

Dual Ultra-Low Power Op Amp in SOT-23-8

Features

- 8-Pin SOT-23 Package
- 450 kHz Gain-Bandwidth Product
- 800 kHz, -3 dB Bandwidth
- 4.2 μ A Supply Current/Channel
- Rail-to-Rail Output
- Ground Sensing at Input (Common-Mode-to-GND)
- Drives Large Capacitive Loads (0.02 μ F)
- Unity Gain Stable

Applications

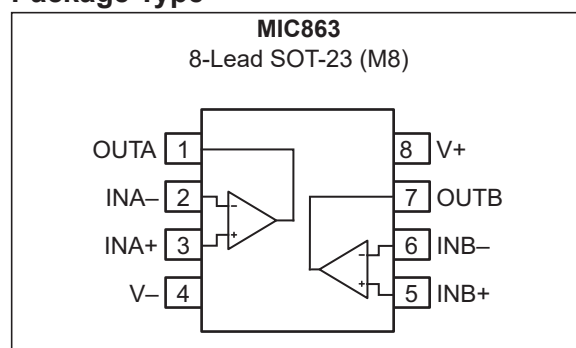
- Portable Equipment
- Medical Instrument
- PDAs
- Pagers
- Cordless Phones
- Consumer Electronics

General Description

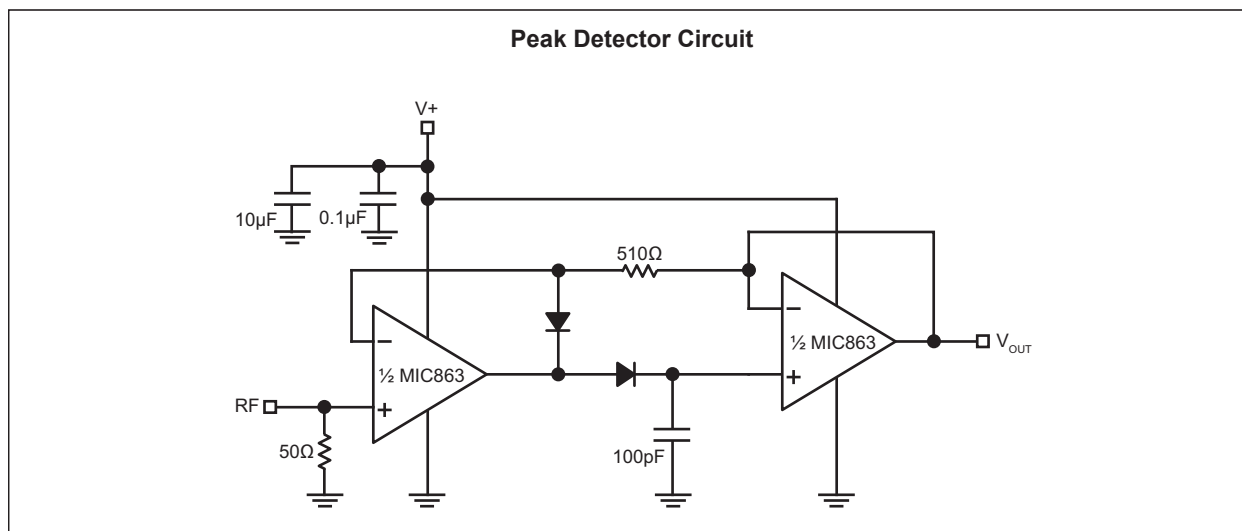
The MIC863 is a dual low-power operational amplifier in a SOT-23-8 package. It is designed to operate in the 2V to 5V range, rail-to-rail output, with input common-mode to ground. The MIC863 provides 450 kHz gain-bandwidth product while consuming only a 4.2 μ A supply current

With low supply voltage and 8-pin SOT-23 packaging, MIC863 provides two channels as general-purpose amplifiers for portable and battery-powered applications. Its package provides the maximum performance available while maintaining an extremely slim form factor. The minimal power consumption of this IC maximizes the battery life potential.

Package Type



Typical Application Schematic



1.0 ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings †

Supply Voltage ($V_{V+} - V_{V-}$).....	+6.0V
Differential Input Voltage ($ V_{IN+} - V_{IN-} $) (Note 1).....	+6.0V
Input Voltage ($V_{IN+} - V_{IN-}$).....	$V_{V+} + 0.3V$, $V_{V-} - 0.3V$
Output Short-Circuit Current Duration.....	Indefinite
ESD Rating (Note 2)	ESD Sensitive

Operating Ratings ‡

Supply Voltage	+2.0V to +5.25V
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† **Notice:** Stresses above those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at those or any other conditions above those indicated in the operational sections of this specification is not intended. Exposure to maximum rating conditions for extended periods may affect device reliability.

‡ **Notice:** The device is not guaranteed to function outside the operating ratings.

Note 1: Exceeding the maximum differential input voltage will damage the input stage and degrade performance (in particular, input bias current is likely to increase).

2: Devices are ESD sensitive. Handling precautions are recommended. Human body model, 1.5 k Ω in series with 100 pF.

ELECTRICAL CHARACTERISTICS (2.0V)

Electrical Characteristics: $V_+ = +2V$, $V_- = 0V$, $V_{CM} = V_+/2$; $R_L = 500\text{ k}\Omega$ to $V_+/2$; $T_A = 25^\circ\text{C}$, unless otherwise noted.						
Parameters	Symbol	Min.	Typ.	Max.	Units	Conditions
Input Offset Voltage	V_{OS}	-5	0.1	5	mV	—
		-6	0.1	6		$-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Differential Offset Voltage		—	0.5	—	mV	—
Input Offset Voltage Temperature Coefficient	$\Delta V_{OS}/\Delta T_A$	—	6	—	$\mu\text{V}/^\circ\text{C}$	—
Input Bias Current	I_B	—	10	—	pA	—
Input Offset Current	I_{OS}	—	5	—	pA	—
Input Voltage Range	V_{CM}	0.5	1	—	V	$\text{CMRR} > 50\text{ dB}$, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Common-Mode Rejection Ratio	CMRR	45	75	—	dB	$0V < V_{CM} < 1V$, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Power Supply Rejection Ratio	PSRR	50	85	—	dB	Supply voltage change of 2V to 2.7V, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Large-Signal Voltage Gain	A_{VOL}	66	81	—	dB	$R_L = 100\text{ k}\Omega$, $V_{OUT} = 1.4 V_{PP}$, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
		73	90	—		$R_L = 500\text{ k}\Omega$, $V_{OUT} = 1.4 V_{PP}$, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Maximum Output Voltage Swing	V_{OUT}	$V_+ - 3\text{ mV}$	$V_+ - 1.4\text{ mV}$	—	V	$R_L = 500\text{ k}\Omega$, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Minimum Output Voltage Swing		—	$V_- + 0.5\text{ mV}$	$V_- + 3\text{ mV}$		
Gain-Bandwidth Product	GBWP	—	320	—	kHz	$R_L = 200\text{ k}\Omega$, $C_L = 2\text{ pF}$, $A_V = 11$
Phase Margin	PM	—	69	—	°	$R_L = 200\text{ k}\Omega$, $C_L = 2\text{ pF}$, $A_V = 11$
-3 dB Bandwidth	BW	—	600	—	kHz	$A_V = 1$, $C_L = 2\text{ pF}$, $R_L = 1\text{ M}\Omega$
Slew Rate	SR	—	0.33	—	V/ μs	$A_V = 1$, $C_L = 2\text{ pF}$, $R_L = 1\text{ M}\Omega$, Positive Slew Rate = 0.17 V/ μs
Short-Circuit Output Current	I_{SC}	1.8	2.6	—	mA	Source, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
		1.5	2.2	—		Sink, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Supply Current (per Op Amp)	I_S	—	3.5	7	μA	No Load, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Channel-to-Channel Crosstalk	—	—	-100	—	dB	Note 1

Note 1: DC signal referenced to input. Refer to the [AC Performance Characteristics](#) section.

