quad-ring demodulator designed for . . .

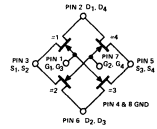
- **VHF Double-Balanced Mixers**
- **Analog Multipliers**

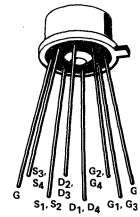
Performance Curves NZA
See Section 4

BENEFITS

- Four Matched U310 FETs
- High IMD Intercept Point
- Low Turn-ON Resistance
- Conversion Gain
- High 1 dB Compression
- Suitable for PC Board Construction

TO-99
See Section 5





ABSOLUTE MAXIMUM RATINGS (25°C)

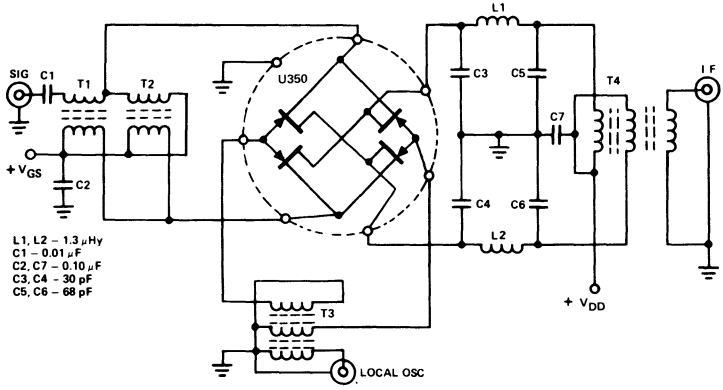
Gate-Drain or Gate-Source Voltage . . . . . −25 V
Gate Current . . . . . 25 mA
Total Continuous Power Dissipation
at (or Below) 25°C Free Air Temperature
(Derate 8.0 mW/°C to 150°C) . . . . . 1 W
Storage Temperature Range . . . . . −65 to +150°C
Lead Temperature
(1/16" from case for 10 seconds) . . . . . 300°C

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

		Characteristic		U350 Min	U350 Typ	U350 Max	Unit	Test Conditions	
1	STATIC	I_{GSS}	Gate Reverse Current			-1	nA	V_{GS} = -15 V, V_{DS} = 0	
2						-1	μA	(Note 1)	T_A = +125°C
3		BV_{GSS}	Gate-Source Breakdown Voltage	-25			V	I_G = -1 μA, V_{DS} = 0	
4		$V_{GS(off)}$	Gate-Source Cutoff Voltage	-2		-6		I_D = 1 nA, V_{DS} = 10 V (Note 1)	
5		$V_{GS(f)}$	Gate-Source Forward Voltage			1		I_G = 1 mA, V_{DS} = 0 (Note 1)	
6		I_{DSS}	Drain Saturation Current	24		60	mA	V_{DS} = 15 V, V_{GS} = 0 (Notes 1 and 2)	
7	DYNAMIC	g_{fs}	Common-Source Forward Transconductance	10		18	m℧	V_{DS} = 10 V, I_D = 10 mA	f = 1 kHz (Note 1)
8		g_{os}	Common-Source Output Conductance			150	μ℧		
9		C_{gs}	Gate-Source Capacitance			5	pF	V_{GS} = -10 V, I_D = 0	f = 1 MHz (Note 1)
10		C_{gd}	Drain Gate Capacitance			2.5		V_{GD} = -10 V, I_S = 0	
11		$R_{ds(on)}$	Drain-Source ON Resistance		50	90	Ω	V_{GS} = 0, I_D = 0	f = 1 kHz
12	HF	G_c	(Conversion Gain)		4		dB	V_{DS} = 20 V, V_{GS} = ½$V_{GS(off)}$, R_D = 1,700 Ω	f = 100 MHz (Note 3)
13		NF	Noise Figure		7				
14	MATCH	I_{DSS}/I_{DSS}	Saturation Drain Current Ratio	0.9		1.0		V_{DS} = 15 V, V_{GS} = 0 (Note 2)	
15		$V_{GS(off)}/V_{GS(off)}$	Gate-Source Cutoff Voltage Ratio	0.9		1.0		V_{DS} = 15 V, I_D = 1 nA	
16		g_{fs}/g_{fs}	Common-Source Forward Transconductance	0.9		1.0		V_{DS} = 15 V, I_D = 10 mA	f = 1 kHz
17		g_{os}/g_{os}	Differential Output Conductance	0.9		1.0			

NZA

NOTES:
1. Other gate terminal clamped to -8 V
2. Pulse test: PW 300 μsec DC ≤ 3 %.
3. See Figure 1.



Double-Balanced Mixer using U350*
Figure 1

*Reference Siliconix application note AN73-4