AIN PUTS 1/L (...)

- 5 Rota



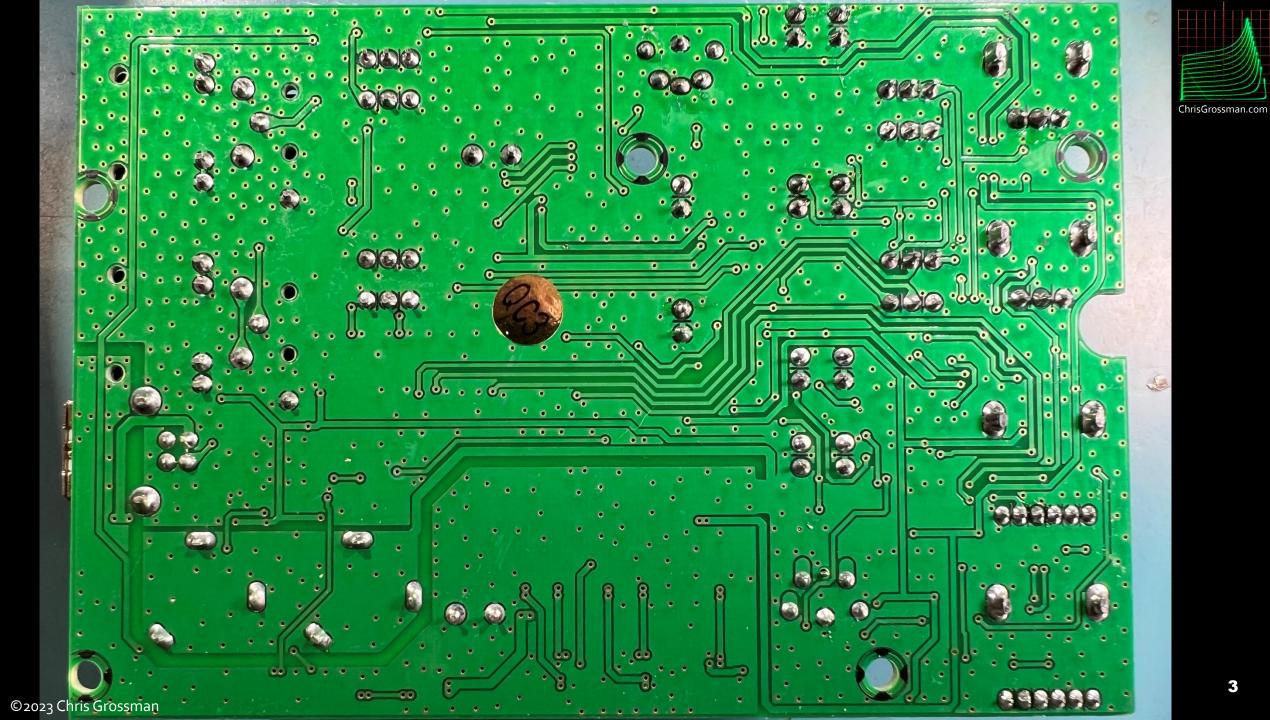
+48V (PHANTOM(CH1-2)