ELECTRICAL CHARACTERISTICS (2.7V)

Electrical Characteristics: $V_+ = +2.7V$, $V_- = 0V$, $V_{CM} = V_+/2$; $R_L = 500\text{ k}\Omega$ to $V_+/2$; $T_A = 25^\circ\text{C}$, unless otherwise noted.

Parameters	Symbol	Min.	Typ.	Max.	Units	Conditions
Input Offset Voltage	V_{OS}	-5	0.1	5	mV	—
		-6	0.1	6		$-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Differential Offset Voltage		—	0.5	—	mV	—
Input Offset Voltage Temperature Coefficient	$\Delta V_{OS}/\Delta T_A$	—	6	—	$\mu\text{V}/^\circ\text{C}$	—
Input Bias Current	I_B	—	10	—	pA	—
Input Offset Current	I_{OS}	—	5	—	pA	—
Input Voltage Range	V_{CM}	1	1.8	—	V	$\text{CMRR} > 60\text{ dB}$, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Common-Mode Rejection Ratio	CMRR	60	83	—	dB	$0V < V_{CM} < 1.35V$, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Power Supply Rejection Ratio	PSRR	55	85	—	dB	Supply voltage change of 2.7V to 3V, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Large-Signal Voltage Gain	A_{VOL}	70	83	—	dB	$R_L = 100\text{ k}\Omega$, $V_{OUT} = 2 V_{PP}$, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
		78	91	—		$R_L = 500\text{ k}\Omega$, $V_{OUT} = 2 V_{PP}$, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Gain-Bandwidth Product	GBWP	—	350	—	kHz	$R_L = 200\text{ k}\Omega$, $C_L = 2\text{ pF}$, $A_V = 11$
Phase Margin	PM	—	65	—	°	$R_L = 200\text{ k}\Omega$, $C_L = 2\text{ pF}$, $A_V = 11$
-3 dB Bandwidth	BW	—	600	—	kHz	$A_V = 1$, $C_L = 2\text{ pF}$, $R_L = 1\text{ M}\Omega$
Slew Rate	SR	—	0.35	—	V/ μs	$A_V = 1$, $C_L = 2\text{ pF}$, $R_L = 1\text{ M}\Omega$, Positive Slew Rate = 0.17 V/ μs
Short-Circuit Output Current	I_{SC}	4.5	6.3	—	mA	Source, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
		4.5	6.2	—		Sink, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Supply Current (per Op Amp)	I_S	—	3.6	7	μA	No Load, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Channel-to-Channel Crosstalk	—	—	-120	—	dB	Note 1

Note 1: DC signal referenced to input. Refer to the [AC Performance Characteristics](#) section.

ELECTRICAL CHARACTERISTICS (5.0V)

Electrical Characteristics: $V_+ = +5V$, $V_- = 0V$, $V_{CM} = V_+/2$; $R_L = 500\text{ k}\Omega$ to $V_+/2$; $T_A = 25^\circ\text{C}$, unless otherwise noted.

Parameters	Symbol	Min.	Typ.	Max.	Units	Conditions
Input Offset Voltage	V_{OS}	-5	0.1	5	mV	—
		-6	0.1	6		$-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Differential Offset Voltage		—	0.5	—	mV	—
Input Offset Voltage Temperature Coefficient	$\Delta V_{OS}/\Delta T_A$	—	6	—	$\mu\text{V}/^\circ\text{C}$	—
Input Bias Current	I_B	—	10	—	pA	—
Input Offset Current	I_{OS}	—	5	—	pA	—
Input Voltage Range	V_{CM}	3.5	4.1	—	V	$\text{CMRR} > 60\text{ dB}$, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Common-Mode Rejection Ratio	CMRR	60	85	—	dB	$0V < V_{CM} < 3.5V$, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Power Supply Rejection Ratio	PSRR	60	86	—	dB	Supply voltage change of 3V to 5V, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Large-Signal Voltage Range	A_{VOL}	73	81	—	dB	$R_L = 100\text{ k}\Omega$, $V_{OUT} = 4.0\text{ V}_{PP}$, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
		78	88	—		$R_L = 500\text{ k}\Omega$, $V_{OUT} = 4.0\text{ V}_{PP}$, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Maximum Output Voltage Swing	V_{OUT}	$V_+ - 3\text{ mV}$	$V_+ - 1.3\text{ mV}$	—	V	$R_L = 500\text{ k}\Omega$, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Minimum Output Voltage Swing		—	$V_- + 0.7\text{ mV}$	$V_- + 3\text{ mV}$		
Gain-Bandwidth Product	GBWP	—	450	—	kHz	$R_L = 200\text{ k}\Omega$, $C_L = 2\text{ pF}$, $A_V = 11$
Phase Margin	PM	—	63	—	°	—
-3 dB Bandwidth	BW	—	800	—	kHz	$A_V = 1$, $C_L = 2\text{ pF}$, $R_L = 1\text{ M}\Omega$
Slew Rate	SR	—	0.35	—	V/ μs	$A_V = 1$, $C_L = 2\text{ pF}$, $R_L = 1\text{ M}\Omega$, Positive Slew Rate = 0.2 V/ μs
Short-Circuit Output Current	I_{SC}	17	23	—	mA	Source, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
		18	27	—		Sink, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Supply Current (per Op Amp)	I_S	—	4.2	8	μA	No Load, $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
Channel-to-Channel Crosstalk	—	—	-120	—	dB	Note 1

Note 1: DC signal referenced to input. Refer to the [AC Performance Characteristics](#) section.

TEMPERATURE SPECIFICATIONS (Note 1)

Parameters	Sym.	Min.	Typ.	Max.	Units	Conditions
Temperature Ranges						
Ambient Temperature Range	T_A	-40	—	+85	°C	—
Storage Temperature Range	T_S	—	—	+150	°C	—
Lead Temperature	—	—	—	+260	°C	Soldering, 10s
Package Thermal Resistance						
Thermal Resistance SOT-23-8	θ_{JA}	—	100	—	°C/W	Using 4-Layer PCB
	θ_{CA}	—	70	—	°C/W	Using 4-Layer PCB

Note 1: The maximum allowable power dissipation is a function of ambient temperature, the maximum allowable junction temperature and the thermal resistance from junction to air (i.e., T_A , T_J , θ_{JA}). Exceeding the maximum allowable power dissipation will cause the device operating junction temperature to exceed the maximum +85°C rating. Sustained junction temperatures above +85°C can impact the device reliability.

2.0 TYPICAL PERFORMANCE CURVES

Note: The graphs and tables provided following this note are a statistical summary based on a limited number of samples and are provided for informational purposes only. The performance characteristics listed herein are not tested or guaranteed. In some graphs or tables, the data presented may be outside the specified operating range (e.g., outside specified power supply range) and therefore outside the warranted range.

2.1 DC Performance Characteristics

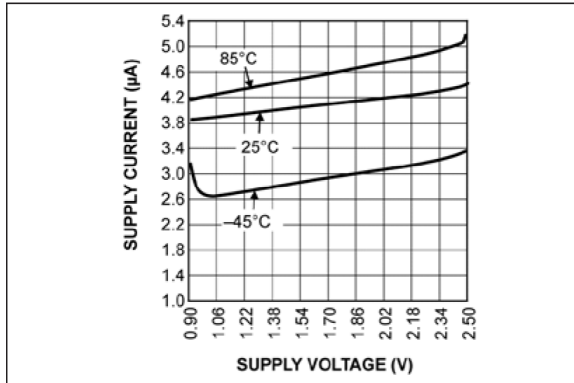


FIGURE 2-1: Supply Current vs. Supply Voltage.

