

UTC 8507

LINEAR INTEGRATED CIRCUIT

COMPANDER

DESCRIPTION

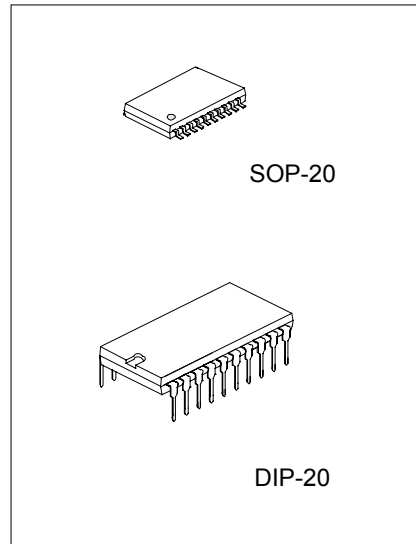
The UTC 8507 is a automatic gain control system that is used for dynamic range compression and expansion.

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

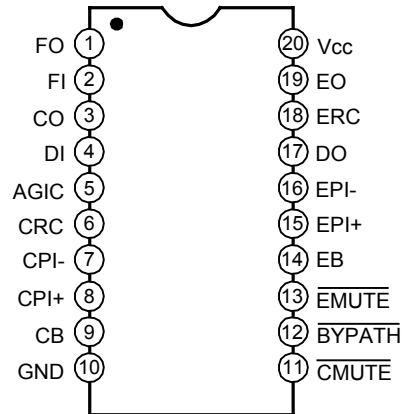
The UTC 8507 includes compressor, expander, pre-amp, filter amp, limiter and mute/bypass logic.

FEATURES

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



PIN CONFIGURATION



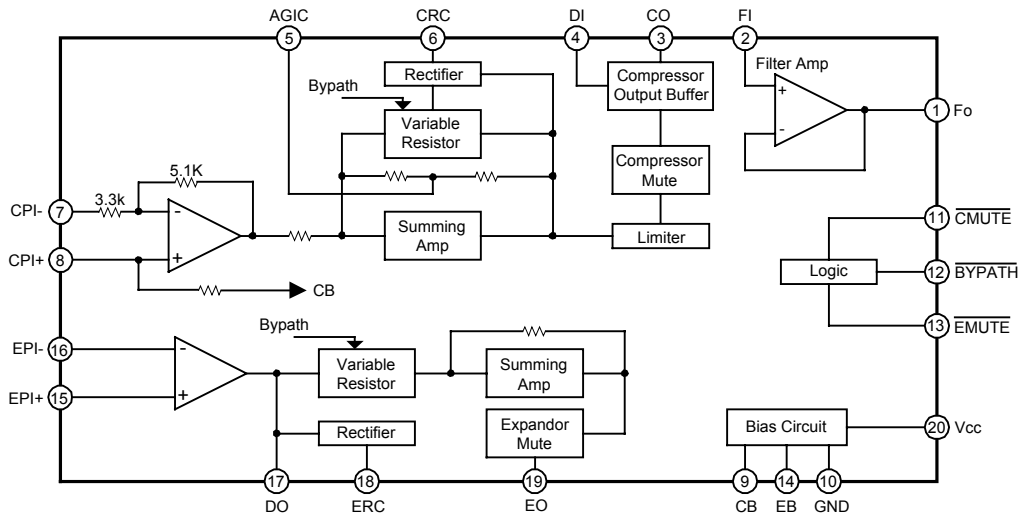
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PIN DESCRIPTION

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

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	Vcc	10	V
Power Dissipation	DIP-20 SOP-20	P _D	1000
			410
Operating Temperature	T _{opr}	-20 ~ +70	°C
Storage Temperature	T _{stg}	-55 ~ +150	°C