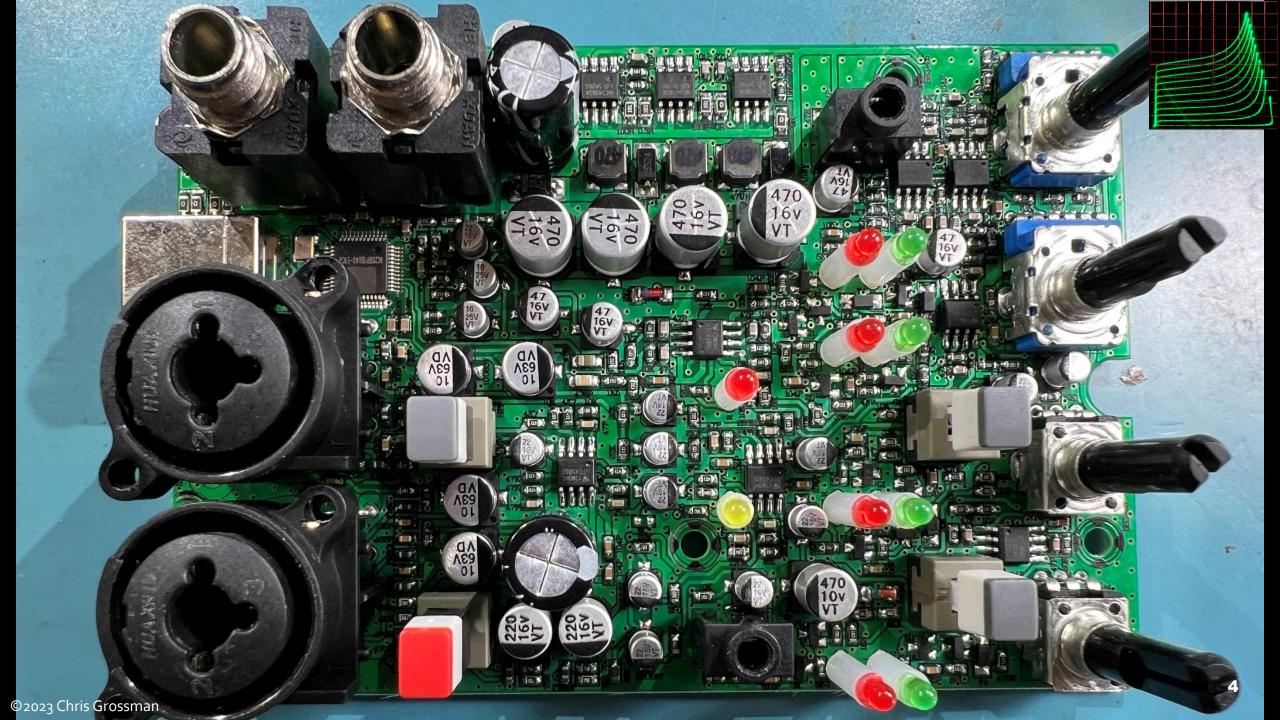
GAIN+10dB

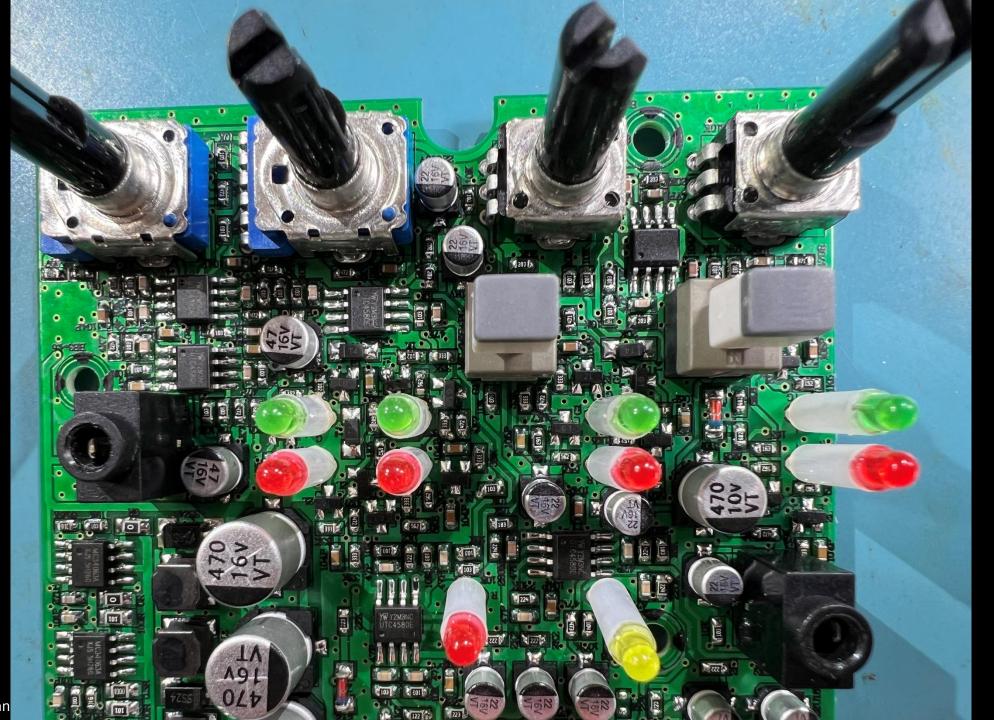
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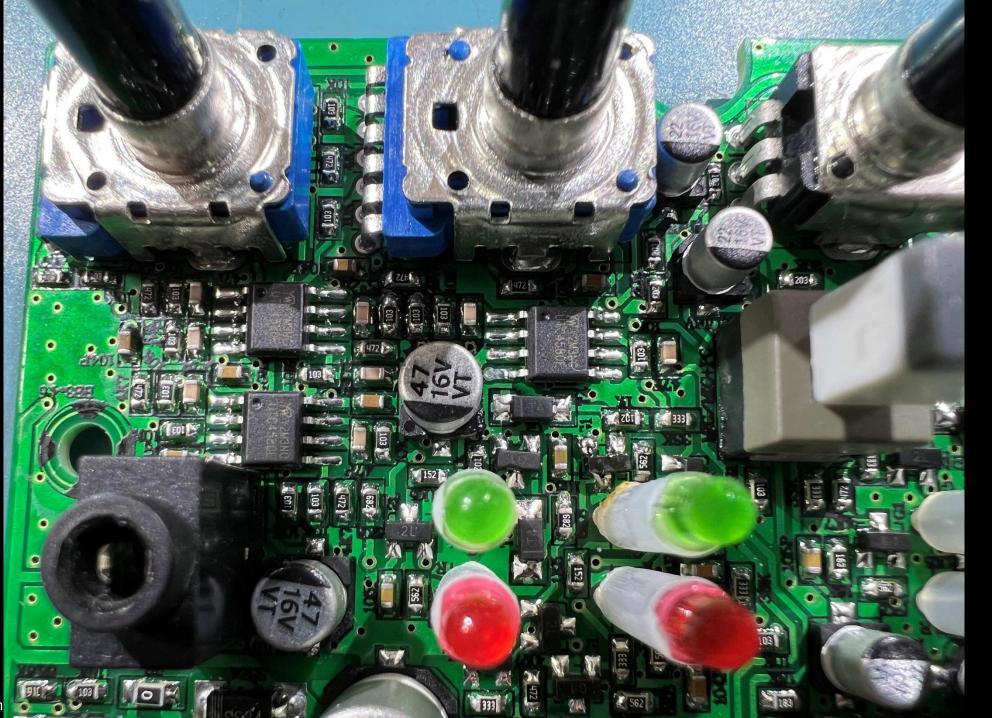
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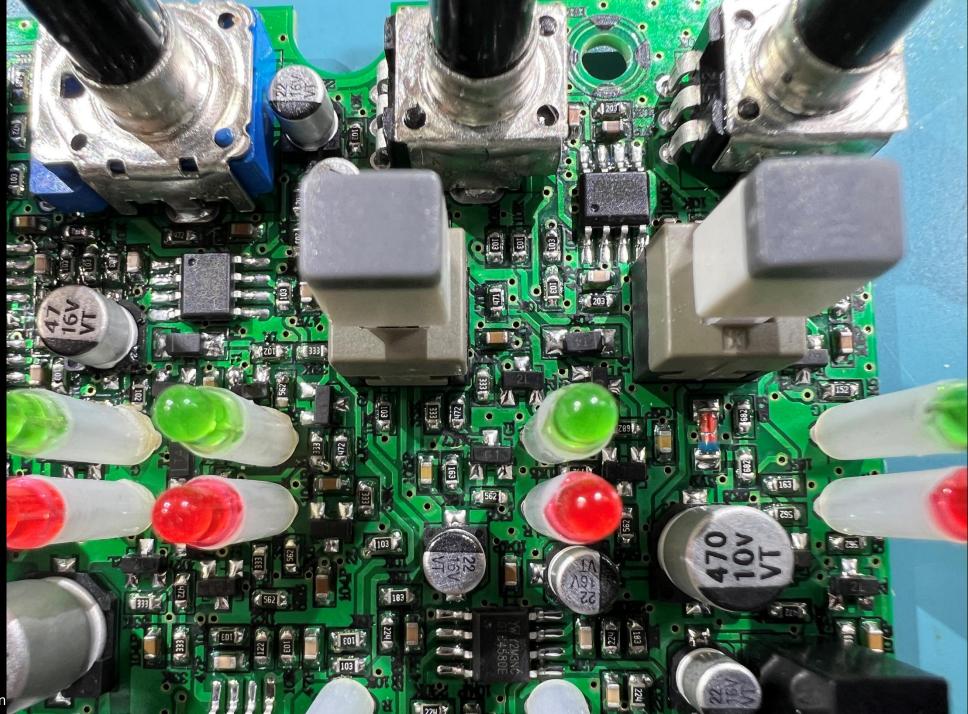