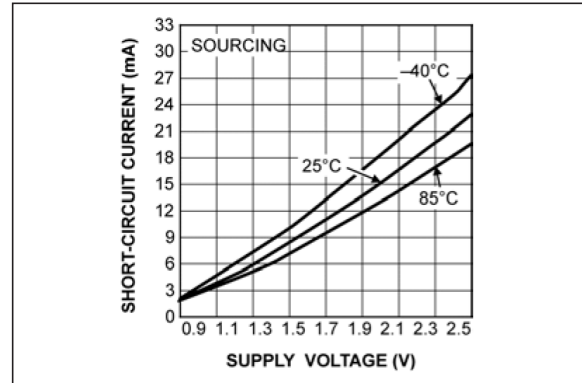


FIGURE 2-4: Short-Circuit Current vs. Supply Voltage.

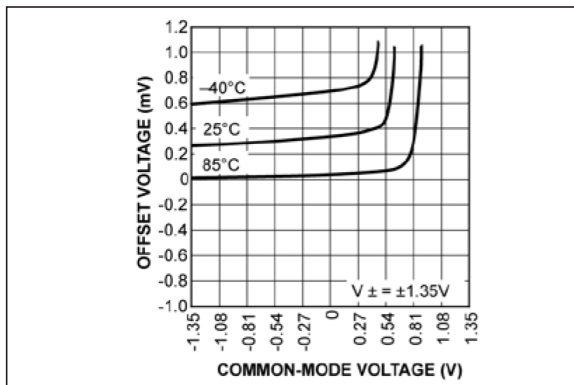


FIGURE 2-2: Offset Voltage vs. Common-Mode Voltage.

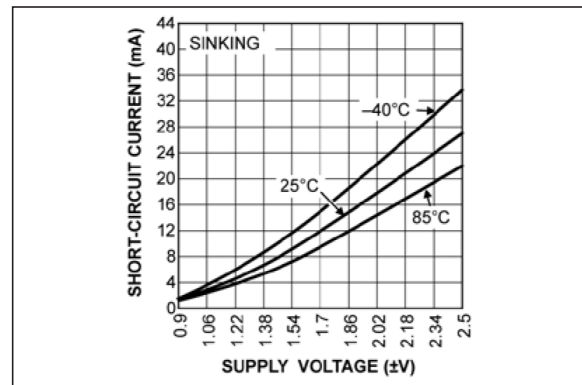


FIGURE 2-5: Short-Circuit Current vs. Supply Voltage.

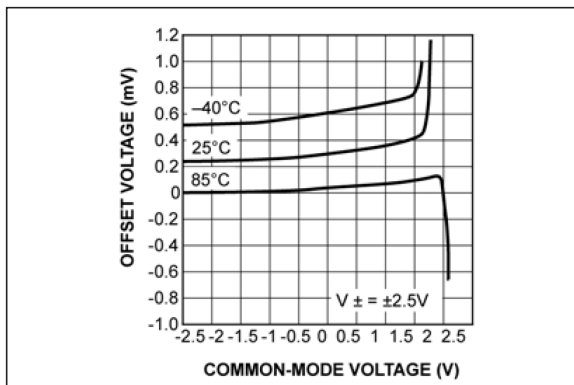


FIGURE 2-3: Offset Voltage vs. Common-Mode Voltage.

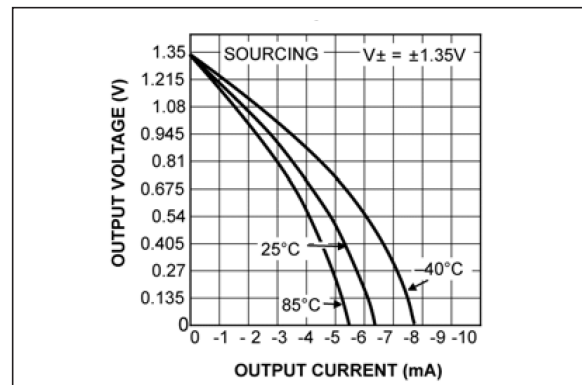


FIGURE 2-6: Output Voltage vs. Output Current.

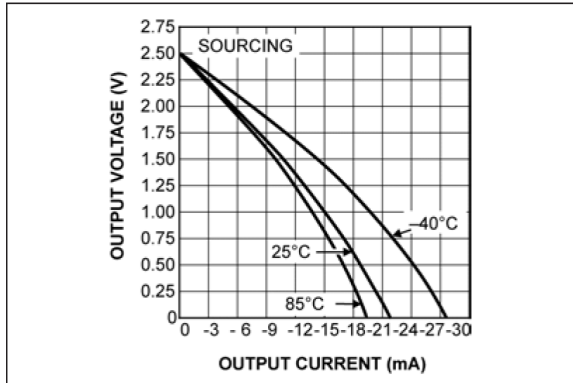


FIGURE 2-7: Output Voltage vs. Output Current.

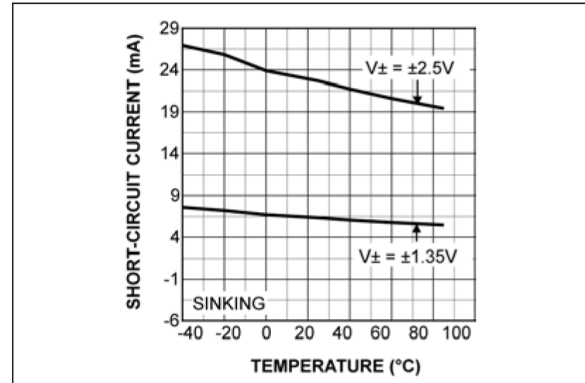


FIGURE 2-10: Short-Circuit Current vs. Temperature.

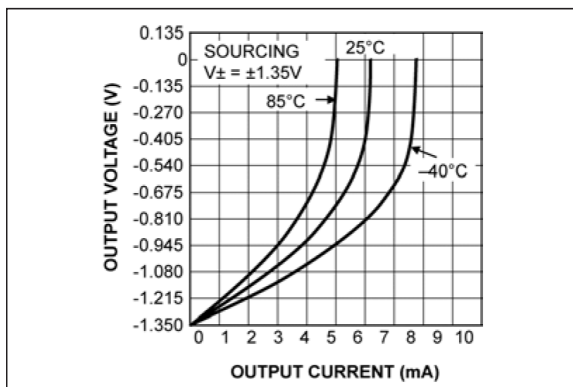


FIGURE 2-8: Output Voltage vs. Output Current.

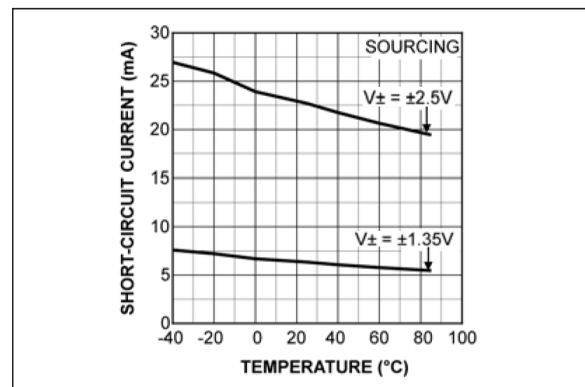


FIGURE 2-11: Short-Circuit Current vs. Temperature.

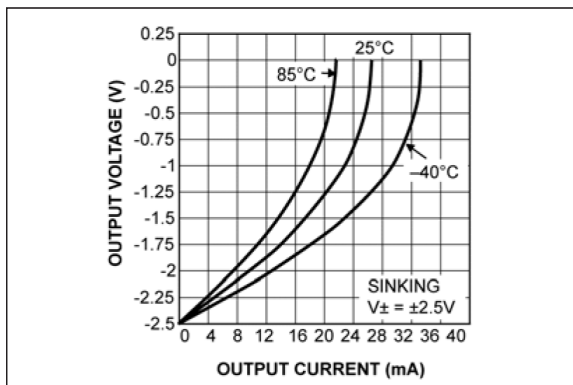


FIGURE 2-9: Output Voltage vs. Output Current.

