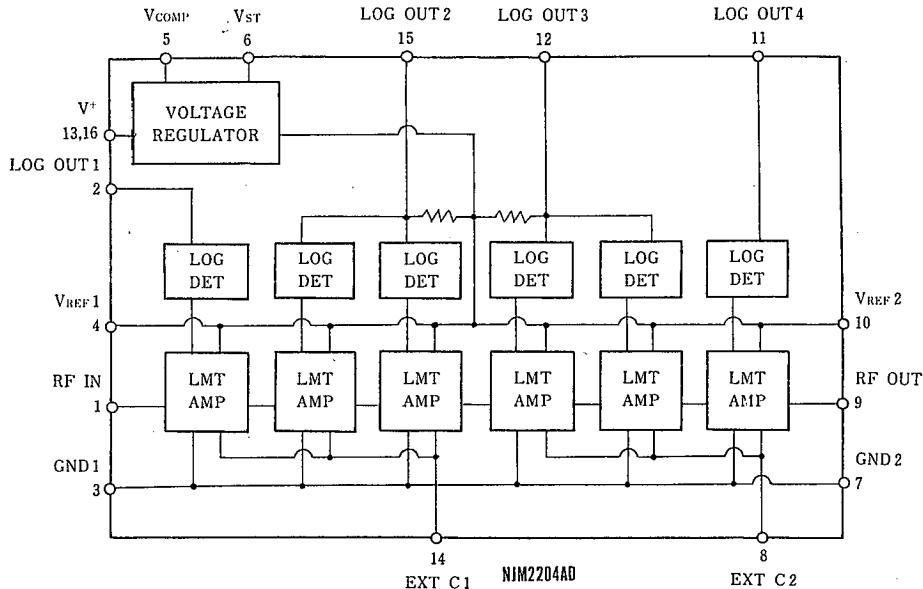


LOG AMPLIFIER**■ GENERAL DESCRIPTION**

The NJM2204A is an integrated IF limitting amplifier which

■ PACKAGE OUTLINE

■ BLOCK DIAGRAM



■ LOG DETECTOR OUTPUT CHARACTERISTICS (EXAMPLE)

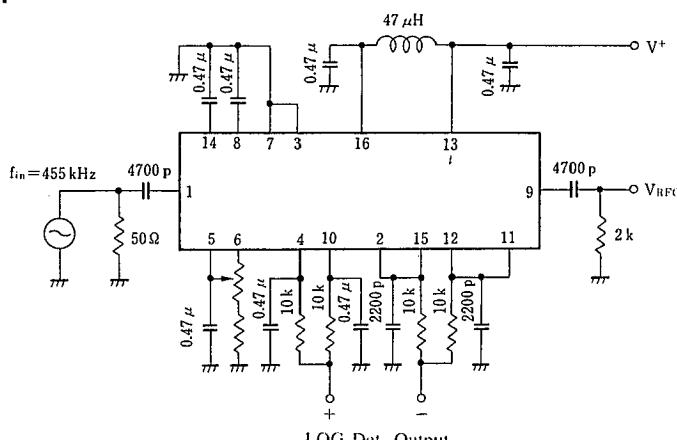
(Ta=25°C, V⁺=9V, V_{REF}=6.0V)

PARAMETER	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Log Detector Output	f _{in} =455kHz, V _{in} =8dB (50Ω termination)	0.976	1.004	1.032	V
	f _{in} =455kHz, V _{in} =-2dB (50Ω termination)	0.868	0.896	0.924	V
	f _{in} =455kHz, V _{in} =-12dB (50Ω termination)	0.727	0.755	0.783	V
	f _{in} =455kHz, V _{in} =-22dB (50Ω termination)	0.586	0.614	0.642	V
	f _{in} =455kHz, V _{in} =-32dB (50Ω termination)	0.446	0.474	0.502	V
	f _{in} =455kHz, V _{in} =-42dB (50Ω termination)	0.305	0.333	0.361	V
	f _{in} =455kHz, V _{in} =-52dB (50Ω termination)	0.164	0.192	0.202	V
	f _{in} =455kHz, V _{in} =-62dB (50Ω termination)	0.057	0.085	0.113	V
Log Detector Linearity	Ta=-20°C~85°C, V _{in} =-2~-52dBm	—	—	±1	dB

* Log Detection Linearity: It is error between RF input level and ideal input level to straight line connected two detection output points of two input level (-2dBm , -52dBm).

