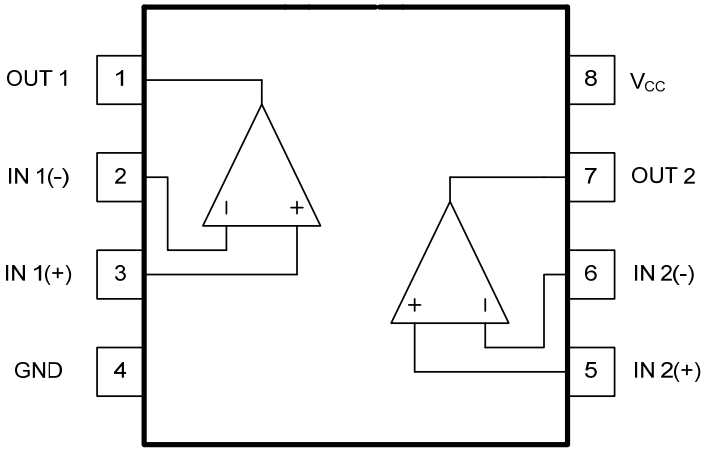
LM2903BG-D08-T
(1) Packing Type
(2) Package Type
(3) Green Package

(1) T: Tube, R: Tape Reel
(2) D08: DIP-8, S08: SOP-8, P08: TSSOP-8, SM1: MSOP-8, K08-2020: DFN2020-8
(3) G: Halogen Free and Lead Free, L: Lead Free

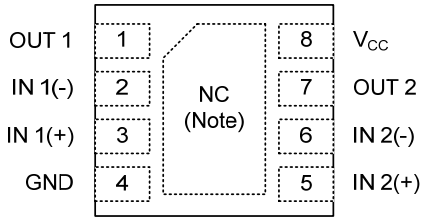
■ MARKING

DIP-8	SOP-8 / MSOP-8
	
TSSOP-8	**DFN2020-8**
	

■ PIN DESCRIPTION



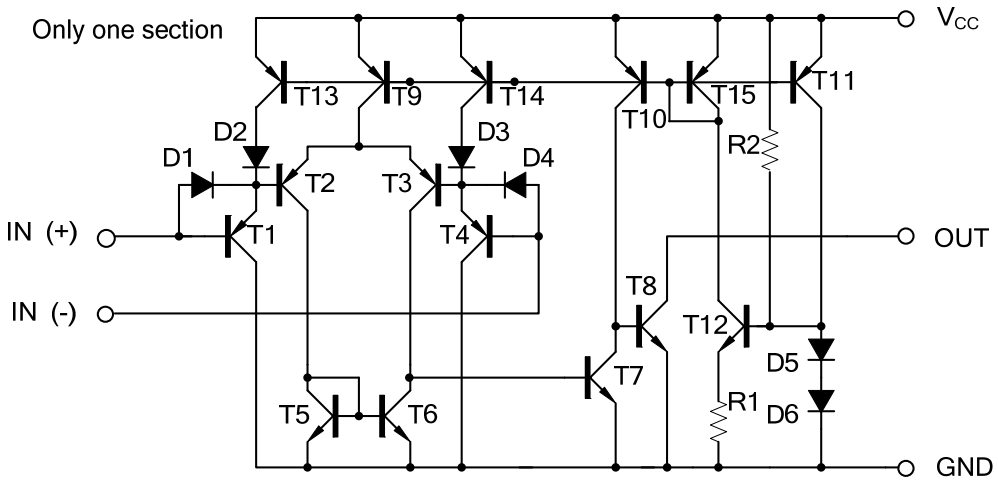
DIP-8 / SOP-8 / MSOP-8 / TSSOP-8



DFN2020-8
(Top View)

Note: No connect.

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (T_A = 25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	38	V
Differential Input Voltage		$V_{I(DIFF)}$	±38	V
Input Voltage		V_{IN}	-0.3 ~ +38	V
Power Dissipation (T_A=25°C)	DIP-8	P_D	780	mW
	SOP-8		420	mW
	TSSOP-8		350	mW
	MSOP-8		300	mW
	DFN2020-8		830	mW
Electrostatic Discharge	Human-Body Model (HBM) Per JESD22-A114/115	$V_{(ESD)}$	2000	V
Junction Temperature		T_J	+150	°C
Operating Temperature Range (Note 2)		T_{OPR}	-40 ~ +125	°C
Storage Temperature Range		T_{STG}	-65 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. It is guarantee by design, not 100% be tested.

■ ELECTRICAL CHARACTERISTICS

(V_{CC}=5.0V, T_A=25°C, All voltage referenced to GND unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Supply Current	I_{CC}	R_L=∝, V_{CC}=5V		0.4	0.8	mA
		V_{CC}=36V , T_A=-Full range			1.0	mA
Input Offset Voltage	$V_{I(OFF)}$	V_{CM}=0V toV_{CC}-1.5V $V_{O(P)}$=1.4V, R_S=0Ω		1.0	2.5	mV
		T_A=-Full range			4	mV
Input Offset Current	$I_{I(OFF)}$			5	50	nA
		T_A=-Full range			100	nA
Input Bias Current	$I_{I(BIAS)}$			25	250	nA
		T_A=-Full range			400	nA
Input Common Mode Voltage	$V_{I(CM)}$	V_{CC}=3~36V	0		V_{CC}-1.5	V
		T_A=-Full range	0		V_{CC}-2.0	V
Large Signal Voltage Gain	G_V	V_{CC}=15V, R_L≧15KΩ	50	90		dB
Output Saturation Voltage	V_{SAT}	V_I(-)>1V, V_I(+)=0V, I_{SINK}=4mA		280	400	mV
		T_A=-Full range			550	mV
Output Sink Current	$I_{O(SINK)}$	V_I(-)>1V, V_I(+)=0V, Vo(p)<1.5V	6	16		mA
Output Leakage Current	$I_{O(LEAK)}$	V_I(+)=1V, V_I(-)=0V, V_O(p)= 5V		0.1		nA
		V_I(+)=1V, V_I(-)=0V, V_O(p)=36V			1.0	μA
Large Signal Response Time	t_R	V_{IN}=TTL logic wing V_{REF}=1.4V, V_{RL}=5V, R_L=5.1kΩ		350		ns
Response Time	t_R	V_{RL}=5V,R_L=5.1kΩ		1400		ns

■ TYPICAL CHARACTERISTICS