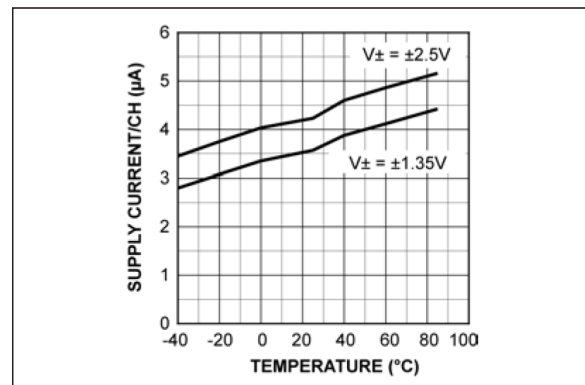


FIGURE 2-12: Supply Current per Channel vs. Temperature.

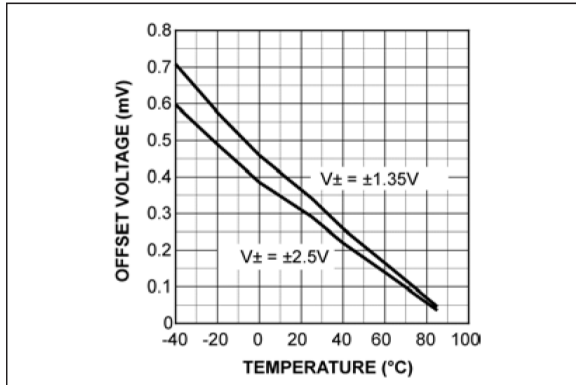


FIGURE 2-13: Offset Voltage vs. Temperature.

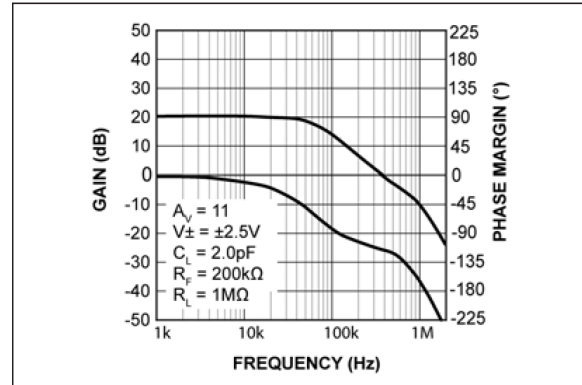


FIGURE 2-16: Gain Bandwidth and Phase Margin.

2.2 AC Performance Characteristics

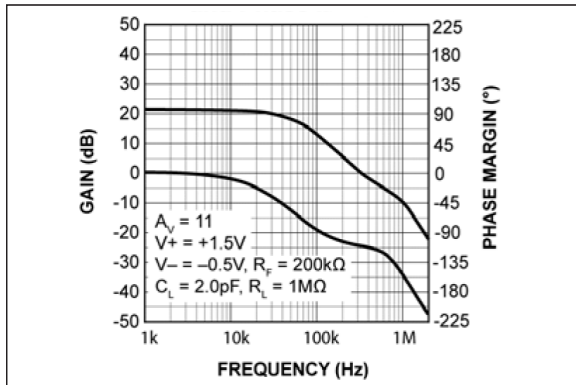


FIGURE 2-14: Gain Bandwidth and Phase Margin.

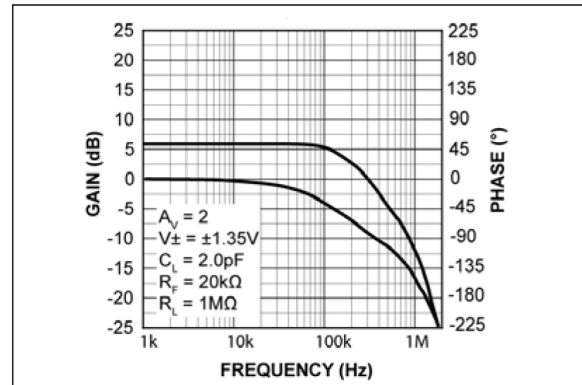


FIGURE 2-17: Gain Bandwidth Frequency Response.

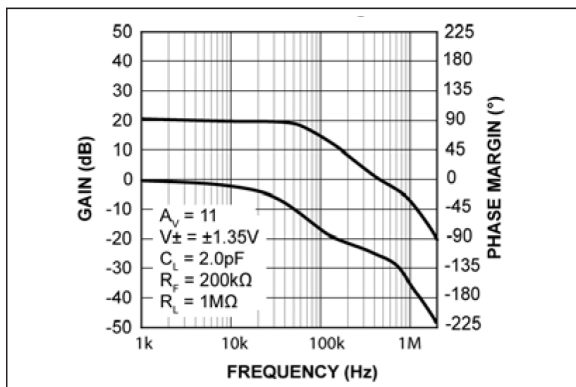


FIGURE 2-15: Gain Bandwidth and Phase Margin.

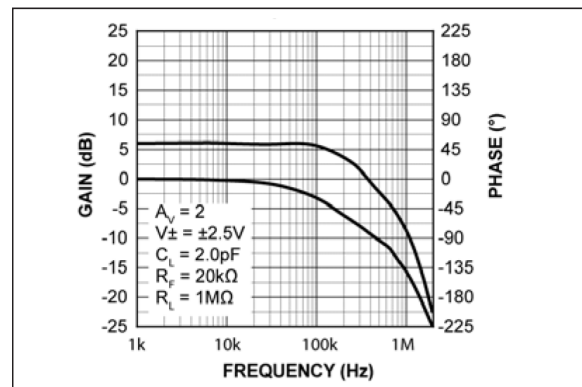


FIGURE 2-18: Gain Bandwidth Frequency Response.

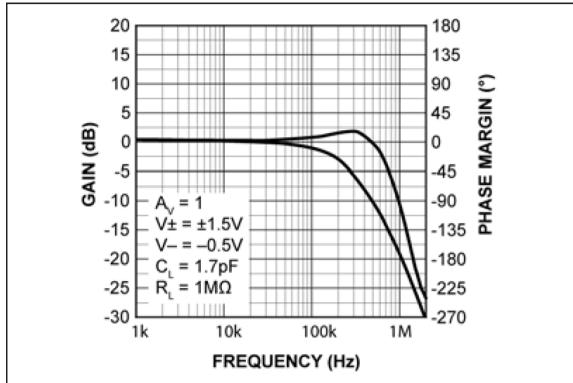


FIGURE 2-19: Unity Gain Frequency Response.

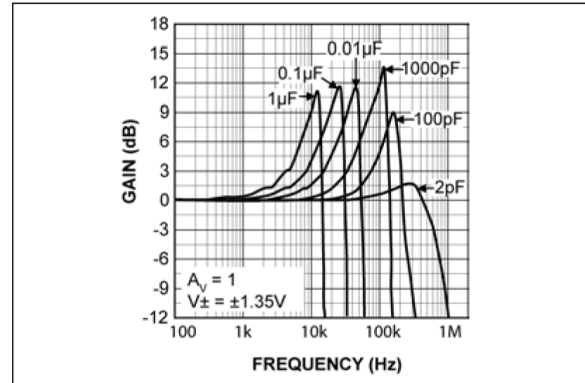


FIGURE 2-22: Closed Loop Unity Gain Frequency Response.

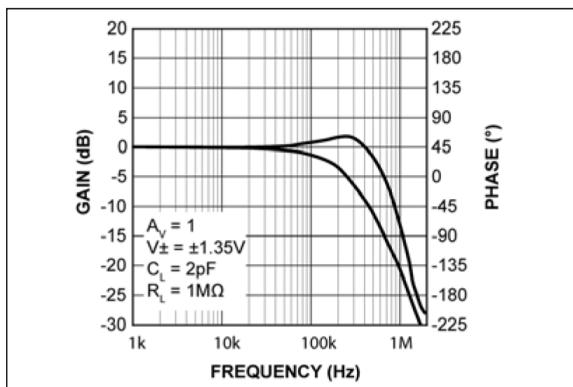


FIGURE 2-20: Unity Gain Frequency Response.