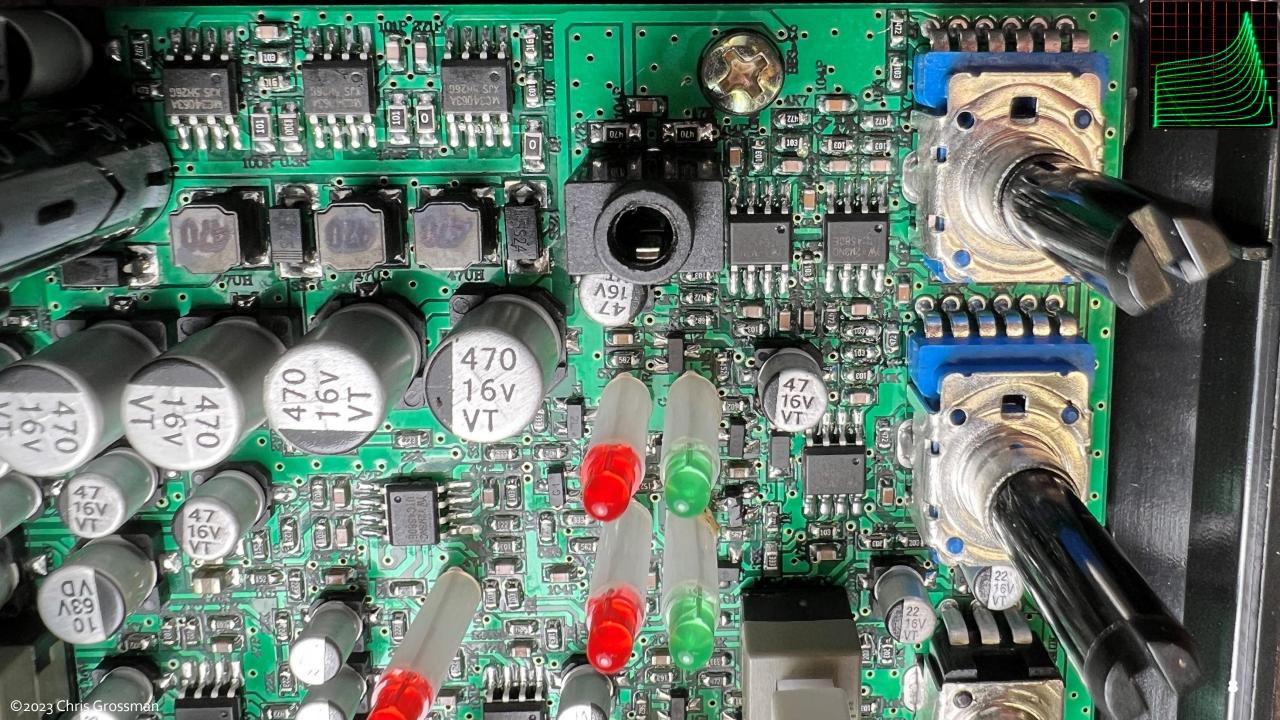
















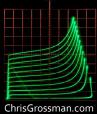




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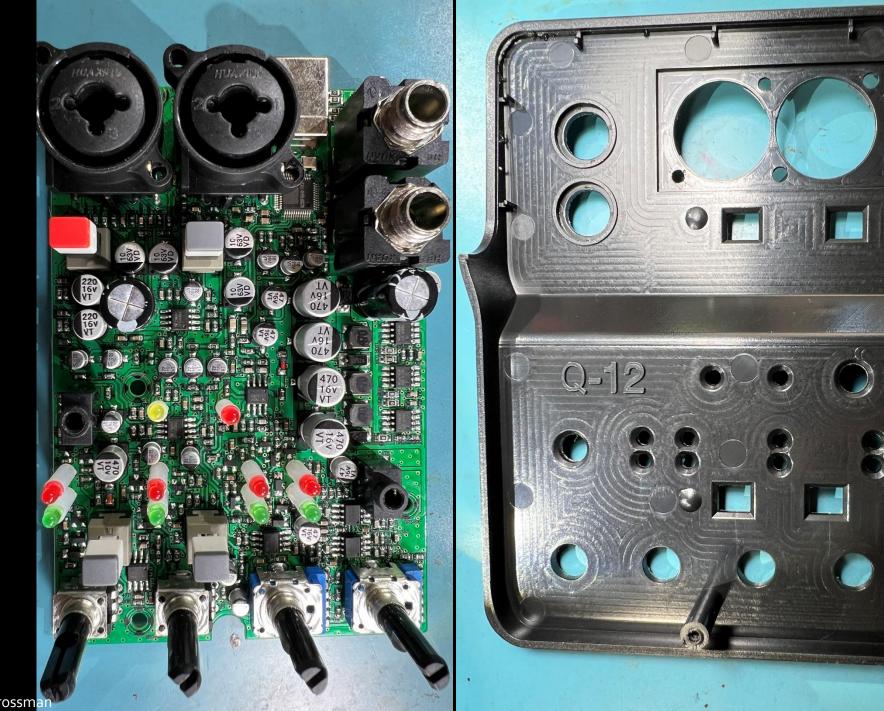






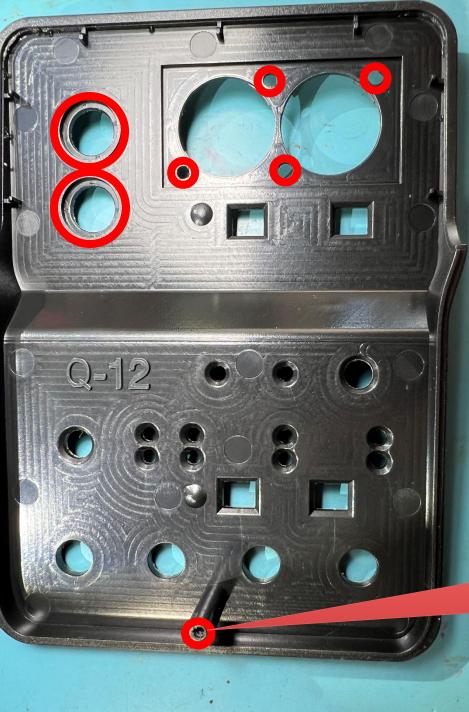
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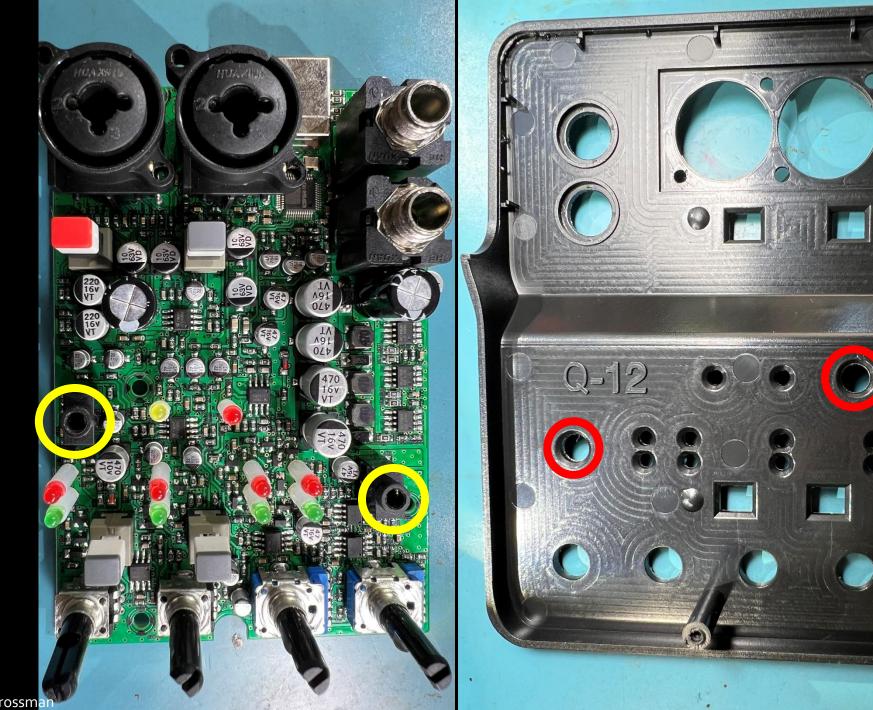