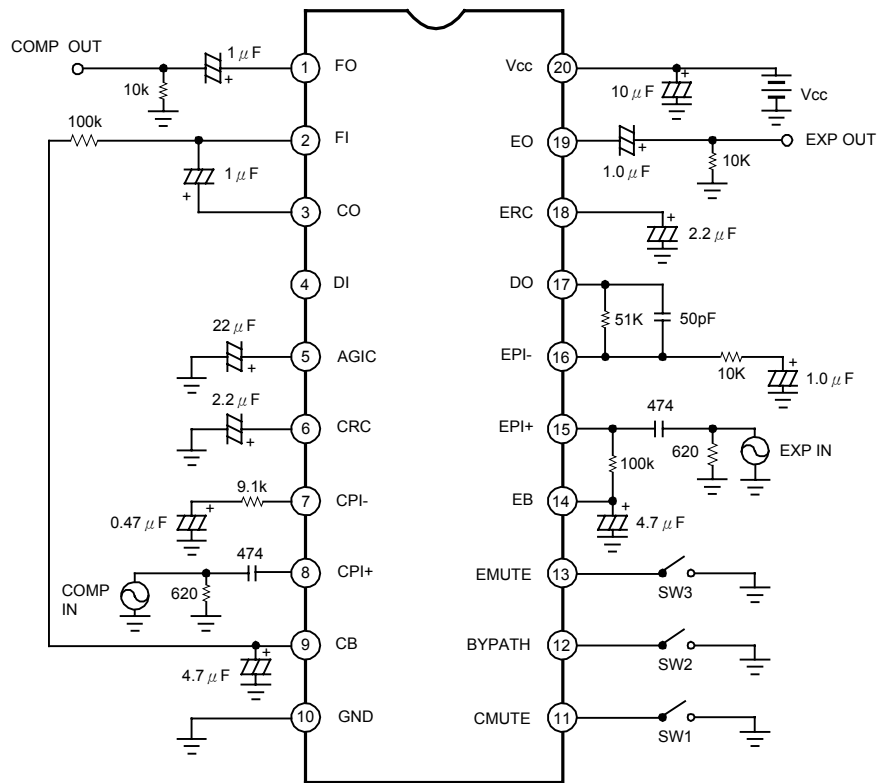
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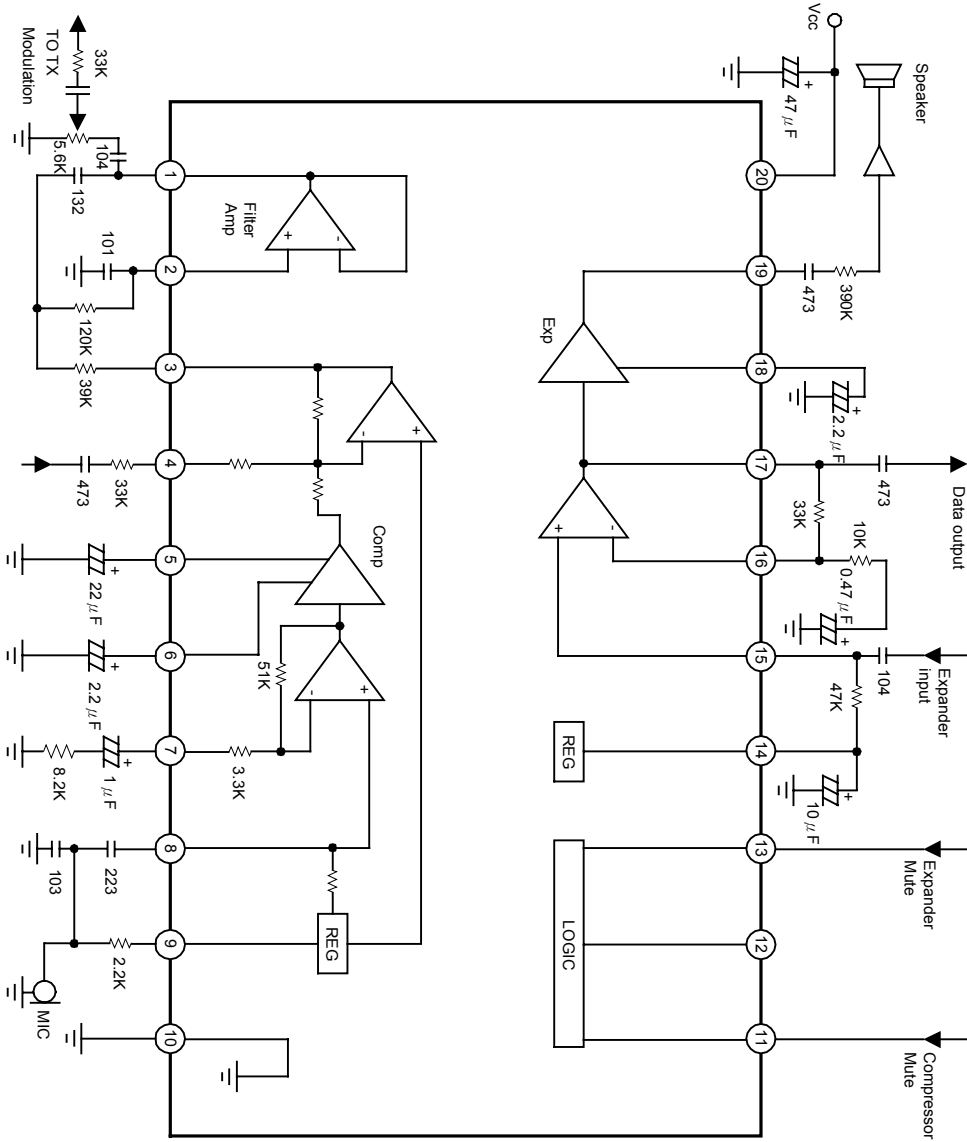
ELECTRICAL CHARACTERISTICS (V_{CC}=3V, f=1kHz, T_a=25°C, unless otherwise noted)

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	mV _{rms}
Gain Difference	ΔG _{V1 (COMP)}	V _{in} =-20dB	-0.5	0	+0.5	dB
	ΔG _{V2 (COMP)}	V _{in} =-40dB	-1.0	0	+1.0	
Bypass Gain Difference	ΔG _{VB (COMP)}	V _{in} =0dB, BYPATH=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 =620Ω		3.0	5.5	mV _{rms}
Mute Attenuation Ratio	ATT _{MUTE}	V _{in} =0dB, CMUTE=GND	60	80		dB
Limiting Voltage	V _{LIM (COMP)}		1.15	1.35	1.50	V _{p-p}
EXPANDER PART						
Standard Output Level (0dB)	V _{O (EXP)}	V _{in} =30mV _{rms} =0dB	110	130	160	mV _{rms}
Gain Difference	ΔG _{V1 (EXP)}	V _{in} =-10dB-0.5	-0.5	0	+0.5	dB
	ΔG _{V2 (EXP)}	V _{in} =-20dB	-1.0	0	+1.0	
	ΔG _{V3 (EXP)}	V _{in} =-30dB	-1.5	0	+2.0	
Bypass Gain Difference	ΔG _{VB (EXP)}	V _{in} =0dB, BYPATH=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 =620Ω		10.0	30.0	μV _{rms}
Mute Attenuation Ratio	ATT _{MUTE}	V _{in} =0dB, EMUTE=GND	60	80		dB
Limiting Voltage	V _{OEXP (MAX)}	THD=10%	700	800		mV _{rms}

TEST CIRCUIT



APPLICATION CIRCUIT (HAND SET)



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