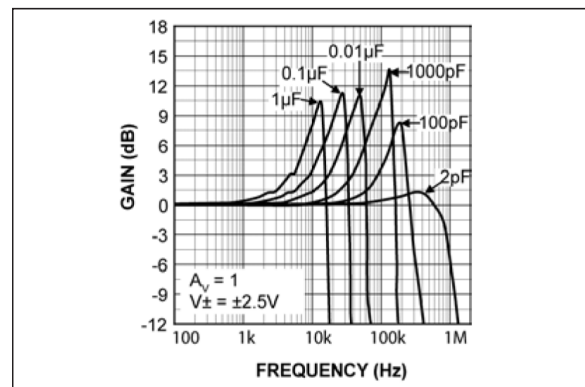


FIGURE 2-23: Closed Loop Unity Gain Frequency Response.

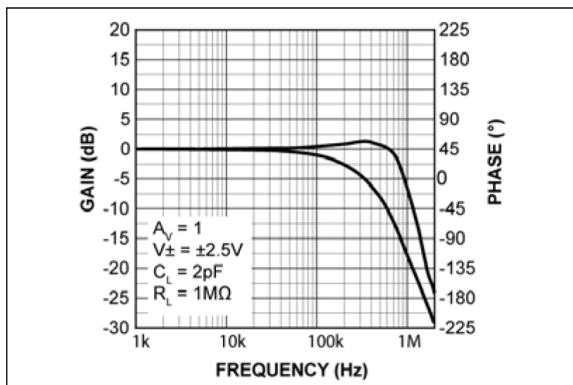


FIGURE 2-21: Unity Gain Frequency Response.

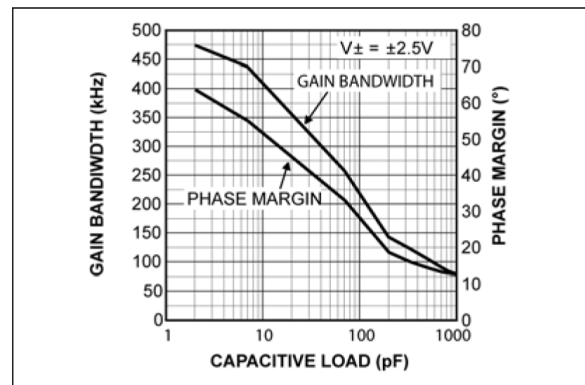


FIGURE 2-24: Gain Bandwidth and Phase Margin vs. Capacitive Load.

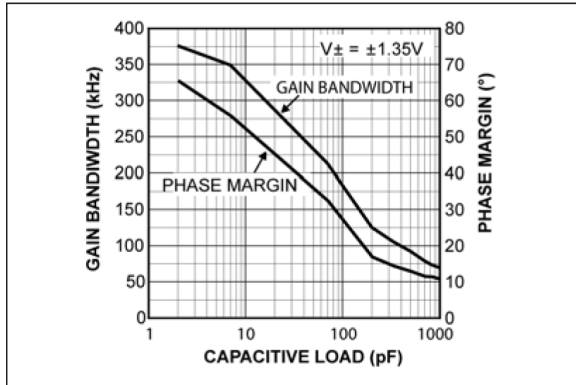


FIGURE 2-25: Gain Bandwidth and Phase Margin vs. Capacitive Load.

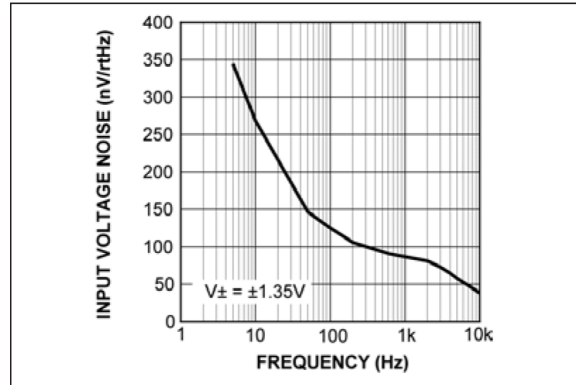


FIGURE 2-28: MIC863 Input Voltage Noise vs. Frequency.

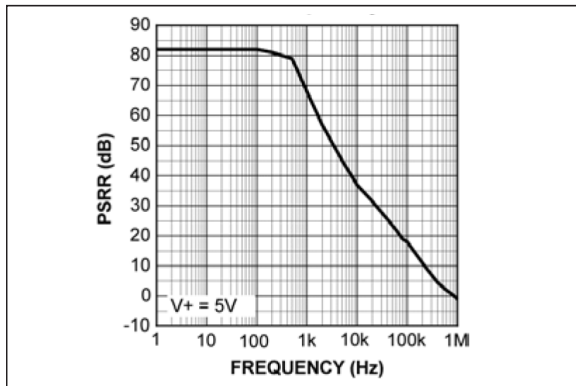


FIGURE 2-26: PSRR vs. Frequency.

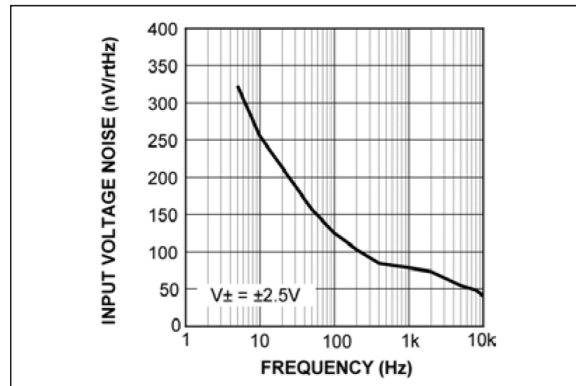


FIGURE 2-29: MIC863 Input Voltage Noise vs. Frequency.

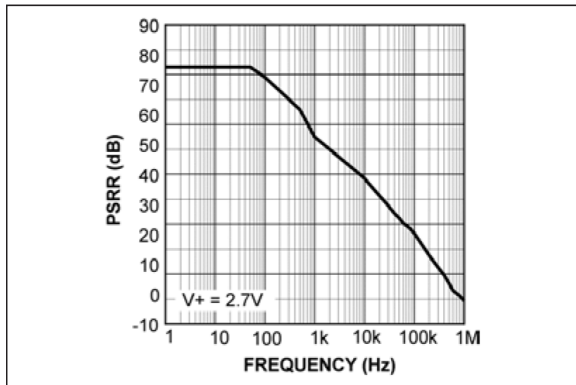


FIGURE 2-27: PSRR vs. Frequency.

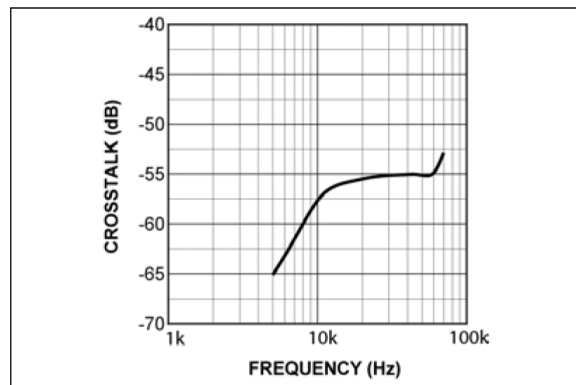


FIGURE 2-30: Channel-to-Channel Crosstalk.

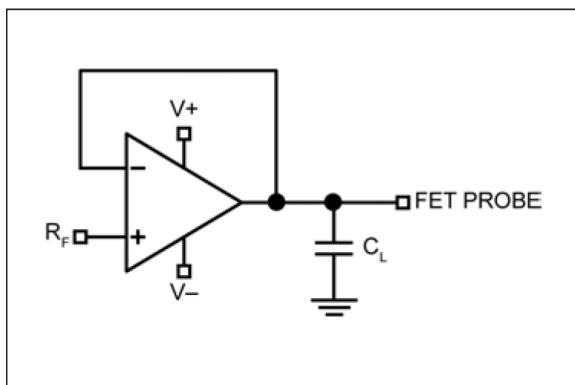


FIGURE 2-31: Test Circuit A.