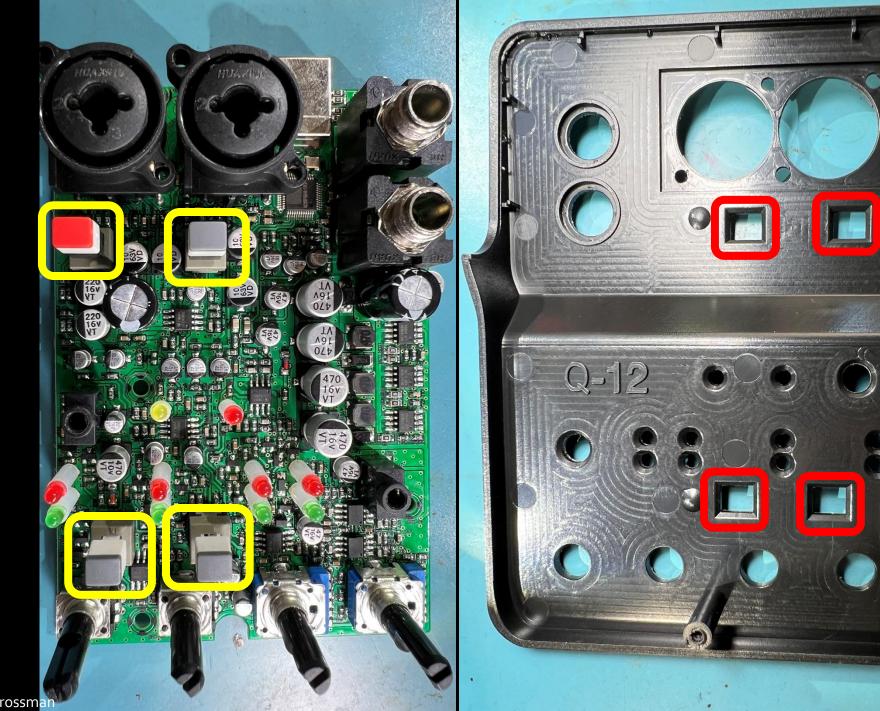


screw goes through the rear cover and attaches here

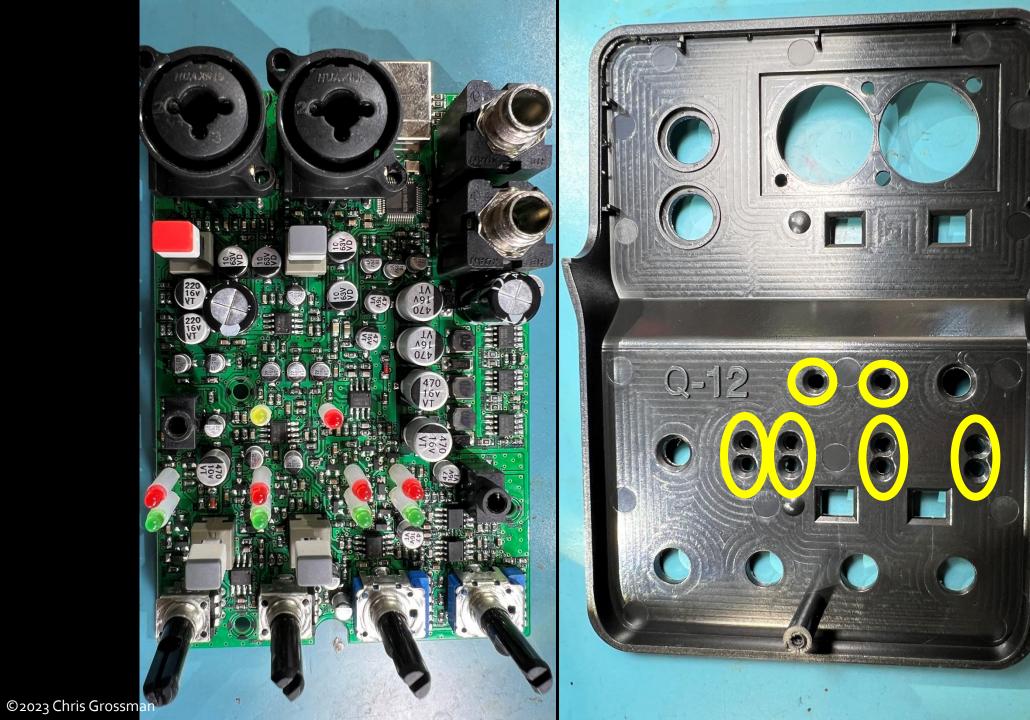
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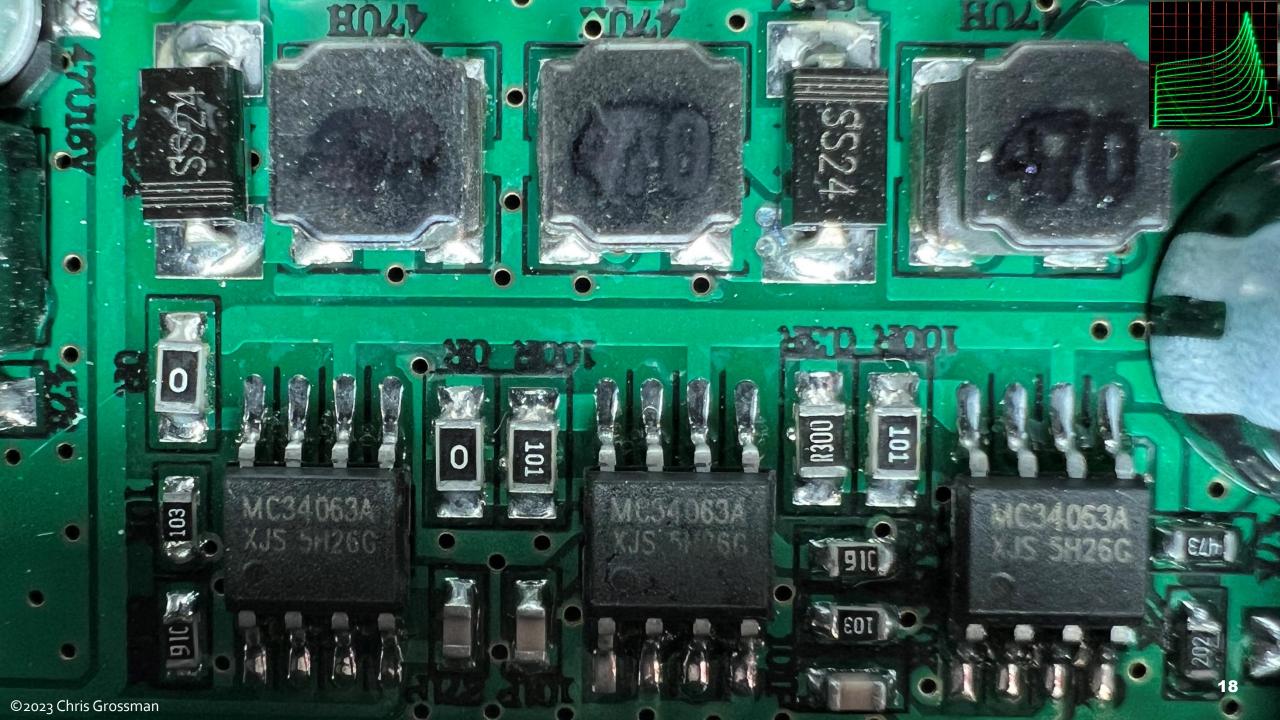














MC34063

DC TO DC CONVERTER CONTROLLER

DESCRIPTION

The MC34063 is a monolithic regulator subsystem, intended for use as DC to DC converter. This device contains a temperature compensated band gap reference, a duty-cycle control oscillator, driver and high current output switch. It can be used for step down, step-up or inverting switching regulators as well as for series pass regulators.



MC34063D DIP-8

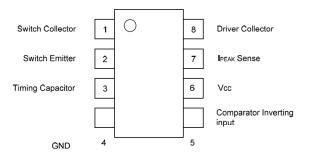
MC34063S SOP-8

FEATURES

* Operation from 3.0V to 40V.

- * Short circuit current limiting.
- * Low standby current.
- * Output switch current of 1.5A without external transistors.
- * Frequency of operation from 100Hz to 100kHz.
- * Step-up, step-down or inverting switch regulators.

PIN CONFIGURATION



PIN DESCRIPTION

PIN NO	PIN NAME	I/O	DESCRIPTION			
1	Switch Collector	1	nternal Darlington pairs TI collector			
2	Switch Emitter	0	nternal Darlington pairs TI emitter			
3	Timing Capacitor		The value of selected capacitor controls the internal oscillator run rate			
4	GND					
5	Comparator Inverting	1	Inverting input of comparator which can set & initiate the Darlington pairs			
5	Input	'	output switch			
6	Vcc					
7	I _{PEAK} Sense	I	Current sense input to monitor the voltage drop across an external resistor placed in series with $V_{\rm CC}$			
8	Driver Collector	1	Internal Darlington pairs TI collector			



BLOCK DIAGRAM

Switch Collector

Switch Emitter

Timing Capacitor

GND

4

MC34063

Drive Collector

IPEAK Sense

Comparator Inverting

7

6) Vcc

5)

Input

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■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

T2

1.25VRE

T1

PARAMETER		SYMBOL	RATINGS	UNIT	
Supply Voltage			40	V	
Comparator Input Voltage Range			-0.3 ~ +40	V	
Switch Collector Voltage		V _{IN(COMP)} V _{C(SW)}	40	V	
Switch Emitter Voltage		V _{E(SW)}	40	V	
Switch Collector to Emitter Voltage		V _{CE(SW)}	40	V	
Driver Collector Voltage		V _{C(DR)}	40	V	
Switch Current		I _{SW}	1.5	Α	
Power Dissipation (Ta=25°C)	DIP-8	Б	1250	mW	
Power Dissipation (Ta=25°C)	SOP-8	PD	625		
Junction Temperature	TJ	+150	°C		
Operating Temperature		T _{OPR}	0 ~ +70	°C	
Storage Temperature		T _{STG}	-65 ~ +150	°C	

ls

COMP

в

OSCILLATOR

Note: Absolute maximum ratings are those values beyond which the device which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT	
lunction to Ambient	DIP-8	θ _{JA}	100	°C AM	
Junction-to-Ambient	SOP-8		160	°C/W	

1		
1		
1		
1		
1		
1		
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1		

1

MC34063A MC33063A

DC-to-DC CONVERTER CONTROL CIRCUITS

SEMICONDUCTOR

TECHNICAL DATA

🕅 MOTOROLA

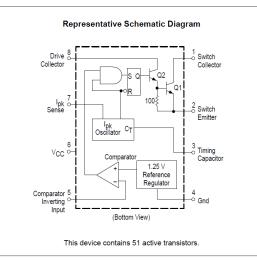
DC-to-DC Converter Control Circuits

The MC34063A Series is a monolithic control circuit containing the primary functions required for DC-to-DC converters. These devices consist of an internal temperature compensated reference, comparator, controlled duty cycle oscillator with an active current limit circuit, driver and high current output switch. This series was specifically designed to be incorporated in Step-Down and Step-Up and Voltage-Inverting applications with a minimum number of external components. Refer to Application Notes AN920A/D and AN954/D for additional design information.

