



8507

LINEAR INTEGRATED CIRCUIT

4mA COMPANDER

DESCRIPTION

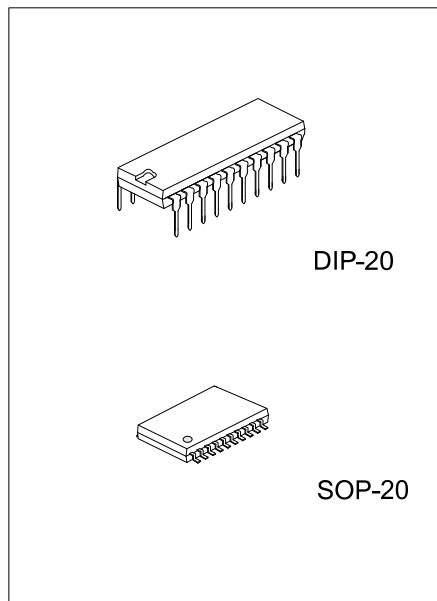
The UTC **8507** is a automatic gain control system that is used for dynamic range compression and expansion.

By companding the signal, this can reduce the noise components.

The UTC **8507** includes compressor, expander, pre-amp, filter amp, limiter and mute/bypass logic.

FEATURES

- * Wide Supply Voltage (2.4 ~ 7V)
- * Easy Gain Control
- * Mute/Bypass Logic
- * Data In/Out Pin



ORDERING INFORMATION

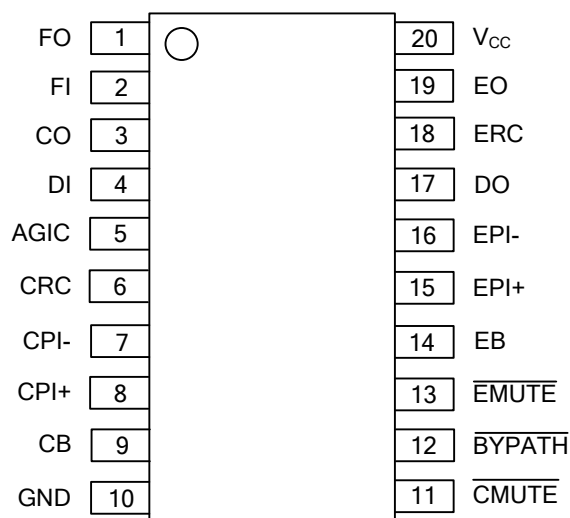
Ordering Number		Package	Packing
Lead Free	Halogen Free		
8507L-D20-T	8507G-D20-T	DIP-20	Tube
-	8507G-S20-R	SOP-20	Tape Reel

<p>8507L-D20-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) D20: DIP-20, S20: SOP-20</p> <p>(3) L: Lead Free, G: Halogen Free and Lead Free</p>
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MARKING

DIP-20	SOP-20
<p>UTC □□□□ → Date Code</p> <p>L: Lead Free</p> <p>G: Halogen Free</p> <p>□□ → Lot Code</p>	<p>UTC □□□□ → Date Code</p> <p>8507G</p> <p>□□ → Lot Code</p>

