

# DBL 5019

## LOW POWER NARROW BAND FM IF

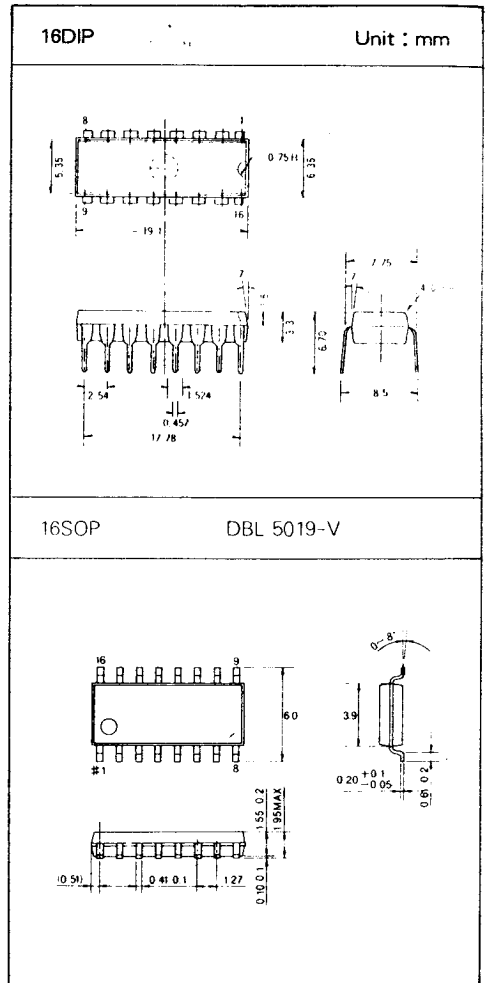
The DBL5019 performs single conversion FM reception and consist of an oscillator, mixer, limiting IF amplifier, and meter drive circuitry. These devices are designed for use in FM dual conversion communication eqpmetrn.

The DBL5019 is similar to the DBL5018 FM IFs, except that a signal strength indicator replaces the scan function controlling driver which is in the DBL5018. The DBL5019 is design for the use of parallel LC components.

This devices also requires fewer external parts than earlier products. The DBL5019 are availavle in dual-in-line and surface mount packaging.

### FEATURES

- Wide operating Supply Voltage Range :  $V_{cc}=2.0$  to  $9.0V$
- Input Limiting Voltage Sensitivity of  $-3.0dB(2\mu V)$
- Low Drain Current :  $I_{cc}=3.2mA$ , ( $V_{cc}=4.0V$ , Squelch off)
- Minimal Drain Current Increase When Squelched
- Signal Strength Indicator :  $60dB$  Dynamic Range
- Mixer operating Frequency Up to  $100MHz$
- Fewer External Parts Requirede than Earlier Devices



# DBL 5019

## □ MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )

Characteristics	Symbol	Rating	Unit
Maximum Supply Voltage	$V_{CC(MAX)}$	10	V
Supply Voltage	$V_{CC}$	2.0~9.0	V
Detector Input Voltage	$V_{IN(DET)}$	1.0	$V_{p-p}$
RF Input Voltage( $V_{CC} \geq 4.0V$ )	$V_{IN(RF)}$	1.0	$V_{rms}$
Squelch Input Voltage( $V_{CC} \geq 4.0V$ )	$V_{SQ}$	6.0	V
Mute Function	$V_{MUTE}$	-0.7~+10	$V_{pk}$
Mute Sink current	$I_{SQ}$	50	mA
Operating Temperature	$T_{opr}$	-20~+70	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-65~150	$^\circ\text{C}$

## □ ELECTRICAL CHARACTERISTICS

(Unless otherwise specified,  $T_a=25^\circ\text{C}$ ,  $V_{CC}=4V$ ,  $f_o=58.1125\text{MHz}$ ,  $f_m=1\text{KHz}$ ,  $\Delta f = \pm 3\text{KHz}$ )