- Operation from 3.0 V to 40 V Input
- Low Standby Current
- Current Limiting
- Output Switch Current to 1.5 A
- Output Voltage Adjustable
- Frequency Operation to 100 kHz
- Precision 2% Reference







PIN CONNECTIONS							
Switch 1 Collector 1 Switch 2 Emitter 2	8 Driver Collector 7 I _{pk} Sense						
Timing 3 Capacitor Gnd 4	6 V _{CC} 5 Comparator Inverting Input						
(Top View))						

Device	Operating Temperature Range	Package
MC33063AD	T 40% to 195%C	SO-8
MC33063AP1	$T_A = -40^{\circ} \text{ to } +85^{\circ}\text{C}$	Plastic DIP
MC33063AVD	T = 400 to 140500	SO-8
MC33063AVP	T _A = -40° to +125°C	Plastic DIP
MC34063AD	-	SO-8
MC34063AP1	T _A = 0° to +70°C	Plastic DIP

MC34063A MC33063A

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Power Supply Voltage	Vcc	40	Vdc
Comparator Input Voltage Range	VIR	-0.3 to +40	Vdc
Switch Collector Voltage	V _{C(switch)}	40	Vdc
Switch Emitter Voltage (Vpin 1 = 40 V)	VE(switch)	40	Vdc
Switch Collector to Emitter Voltage	VCE(switch)	40	Vdc
Driver Collector Voltage	V _C (driver)	40	Vdc
Driver Collector Current (Note 1)	IC(driver)	100	mA
Switch Current	Isw	1.5	Α
Power Dissipation and Thermal Characteristics Plastic Package, P, P1 Suffix			
T _A = 25°C Thermal Resistance SOIC Package, D Suffix T _A = 25°C	PD R _{0JA}	1.25 100 625	∾ °C/W
TA = 25°C Thermal Resistance	P _D R _{θJA}	160	°C/W
Operating Junction Temperature	Tj	+150	°C
Operating Ambient Temperature Range MC34063A MC33063AV MC33063A	TA	0 to +70 -40 to +125 -40 to +85	°C
Storage Temperature Range	T _{stg}	-65 to +150	°C

NOTES: 1. Maximum package power dissipation limits must be observed. 2. ESD data available upon request.

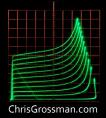
ELECTRICAL CHARACTERISTICS (V_{CC} = 5.0 V, T_A = T_{Iow} to T_{high} [Note 3], unless otherwise specified.)

Characteristics	Symbol	Min	Тур	Max	Unit
DSCILLATOR	•		1		
Frequency (Vp _{in 5} = 0 V, C_T = 1.0 nF, T_A = 25°C)	fosc	24	33	42	kHz
Charge Current (V _{CC} = 5.0 V to 40 V, T_A = 25°C)	I _{chg}	24	35	42	μA
Discharge Current (V _{CC} = 5.0 V to 40 V, T _A = 25°C)	l _{dischg}	140	220	260	μA
Discharge to Charge Current Ratio (Pin 7 to V _{CC} , T _A = 25°C)	Idischg/Ichg	5.2	6.5	7.5	-
Current Limit Sense Voltage (I _{chg} = I _{dischg} , T _A = 25°C)	Vipk(sense)	250	300	350	mV
OUTPUT SWITCH (Note 4)	•				•
Saturation Voltage, Darlington Connection (Note 5) (I _{SW} = 1.0 A, Pins 1, 8 connected)	VCE(sat)	-	1.0	1.3	V
Saturation Voltage, Darlington Connection (I _{SW} = 1.0 A, RP _{in} 8 = 82 Ω to V _{CC} , Forced $\beta\simeq20$)	VCE(sat)	-	0.45	0.7	V
DC Current Gain (I _{SW} = 1.0 A, V _{CE} = 5.0 V, T _A = 25°C)	hFE	50	75	-	-
Collector Off–State Current (V _{CE} = 40 V)	I _{C(off)}	-	0.01	100	μA

NOTES: 3. T_{Iow} = 0°C for MC34063A, -40°C for MC33063A, AV T_{high} = +70°C for MC34063A, +85°C for MC33063A, +125°C for MC33063A/ 4. Low duty cycle pulse techniques are used during test to maintain junction temperature as close to ambient temperature as possible. 5. If the output switch is driven into hard saturation (non-Darlington configuration) at low switch currents (≤ 300 mA), and high driver currents (≥ 30 mA), it may take up to 2.0 µs for it to come out of saturation. This condition will shorten the output switch cannot saturate. If a non-Darlington configuration is used, the following output drive condition is recommended:

Forced
$$\beta$$
 of output switch : $\frac{I_C \text{ output}}{I_C \text{ driver } - 7.0 \text{ mA}^*} \ge 10$

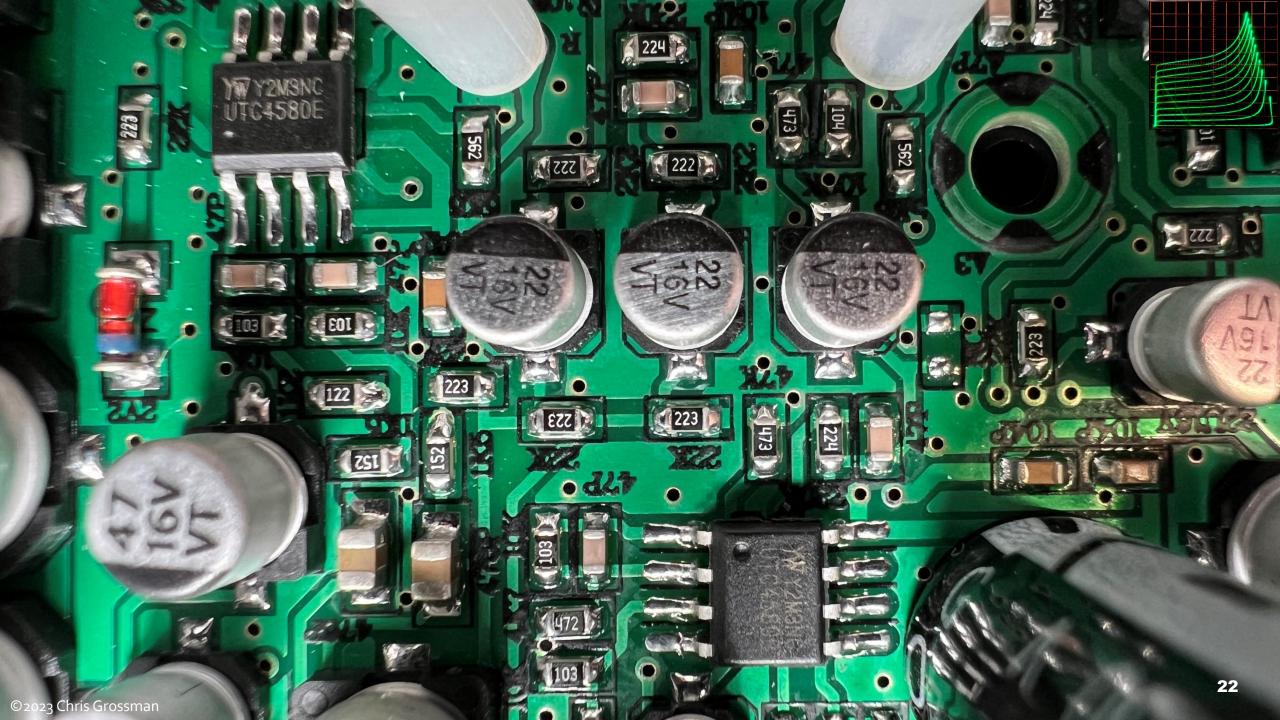
*The 100 Ω resistor in the emitter of the driver device requires about 7.0 mA before the output switch conducts.