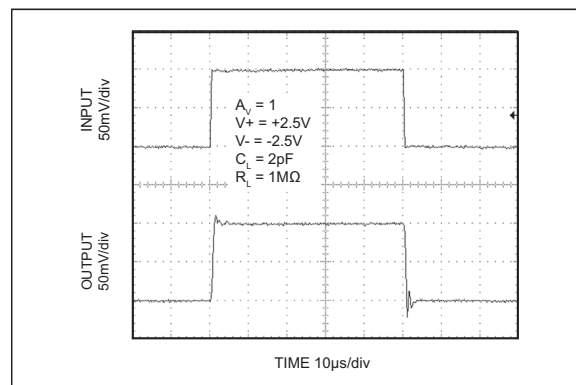


FIGURE 2-34: Small Signal Pulse Response (Test Circuit A: $A_V = 1$, $C_L = 2$ pF).

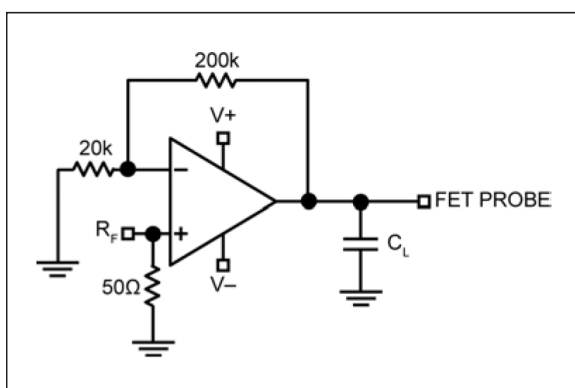


FIGURE 2-32: Test Circuit B.

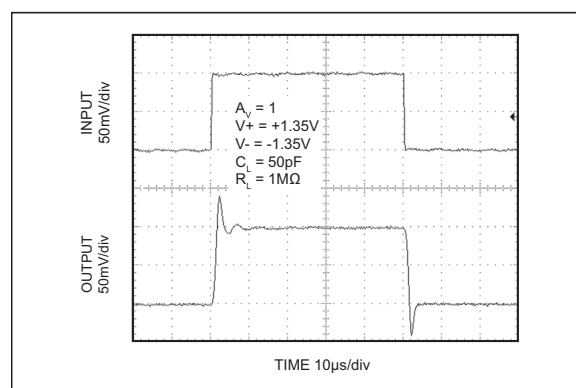


FIGURE 2-35: Small Signal Pulse Response (Test Circuit A: $A_V = 1$, $C_L = 50$ pF).

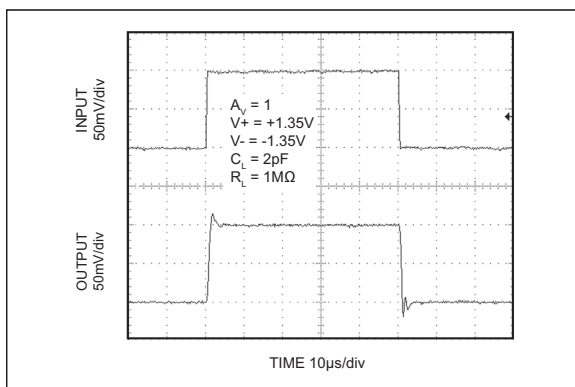


FIGURE 2-33: Small Signal Pulse Response (Test Circuit A: $A_V = 1$, $C_L = 2$ pF).

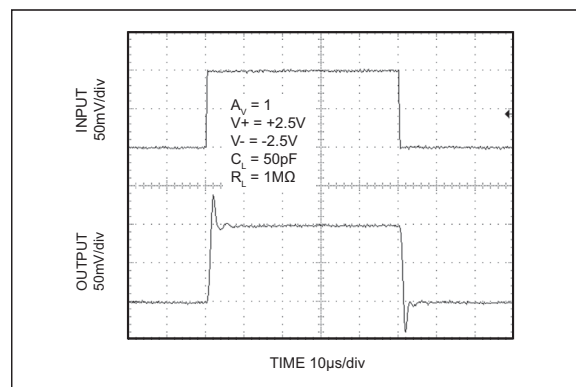


FIGURE 2-36: Small Signal Pulse Response (Test Circuit A: $A_V = 1$, $C_L = 50$ pF).

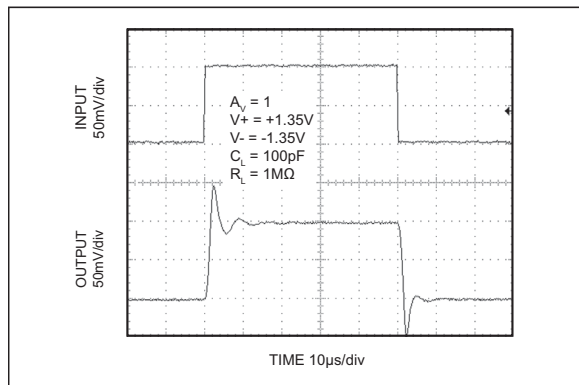


FIGURE 2-37: Small Signal Pulse Response (Test Circuit A: $A_V = 1$, $C_L = 100$ pF).

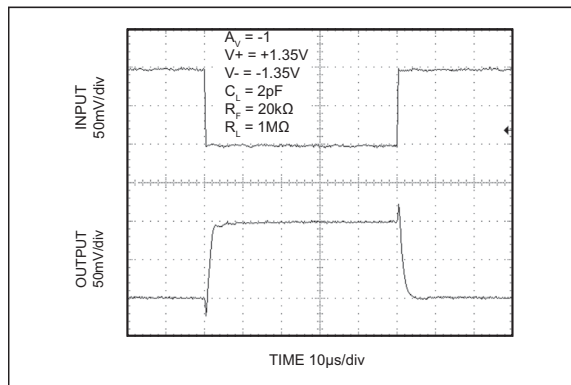


FIGURE 2-40: Small Signal Pulse Response (Test Circuit B: $A_V = -1$, $C_L = 2$ pF).

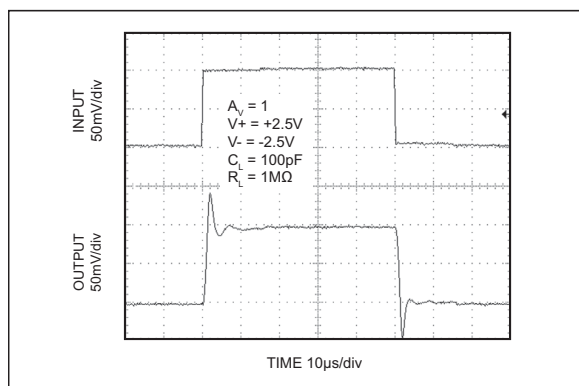


FIGURE 2-38: Small Signal Pulse Response (Test Circuit A: $A_V = 1$, $C_L = 100$ pF).

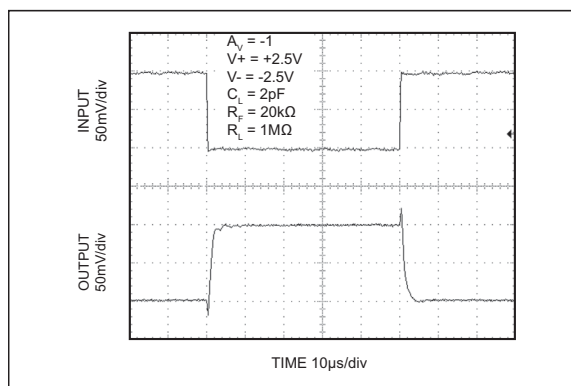


FIGURE 2-41: Small Signal Pulse Response (Test Circuit B: $A_V = -1$, $C_L = 2$ pF).