Characteristics	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Squelch Current (No Signal)	$I_{cc1}$	Squelch off ( $V_{I2}=2V$ )	-	3.2	4.2	mA
	$I_{cc2}$	Squelch on ( $V_{I2}=0V$ )	-	3.6	4.8	
	$dl_{cc}$	Squelch off, $V_{CC}=2\sim 9V$	-	1.0	2.0	
Detector Output Dc Voltage	$V_D$	$V_S=2.0$	0.9	1.6	2.3	V
Filter Output DC Voltage	$V_{F1}$	No Input Signal	1.5	2.5	3.5	V
Trigger Hysteresis	Hys	-	34	57	80	mV
Input for 12dB SINAD	$V_{SIN}$	Matched Input	-	1.0	-	$\mu V_{rms}$
		unmatched Input	-	5.0	15	
Input for 20dB NQS	$V_{NQS}$	-	-	3.5	-	$\mu V_{rms}$

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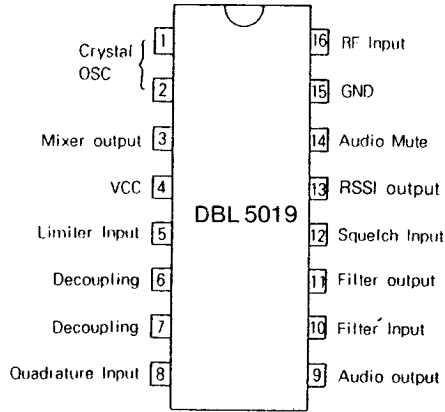
## □ ELECTRICAL CHARACTERISTICS

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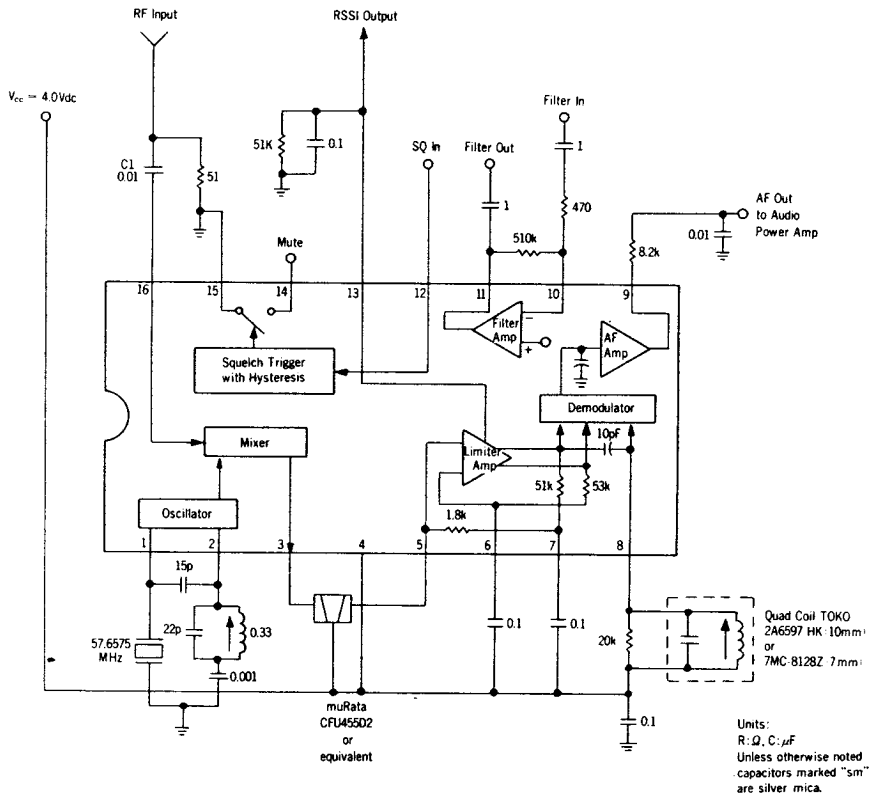
Characteristics	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Recovered Audio Output Voltage	$AF_0$	$V_{it}=30\text{dBm}$	120	200	320	mVrms
Recovered Audio Drop Voltage Loss	$AF_{1,0SS}$	$V_{it}=-30\text{dBm}$ $V_{cc}=4.0\sim 2.0\text{V}$	-8.0	-1.5	-	dB
Meter Drive Output Voltage (No Modulation)	$MV_1$ $MV_2$ $MV_3$	$V_{it}=-100\text{dBm}$ $V_{it}=-70\text{dBm}$ $V_{it}=-40\text{dBm}$	-	0.3 1.1 2.0	0.5 1.9 3.1	V
Filter Amp Gain	$A_v$ (Amp)	$R_i=600\Omega$ , $f_s=10\text{KHz}$ . $V_{ia}=1.0\text{mVrms}$	47	50	-	dB
Mixer Conversion Gain	$A_v(\text{Mix})$	$V_{it}=-40\text{dBm}$ , $R_i=1.8\text{K}\Omega$	14	20	-	dB
Signal to Noise Ratio	S/N	$V_{it}=-30\text{dBm}$	36	67	-	dB
Total harmonic Distortion	THD	$V_{it}=-30\text{dBm}$ $\text{BW}=400\text{Hz}\sim 30\text{KHz}$	-	0.6	3.4	%
Detector Output Impedance	$Z_o$	-	-	450	-	$\Omega$
Detector Output Voltage	$DV_o$	$V_{it}=-30\text{dBm}$ No Modulation	-	1.45	-	V
Meter Driver	$M_o$	$V_{it}=-100\sim -40\text{dBm}$	-	0.8	-	$\mu\text{A}/\text{dB}$
Meter Driver	$RF_{IN}$	-	-	60	-	dB
Dynamic Range	$IF_{IN}$	-	-	80	-	
Mixer Third Order Input Intercept Point	$ITO_{MIX}$	$f_1=58.125\text{MHz}$ $f_2=58.1375\text{MHz}$	-	-22	-	dBm
Mixer Input Resistance	$R_{in}$	-	-	3.3	-	$\text{k}\Omega$
Mixer Input Capacitance	$C_{ia}$	-	-	2.2	-	pF