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	D/C Newest \$0.19 0 + Samples: DIP, Newest \$6.00/piece Min. order : 1 piece Get samples	Verified supplier Shenzhen Quanyuantong Electronic Multispecialty supplier CN 14 YRS	Browsing History
Q View larger image	Lead time: (i)Quantity (pieces)1 - 2000> 2000Lead time (days)5To be negotiated	Store ratingOn-time delivery rate4.7/597.6%Response timeOnline revenue≤7h\$280,000+	
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UTC4580

LINEAR INTEGRATED CIRCUIT

DUAL OPERATIONAL AMPLIFIER

DESCRIPTION

UTC4580 is the dual operational amplifier,specially designed for improving the tone control.,which is most suitable for the audio application.

Featuring noiseless, higher gain bandwidth, high output current and low distortion ratio, and it is most suitable not only for acoustic electronic parts of audio per-amp and active filter, but also for the industrial measurement tools. It is also suitable for the head phone amp at higher output current, and further more, it can be applied for the handy type set operational amplifier of genenal purpose in application of low voltage single supply type which is properly biased of the input low voltage source.

(5V/µs typ.)

FEATURES

- * Operating voltage (±2~±18V)
 * Low input noise voltage (0.8μVrms typ.)
 * Wide gain bandwidth produce (15Mhz typ.)
 * Low distortion (0.0005% typ.)
- * Slew rate
- * Package outline



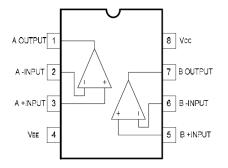
ORDERING INFORMATION

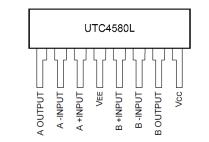
Dev	vice	package
UTC458	30M	SOP-8-300-1.27
UTC458	BOL	SIP-8
UTC458	30	DIP-8-300-2.54
UTC458	30E	SOP-8-225-1.27
UTC458	30V	TSSOP-8-225-0.65

SOP8, SIP-8, DIP-8, TSSOP-8 AP PLICATIONS

- * Audio per-amp;
 * Head phone amp;
 * Handy type set;
- * Measurement tool;

PIN CONFIGURATION

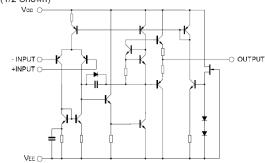




UTC4580

LINEAR INTEGRATED CIRCUIT

BLOCK DIAGRAM(1/2 Shown)



ABSOLUTE MAXIMUM RATINGS (Tamb=25°C)

Characteristic	Symbol	Value	Unit
Differential Input Voltage	V+/V-	±18	V
Supply Voltage	VIC	±15(note)	V
Input Voltage	VID	±30(note)	V
Output Current	lo	±50	mA
Power Dissipation	PD	(UTC4580) 800 (UTC4580L) 800 (UTC4580M) 350 (UTC4580E) 300 (UTC4580V) 250	mW
Operating Temperature Range	Topr	-20~+75	°C
Storage Temperature Range	Tstg	-20~+125	°C
ELECTRICAL CHARACTE	RISTICS(Tamb=	25°C ,V+/V- =±15)	

Characteristic	Symbol	Test Condition	Min	Тур.	Мах	Unit
Input Offset Voltage	Vio	Rs≤10kΩ	-	0.5	3	mV
Input Offset Current	lio		-	5	200	nA
Input Bias Current	lis		-	100	500	nA
Large Signal Voltage Gain	AV	RL≥2KΩ,VO=±10V	90	110	-	dB
Output Voltage Swing	Vом	RL≥2KΩ	±12	±13.5	-	V
Input Common Mode Voltage Range	VICM		±12	±13.5	-	V
Common Mode Rejection Ratio	CMR	Rs≤10kΩ	80	110	-	dB
Supply Voltage Rejection Ratio	SVR	Rs≤10kΩ	90	110	-	dB
Operating Current	ICC		-	6	9	mA
Slew Rate	SR	RL≥2KΩ	-	5	-	V/μs
Gain Bandwidth Product	GB	f=10kHz	-	15	-	MHz
Total Harmonic Distortion	THD	Av=20dB, Vo=5V, RL=2kΩ,f=1kHz	-	0.0005	-	%
Input Noise Voltage	VNI	RIAA Rs=2.2kΩ,30kHzLPF	-	0.8	-	μVrms

YW

2

JRC

NJM4580

NJM4580V

(SSOP8)

NJM4580L

(SIP8)

DUAL OPERATIONAL AMPLIFIER

■ PACKAGE OUTLINE

NJM4580M

(DMP8)

NJM4580D

(DIP8)

NJM4580R

(MSOP8(VSP8))

NJM4580E

(SOP8)

GENERAL DESCRIPTION

The NJM4580 is a dual operational amplifier, specially designed for improving the tone control, which is most suitable for the audio application.

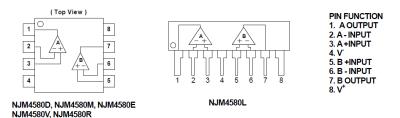
Featuring noiseless, higher gain bandwidth, high output current and low distortion ratio, and it is most suitable not only for acoustic electronic parts of audio pre-amp and active filter, but also for the industrial measurement tools. It is also suitable for the head phone amp at higher output current, and further more, it can be applied for the handy type set operational amplifier of general purpose in application of low voltage single supply type which is properly biased of the low voltage source.

The D-Rank type products(NJM4580DD/LD/MD/ED) have specified maximum limits for equivalent input noise voltage.

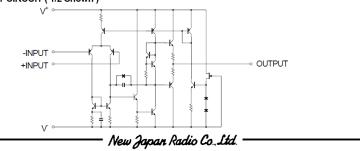
FEATURES

 Operating Voltage 	±2V~±18V	(=)	(
Low Input Noise Voltage	0.8μVrms typ. (RIAA)		
Wide GBW	15MHz typ.		
 Low Distortion 	0.0005% typ.		
 Slew Rate 	5V/μs typ.		
 Bipolar Technology 			
 Package Outline 	DIP8, SIP8, DMP8, SSOP8, MSOP8(VSP8	3) MEET JEDEC MO-18	37-DA
	SOP8 JEDEC 150mil		

PIN CONFIGURATION



■ EQUIVALENT CIRCUIT (1/2 Shown)



NJM4580

■ABSOLUTE MAXIMUM RATINGS	(Ta=25°C, unless otherwise noted.)				
PARAMETER	SYMBOL	RATING	UNIT		
Supply Voltage	V ⁺ N ⁻	±18	V		
Input Voltage	VICM	±15 (Note1)	V		
Differential Input Voltage	VID	±30 (Note1)	V		
Power Dissipation	PD	DIP8, SIP8 : 800 DMP8, SOP8 : 300 SSOP8 : 250 MSOP8(VSP8) : 400 (Note2)	mW		
Operating Temperature Range	Topr	-40~+85	°C		
Storage Temperature Range	Tstg	-40~+125	°C		

(Note1) For supply voltage less than ±15V, the absolute maximum input voltage is equal to supply voltage. (Note2) On the PCB "EIAJEDEC (114.3×76.2×1.57mm, 2 layers, FR-4)"

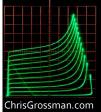
■ RECOMMENDED OPERATING CONDITIONS					(Ta=25°C)	
PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V*/V		±2	-	±18	V