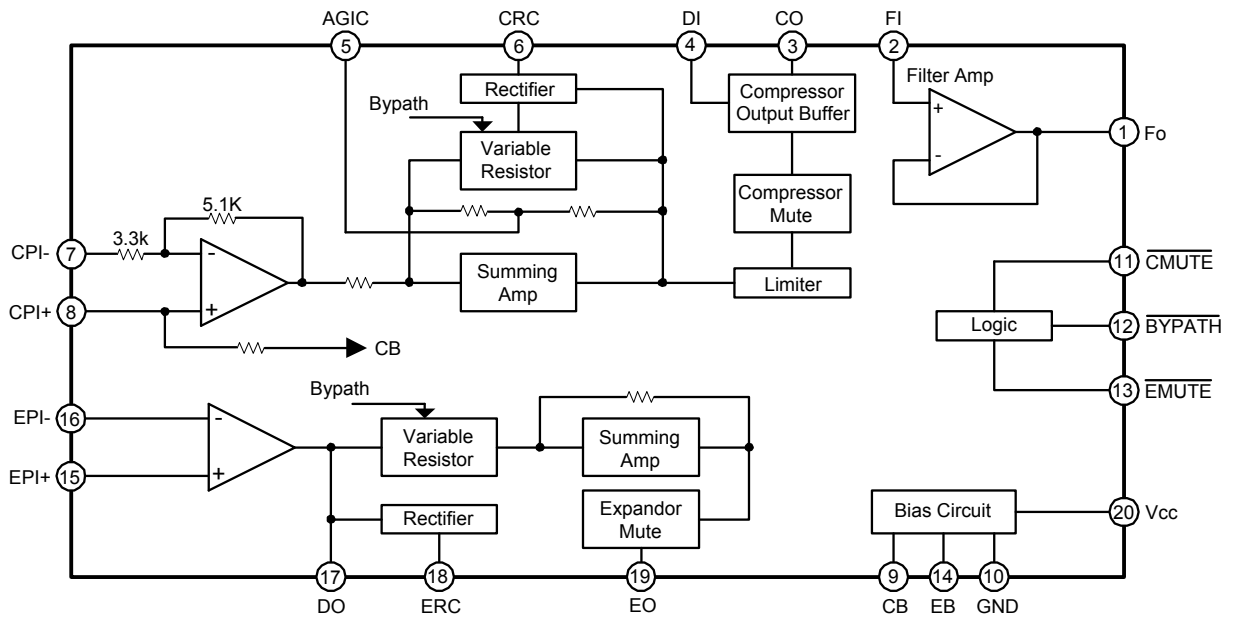
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN No.	SYMBOL	DESCRIPTION
1	FO	Filter Amp Output
2	FI	Filter Amp Input
3	CO	Compressor Output
4	DI	Data Input
5	AGIC	AC Gain Infinity Capacitor
6	CRC	Compressor Rectifier Capacitor
7	CPI-	Compressor Inverting Input
8	CPI+	Compressor Non-Inverting Input
9	CB	Compressor Reference Bias
10	GND	Ground
11	<u>CMUTE</u>	Compressor Mute
12	<u>BYPATH</u>	No companding
13	<u>EMUTE</u>	Expander Mute
14	EB	Expander Reference Bias
15	EPI+	Expander Non-Inverting Input
16	EPI-	Expander Inverting Input
17	DO	Data Output
18	ERC	Expander Rectifier Capacitor
19	EO	Expander Output
20	V _{CC}	Supply Voltage