* Temperature coefficient of Log detection output voltage: approximately $90\mu\text{V}/^\circ\text{C}$ Typ. ($-20\text{--}+85^\circ\text{C}$)

■ TEST CIRCUIT



■ RECOMMENDED OPERATING CONDITION

(Ta=-20~85°C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V ⁺	8.0	9.0	16.0	V
Output Load Impedance	B _{RFO}	1	2	—	kΩ
	B _{LOGO}	100	—	—	kΩ
Stabilized Voltage	V _{VR}	—	6.0	—	V

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V ⁺	-0.5~16.0	V
Input Voltage	V _{IN}	-0.5~V ⁺	V
Output Current	I _{LR}	5	mA
	I _{RFO}	2	mA
Operating Temperature	T _{opr}	-20~85	°C
Storage Temperature	T _{stg}	-55~125	°C

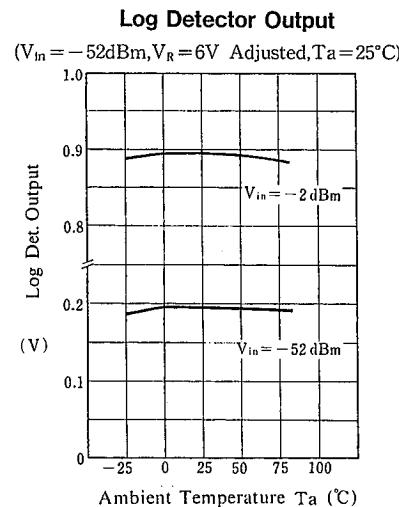
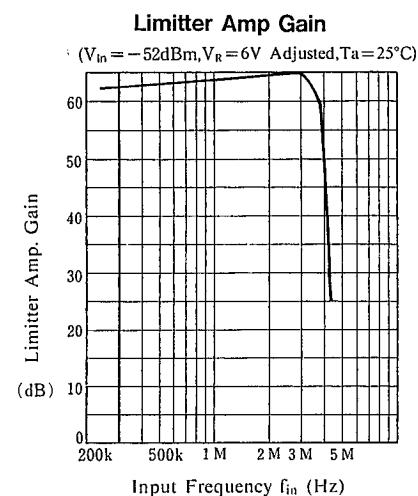
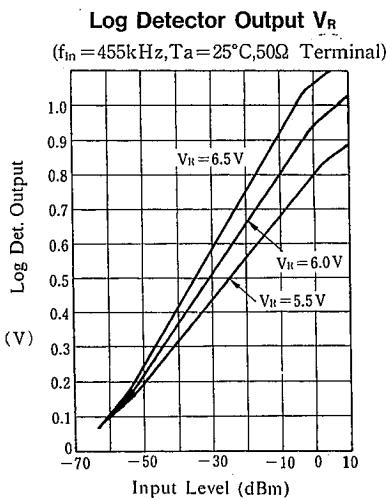
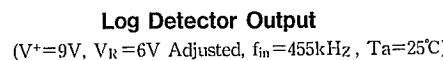
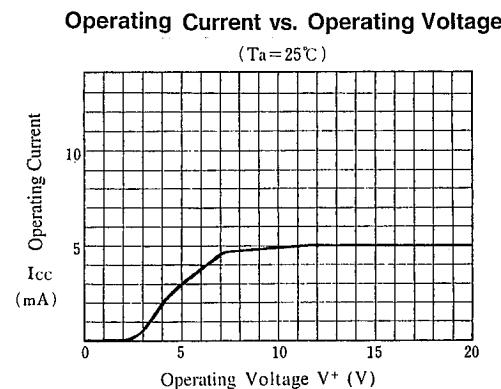
(note): The NJM2204A is produced by high frequency wafer process and so destructive voltage against surge pulse is lower than low frequency product.

■ ELECTRICAL CHARACTERISTICS

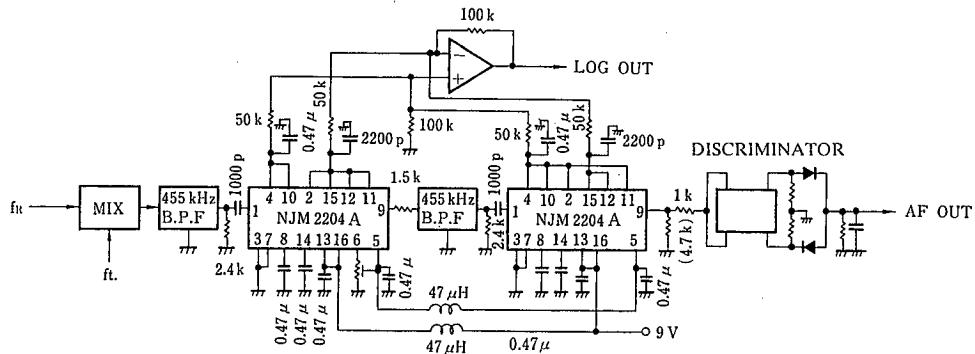
(Ta=25°C, V⁺=9V, V_{REF}=6.0V)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I _{CC}		—	6	10.0	mA
Maximum Operating Frequency	f _{max}		0.5	3	—	MHz
Output Voltage Swing	V _{RFO}	Input: +8dBm (50Ω termination)	—	2.0	—	V _{P-P}
Log Detection Output	V _{LOG}	Input: +8dBm (50Ω termination)	—	1.0	—	V
Log Detection Linearity	L _{IN}	V _m =-2dBm~-52dBm (50Ω termination)	—	—	±1	dB
Limiter Amp Gain	G _V		60	—	—	dB

■ TYPICAL CHARACTERISTICS



■ TYPICAL APPLICATION & CHARACTERISTICS (10 synthesized stage)



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