ELECTRICAL CHARACTERISTIC	(V ⁺ /V [−] =±15V, Ta=25°C, unless otherwise noted.)					
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	VIO	Rs≤10kΩ	-	0.3	3	mV
Input Offset Current	lio		-	5	200	nA
Input Bias Current	IB		-	100	500	nA
Voltage Gain	Av	R _L ≥2kΩ,V ₀ =±10V	90	110	-	dB
Maximum Output Voltage	Vom	R∟≥2kΩ	±12	±13.5	-	V
Common Mode Input Voltage Range	VICM		±12	±13.5	-	V
Common Mode Rejection Ratio	CMR	R _S ≤10kΩ	80	110	-	dB
Supply Voltage Rejection Ratio	SVR	R _S ≤10kΩ	80	110	-	dB
Supply Current	Icc		-	6	9	mA
Slew Rate	SR	R _L ≥2kΩ	-	5	-	V/µs
Gain Bandwidth Product	GB	f=10kHz	-	15	-	MHz
Total Harmonic Distortion	THD	$A_V=20$ dB, $V_O=5V$, $R_L=2k\Omega$,f=1kHz	-	0.0005	-	%
Equivalent Input Noise Voltage	V _N	RIAA,R _S =2.2kΩ,30kHz LPF	-	0.8	-	µVrms

■ ELECTRICAL CHARACTERISTICS (D-rank type(Note3), V⁺/V⁼±15V, Ta=25°C, unless otherwise noted.)

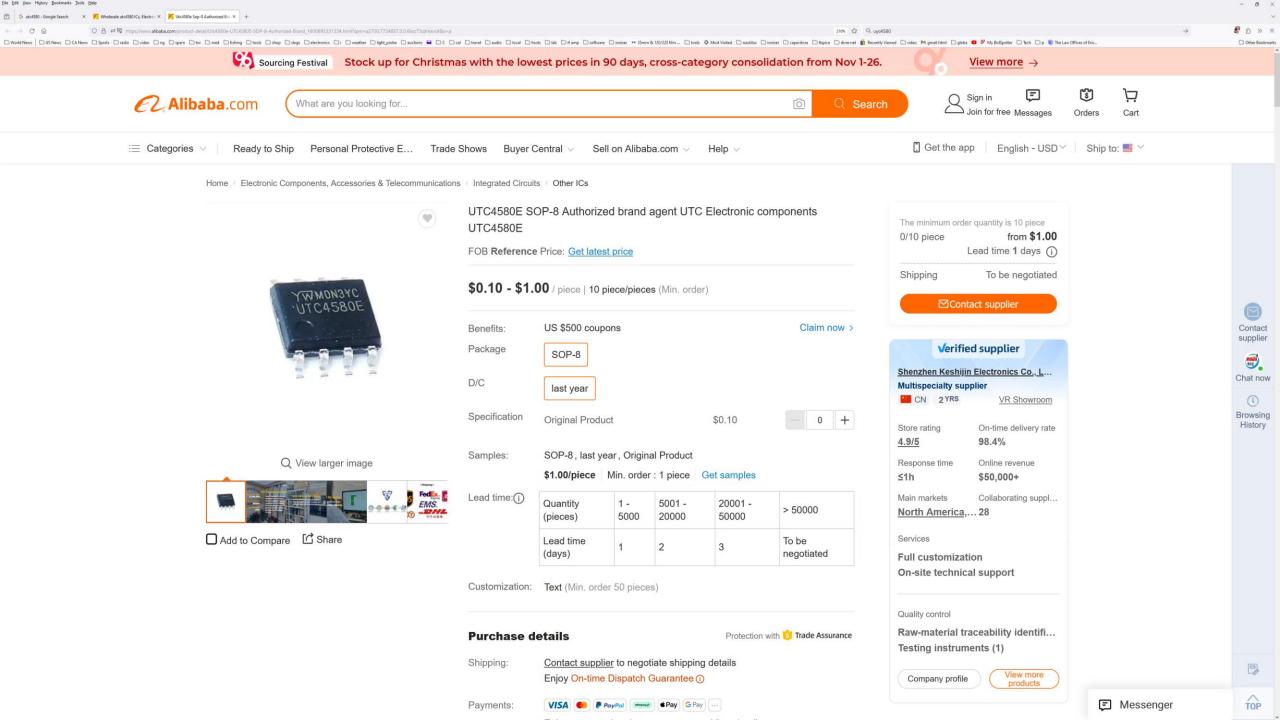
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Equivalent Input Noise Voltage	V _{NI}	RIAA,R _S =2.2kΩ	-	-	1.4	µVrms

(Note3)D-rank type is a Equivalent Input Noise Voltage selected product. It s only DIP, DMP, SOP and SIP package.



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- 2 -



48 pin package Part # lasered off

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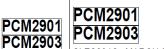
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10 63V









SLES034C-MARCH 2002-REVISED NOVEMBER 2007

PCM2903 FUNCTIONAL BLOCK DIAGRAM

STEREO AUDIO CODEC WITH USB INTERFACE, SINGLE-ENDED ANALOG INPUT/OUTPUT AND S/PDIF

FEATURES

- PCM2901: Without S/PDIF
- PCM2903: With S/PDIF
- On-Chip USB Interface
- With Full-Speed Transceivers
- Fully Compliant With USB 1.1 Specification
- Certified by USB-IF
- Partially Programmable Descriptors (1)
- USB Adaptive Mode for Playback
- USB Asynchronous Mode for Record
- Self-Powered
- 16-Bit Delta-Sigma ADC and DAC
- Sampling Rates
 - DAC: 32, 44.1, 48 kHz
 - ADC: 8, 11.025, 16, 22.05, 32, 44.1, 48 kHz
- On-Chip Clock Generator With Single 12-MHz Clock Source
- Single Power Supply: 3.3 V Typical
- Stereo ADC
 - Analog Performance at $V_{CCC} = V_{CCP1} = V_{CCP2}$ = $V_{CCX} = V_{DD} = 3.3 V$
 - THD+N = 0.01%
 - SNR = 89 dB
 - Dynamic Range = 89 dB
 - Decimation Digital Filter
 - Pass-Band Ripple = ±0.05 dB
 - Stop-Band Attenuation = –65 dB
 - Single-Ended Voltage Input
 - Antialiasing Filter Included
 - Digital LCF Included

- Stereo DAC
 - Analog Performance at $V_{CCC} = V_{CCP1} = V_{CCP2}$

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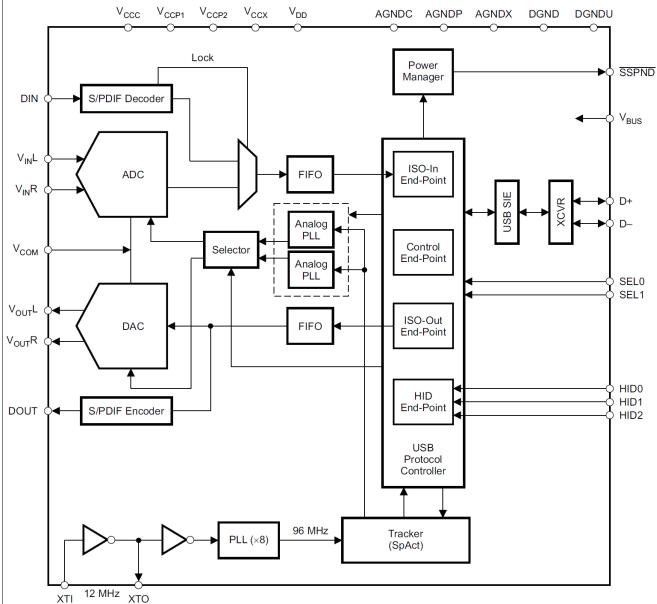
- = V_{CCX} = V_{DD} = 3.3 V
- THD+N = 0.005%
- SNR = 96 dB
- Dynamic Range = 93 dB
- Oversampling Digital Filter
 - Pass-Band Ripple = ±0.1 dB
 - Stop-Band Attenuation = –43 dB
- Single-Ended Voltage Output
- Analog LPF Included
- Multifunctions
 - Human Interface Device (HID) Volume ± Control and Mute Control
- Suspend Flag
- Package: 28-Pin SSOP

APPLICATIONS

- USB Audio Speaker
- USB Headset
- USB Monitor
- USB Audio Interface Box

DESCRIPTION

The PCM2901/2903 is TI's single-chip USB stereo audio codec with USB-compliant full-speed protocol controller and S/PDIF (only PCM2903). The USB protocol controller works with no software code, but the USB descriptors can be modified in some areas (for example, vendor ID/product ID). The PCM2901/2903 employs SpAct[™] architecture, TI's unique system that recovers the audio clock from USB packet data. On-chip analog PLLs with SpAct enable playback and record with low clock jitter and with independent playback and record sampling rates.