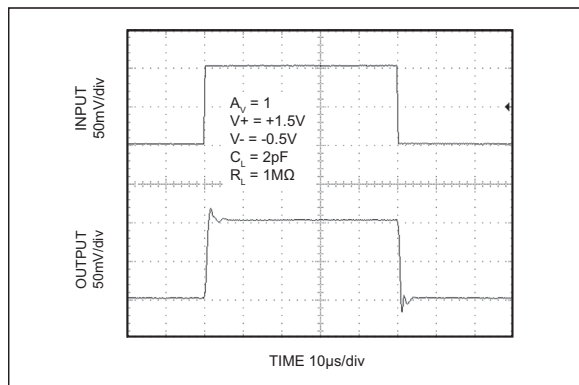


FIGURE 2-39: Small Signal Pulse Response (Test Circuit A: $A_V = 1$, $C_L = 2$ pF).

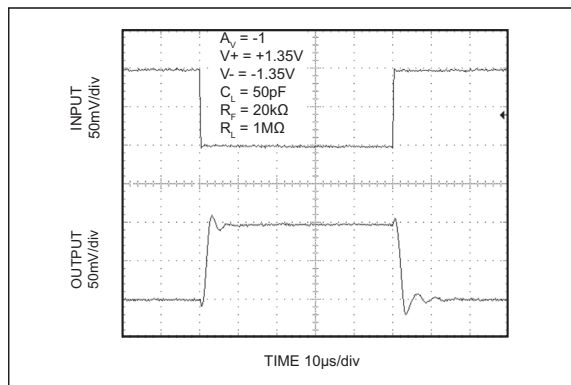


FIGURE 2-42: Small Signal Pulse Response (Test Circuit B: $A_V = -1$, $C_L = 50$ pF).

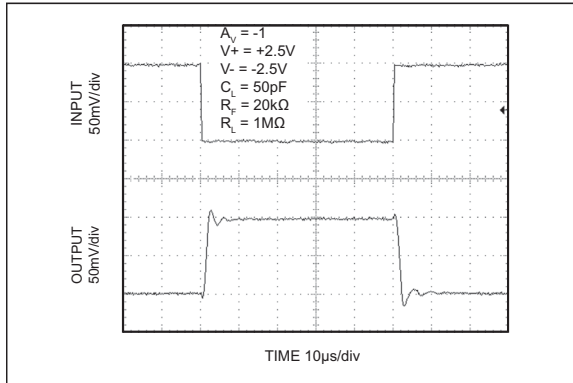


FIGURE 2-43: Small Signal Pulse Response (Test Circuit B: $A_V = -1$, $C_L = 50$ pF).

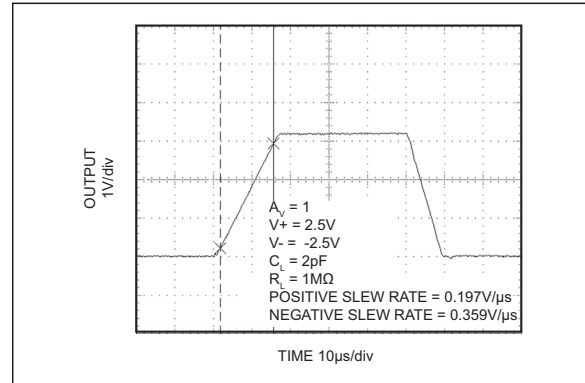


FIGURE 2-46: Large Signal Pulse Response (Test Circuit A: $A_V = 1$, $C_L = 2$ pF).

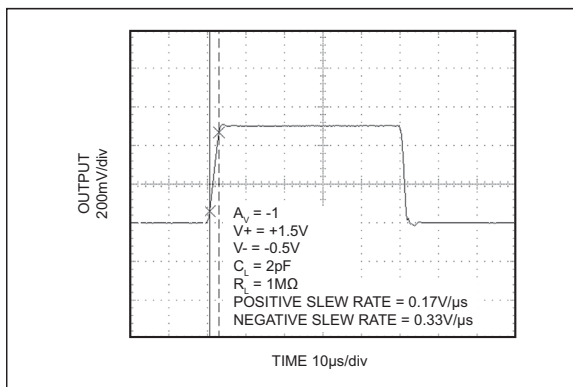


FIGURE 2-44: Large Signal Pulse Response (Test Circuit A: $A_V = 1$, $C_L = 2$ pF).

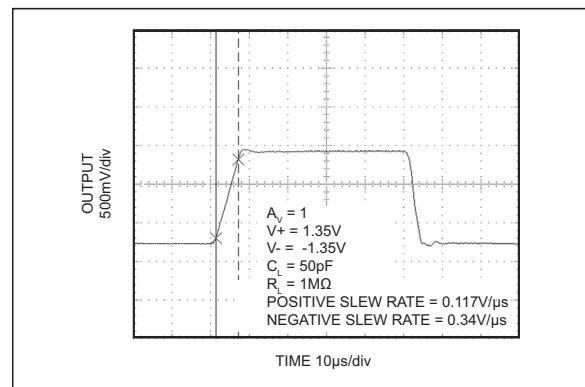


FIGURE 2-47: Large Signal Pulse Response (Test Circuit A: $A_V = 1$, $C_L = 50$ pF).

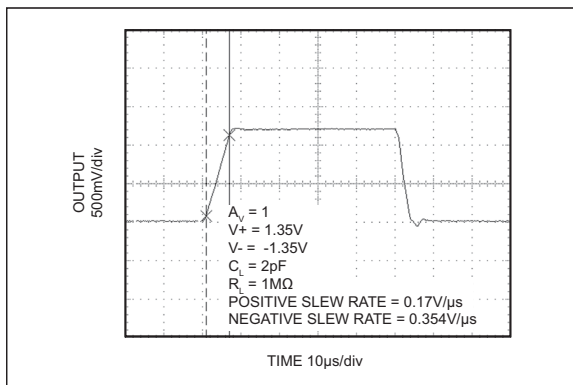


FIGURE 2-45: Large Signal Pulse Response (Test Circuit A: $A_V = 1$, $C_L = 2$ pF).

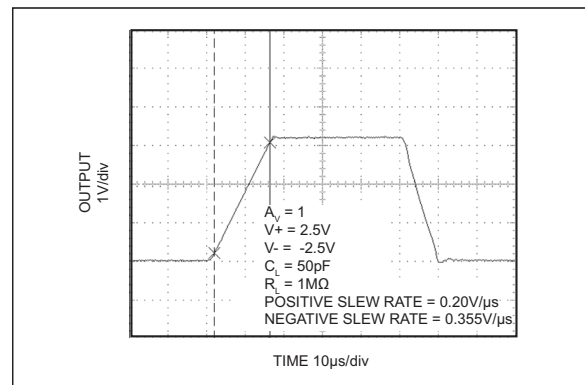


FIGURE 2-48: Large Signal Pulse Response (Test Circuit A: $A_V = 1$, $C_L = 50$ pF).

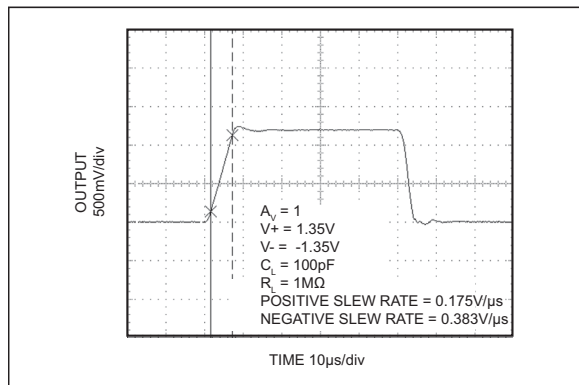


FIGURE 2-49: Large Signal Pulse Response (Test Circuit A: $A_V = 1$, $C_L = 100$ pF).