■ BLOCK DIAGRAM



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■ ABSOLUTE MAXIMUM RATINGS

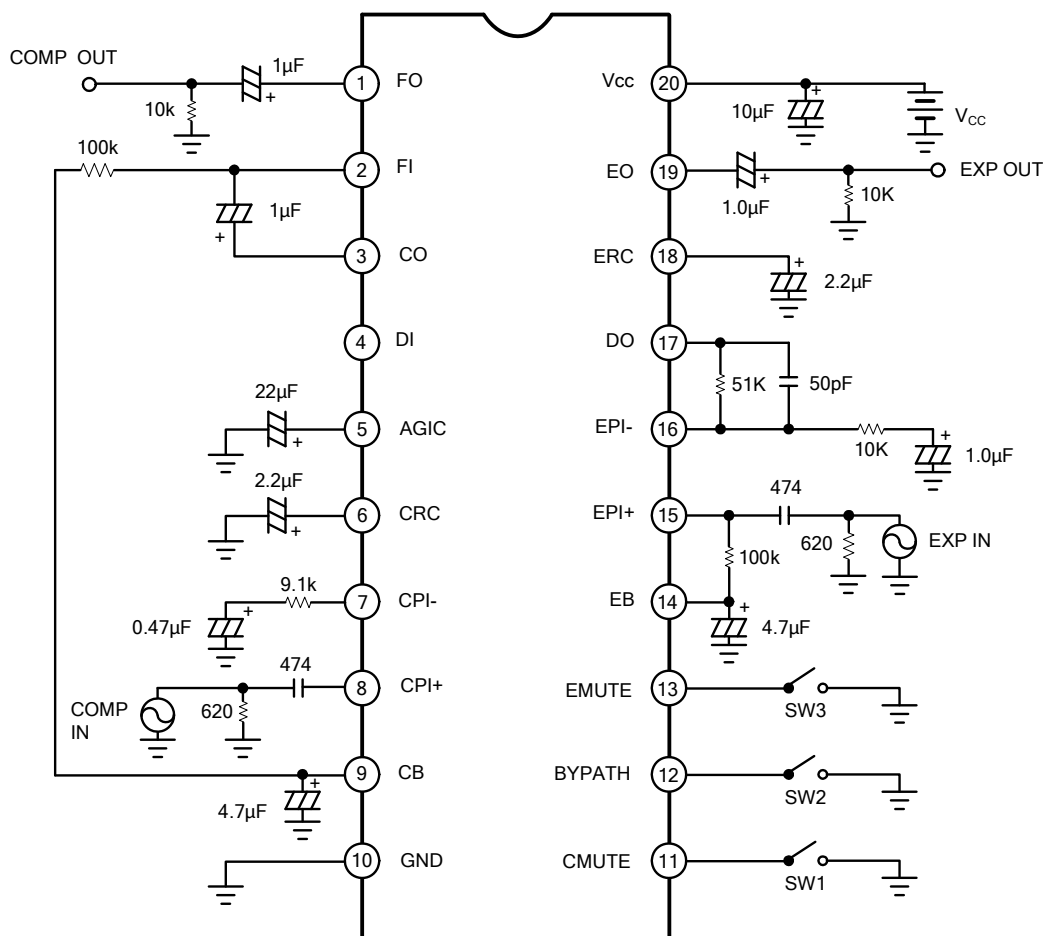
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	10	V
Power Dissipation	DIP-20	1000	mW
	SOP-20	410	mW
Operating Temperature	T_{OPR}	-20 ~ +70	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

Note: 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.

■ ELECTRICAL CHARACTERISTICS ($V_{CC}=3V, f=1kHz, T_a=25^{\circ}C$, unless otherwise noted)