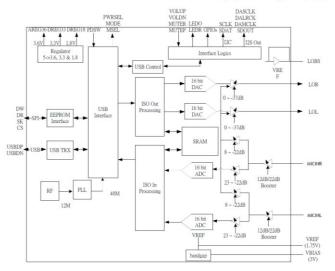
CM118B Highly Integrated & Configurable USB Audio Single Chip

DESCRIPTION

The CM118B is a highly integrated, crystal-less USB audio single chip solution optimized for USB headset, headphone, dongle, microphone and application such as VoIP (voice over Internet protocol). All essential analog modules are embedded in the CM118B, including dual DAC and ADC, earphone driver, microphone booster, PLL, regulator, and USB transceiver. It also supports 3 GPIO pins. In addition, audio adjustment can be easily controlled via specific HID compliant volume control pins. Many features such as headset, headphone and microphone only topologies are programmable with jumper pins. Vender can customize unique USB VID / PID / Product String / Manufacture String and min/max/initial volumes to the external EEPROM. The CM118B also offers anti-pop noise circuits design and internal oscillator which can operate without an external crystal oscillator.

FEATURES

- Compliant with USB 2.0 Full Speed Operation
- Compliant with USB Audio Device Class v1.0 ٠
- . Supports USB Suspend/Resume Mode and Remote Wakeup with Volume Control pins
- On-chip oscillator to provide reference sources for PLL and embedded USB transceiver
- Jumper pin for Headset Mode (Playback + • Recording), Microphone Mode (Stereo and Mono Speaker/Headphone Recording), or Mode (Playback Only)
- Jumper pin for Mixer Unit enable/disable under Headset Mod, and Power Mode setting
- . I2C interface to access internal registers, and I2S Output for external DAC
- In Headset Mode, USB audio function topology has 2 Input Terminals, 2 Output Terminals, 1 Mixer Unit, 1 Selector Unit, and 3 Feature Units
- In Speaker Mode, USB audio function topology has 1 Input Terminal, 1 Output Terminal, and 1 Feature Unit.
- In Microphone Mode, USB audio function topology ٠ has 1 Input Terminal, 1 Output Terminal, 1 Selector Unit and 1 Feature Unit.
- Anti-pop noise design for plug and unplug. .



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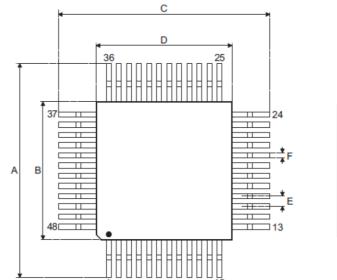
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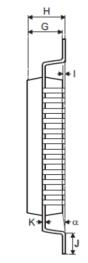


CM118B

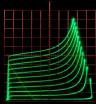
Highly Integrated & Configurable USB Audio Single Chip

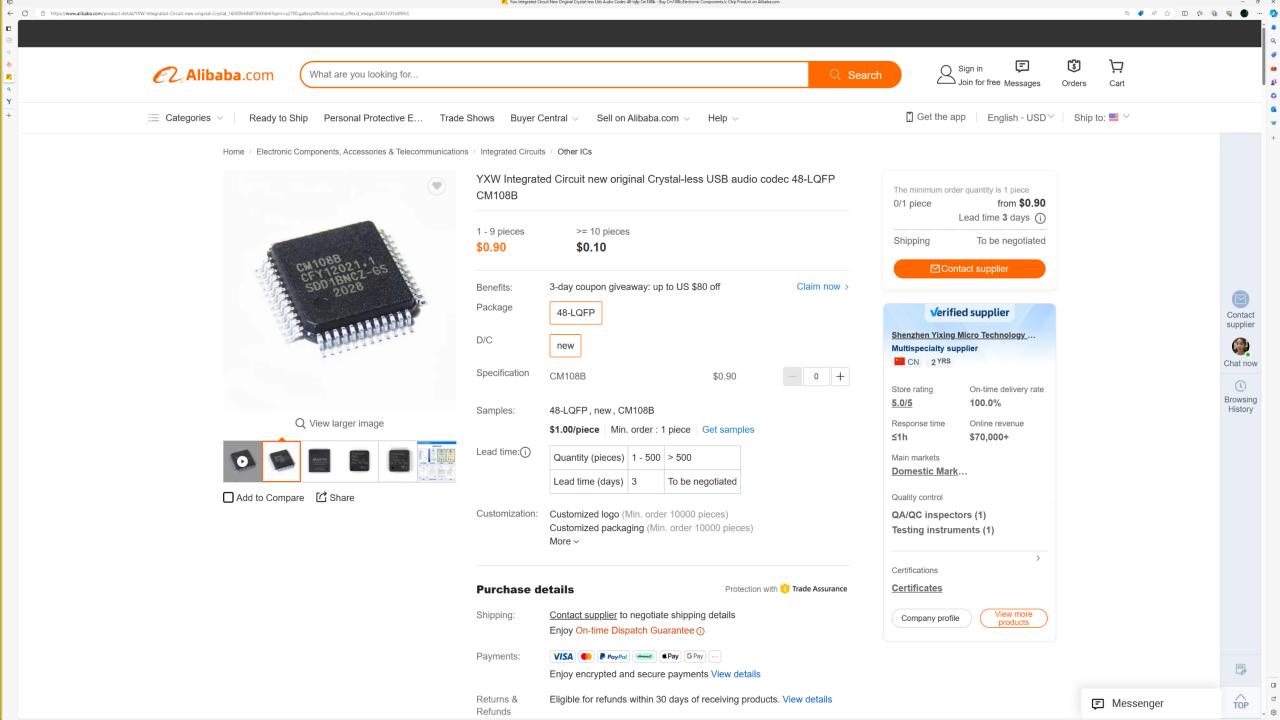
6. Package dimensions

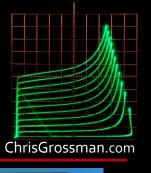




Symbol		Dimensions in mm	
Symbol	Minimum	Normal	Maximum
A	8.90	_	9.10
B	6.90	_	7.10
С	8.90	—	9.10
D	6.90	_	7.10
E	_	0.50	_
F	_	0.20	_
G	1.35	-	1.45
Н	—	-	1.60
I	—	0.10	_
J	0.45	_	0.75
K	0.10	—	0.20
α	0°	—	7 °







Teyun Q-12 Teardown Conclusion

- 2-sided PCB
 - A well engineered compact layout
 - All in-between spaces on both sides are ground/power fill
- 3 types of low-cost ICs
 - 1. (7) UTC4850 dual 15 MHZ bipolar op-amps
 - 2. (3) MC34063A bipolar switching regulators
 - 3. (1) USB ADC DAC interface of unknown origin
- The quality of components seems excellent (considering the price)
- Well engineered molded case & mechanical assembly
 - No shielding from the case
 - Designed for easy assembly with a minimum number of fasteners
- It is flawed but still useful
 - It really needs more another 20dB of gain
 - Flaccid 48V phantom power (essentially useless)
 - I'm using it to record the (view chart) sound for this video with my EV 664A microphone



The total manufacturing cost for unit is probably < \$5 It is flawed, but well engineered for the price.

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