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## PIN CONFIGURATION

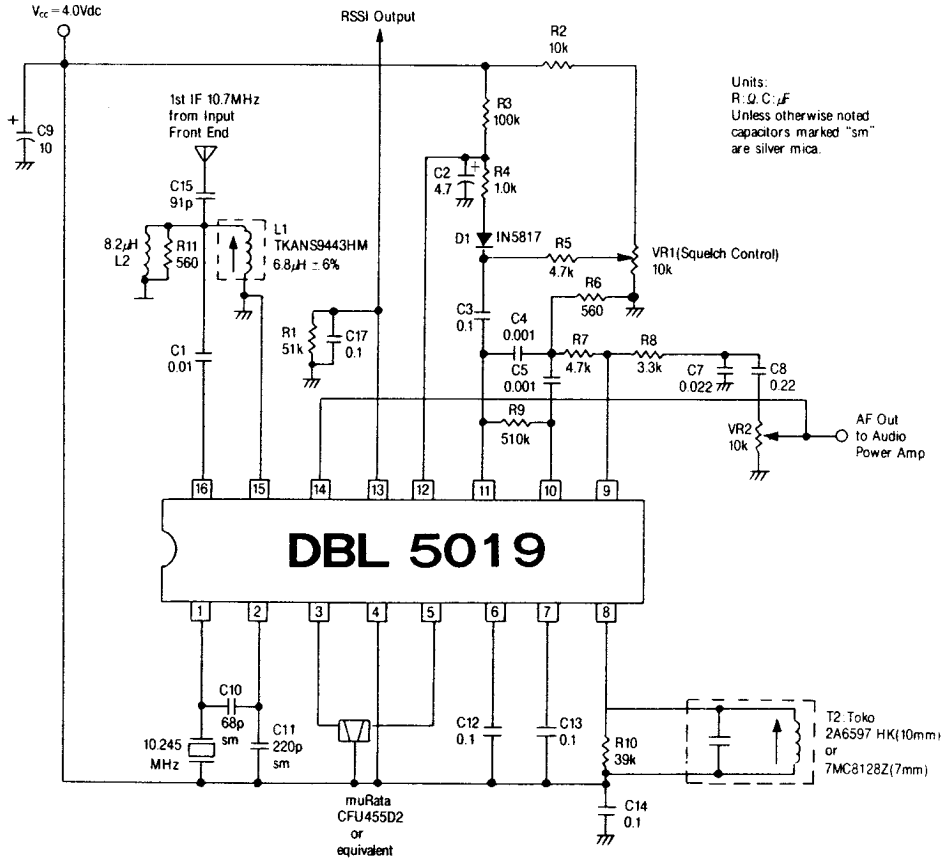


## BLOCK DIAGRAM AND TEST CIRCUIT



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## □ TYPICAL PERFORMANCE CHARACTERISTICS



# DBL 5019

## APPLICATION CLRCUIT

### TYPICAL PERFORMANCE CHARACTERISTICS