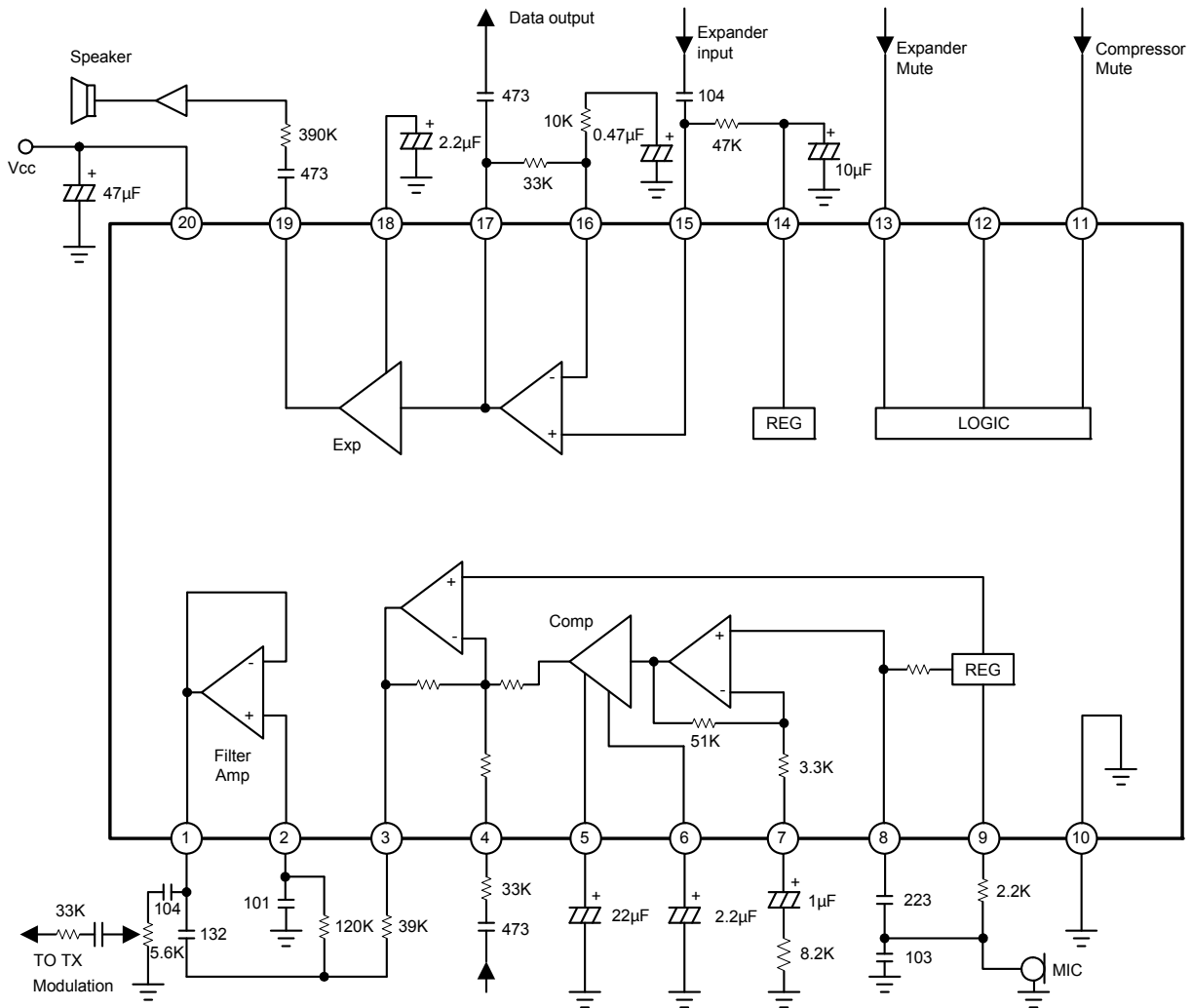
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
DC ELECTRICAL CHARACTERISTICS						
Operating Voltage	V_{CC}			2.4	7.0	V
Operating Current	I_{CC}	No signal		4.0	6.5	mA
COMPRESSOR PART						
Standard Input Voltage (0dB)	$V_{I(Comp)}$	$V_{OUT}=300mV_{rms}=0dB$	8.0	12.5	17.0	mVrms
Gain Difference	$\Delta G_{V1(Comp)}$	$V_{IN}=-20dB$	-0.5	0	+0.5	dB
	$\Delta G_{V2(Comp)}$	$V_{IN}=-40dB$	-1.0	0	+1.0	
Bypass Gain Difference	$\Delta G_{VB(Comp)}$	$V_{IN}=0dB, B_{YPATH}=GND$	-1.5	0	+1.5	dB
Output Distortion	THD _{COMP}	$V_{IN}=0dB$		0.5	1.0	%
Noise Output Voltage	$V_{NO(Comp)}$	$R_G=620\Omega$		3.0	5.5	mVrms
Mute Attenuation Ratio	ATT _{MUTE}	$V_{IN}=0dB, C_{MUTE}=GND$	60	80		dB
Limiting Voltage	$V_{LIM(Comp)}$		1.15	1.35	1.50	Vp-p
EXPANDER PART						
Standard Output Level (0dB)	$V_{O(Exp)}$	$V_{IN}=30mV_{rms}=0dB$	110	130	160	mVrms
Gain Difference	$\Delta G_{V1(Exp)}$	$V_{IN}=-10dB-0.5$	-0.5	0	+0.5	dB
	$\Delta G_{V2(Exp)}$	$V_{IN}=-20dB$	-1.0	0	+1.0	
	$\Delta G_{V3(Exp)}$	$V_{IN}=-30dB$	-1.5	0	+2.0	
Bypass Gain Difference	$\Delta G_{VB(Exp)}$	$V_{IN}=0dB, B_{YPATH}=GND$	-2.5	0	+0.5	dB
Output Distortion	THD _{EXP}	$V_{IN}=0dB$		0.5	1.5	%
Noise Output Voltage	$V_{NO(Exp)}$	$R_G=620\Omega$		10.0	30.0	μ Vrms
Mute Attenuation Ratio	ATT _{MUTE}	$V_{IN}=0dB, E_{MUTE}=GND$	60	80		dB
Limiting Voltage	$V_{OEXP(MAX)}$	THD=10%	700	800		mVrms

■ TEST CIRCUIT



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■ APPLICATION CIRCUIT (HAND SET)



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.