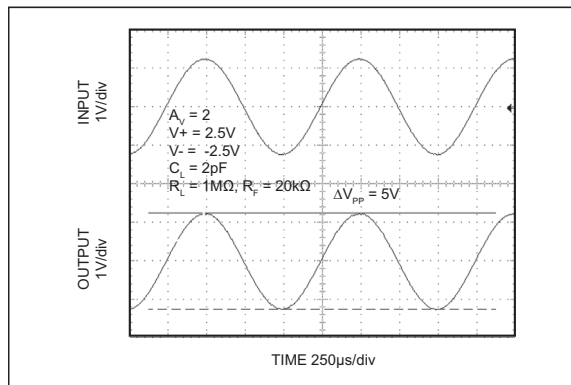


FIGURE 2-52: Rail-to-Rail Output Operation.

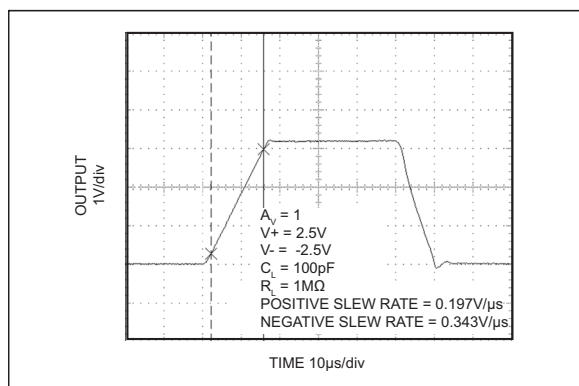


FIGURE 2-50: Large Signal Pulse Response (Test Circuit A: $A_V = 1$, $C_L = 100$ pF).

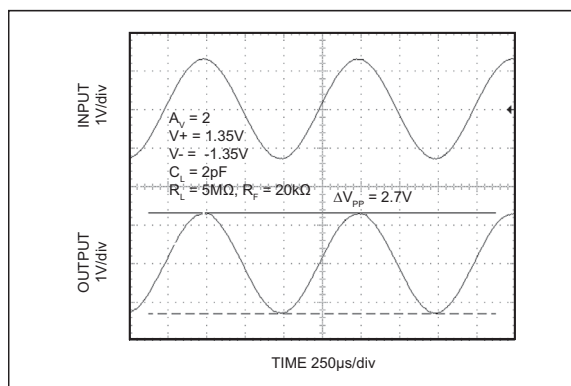


FIGURE 2-53: Rail-to-Rail Output Operation.

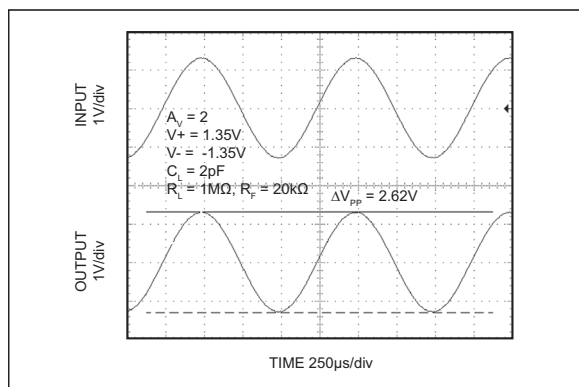


FIGURE 2-51: Rail-to-Rail Output Operation.

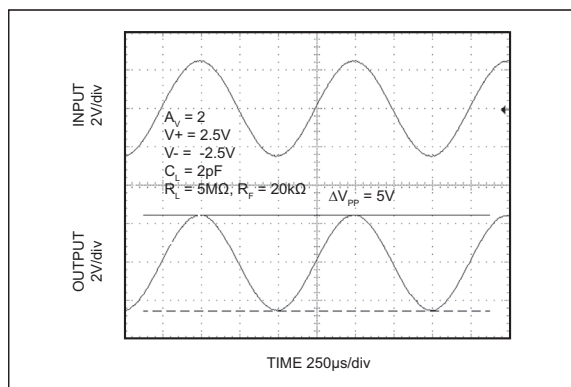


FIGURE 2-54: Rail-to-Rail Output Operation.

3.0 PIN DESCRIPTIONS

The descriptions of the pins are listed in [Table 3-1](#).

TABLE 3-1: PIN FUNCTION TABLE

Pin Number	Symbol	Description
1	OUTA	Amplifier A Output.
2	INA–	Amplifier A Inverting Input.
3	INA+	Amplifier A Non-Inverting Input
4	V–	Negative Supply.
5	INB+	Amplifier B Non-Inverting Input.
6	INB–	Amplifier B Inverting Input.
7	OUTB	Amplifier B Output.
8	V+	Positive Supply.

4.0 APPLICATION INFORMATION

Regular supply bypassing techniques are recommended. A 10 μF capacitor in parallel with a 0.1 μF capacitor on both the positive and negative supplies are ideal. For best performance all bypassing capacitors should be located as close to the op amp as possible and all capacitors should be low equivalent series inductance (ESL), equivalent series resistance (ESR). Surface-mount ceramic capacitors are ideal.

The MIC863 is intended for single-supply applications configured with a grounded load. It is not advisable to operate the MIC863 under either of the following conditions when the load is less than 20 k Ω and the output swing is greater than 1V (peak-to-peak):

- A grounded load and split supplies ($\pm\text{V}$)
- A single supply where the load is terminated above ground.

Under the conditions listed above, there may be some instability when the output is sinking current.

5.0 PACKAGING INFORMATION

5.1 Package Marking Information

8-Lead SOT-23* (Front)	Example
XXX	A35
8-Lead SOT-23* (Back)	Example
NNN	831

Legend:	XX...X	Product code or customer-specific information
	Y	Year code (last digit of calendar year)
	YY	Year code (last 2 digits of calendar year)
	WW	Week code (week of January 1 is week '01')
	NNN	Alphanumeric traceability code
	(e3)	Pb-free JEDEC® designator for Matte Tin (Sn)
	*	This package is Pb-free. The Pb-free JEDEC designator ((e3)) can be found on the outer packaging for this package.
	•, ▲, ▼	Pin one index is identified by a dot, delta up, or delta down (triangle mark).
Note:	In the event the full Microchip part number cannot be marked on one line, it will be carried over to the next line, thus limiting the number of available characters for customer-specific information. Package may or may not include the corporate logo.	
	Underbar (¯) and/or Overbar (¯) symbol may not be to scale.	

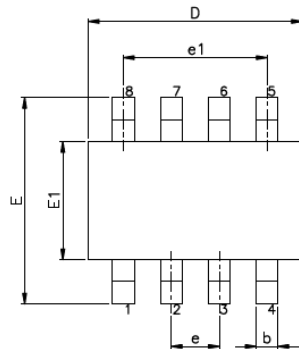
8-Lead SOT-23 Package Outline and Recommended Land Pattern

Note: For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>

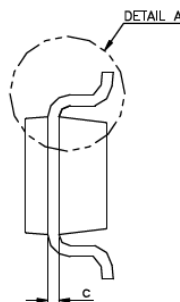
TITLE

8 LEAD SOT23 PACKAGE OUTLINE & RECOMMENDED LAND PATTERN

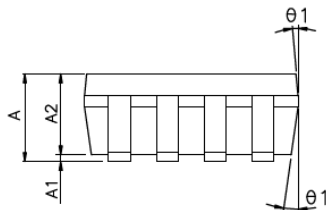
DRAWING #	SOT23-8LD-PL-1	UNIT	MM
Lead Frame	Copper Alloy	Lead Finish	Matte Tin



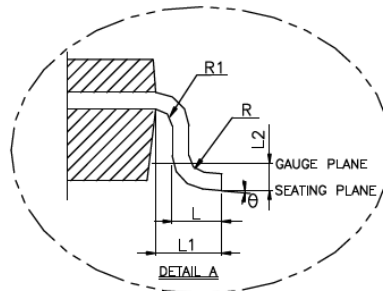
TOP VIEW



SIDE VIEW



END VIEW



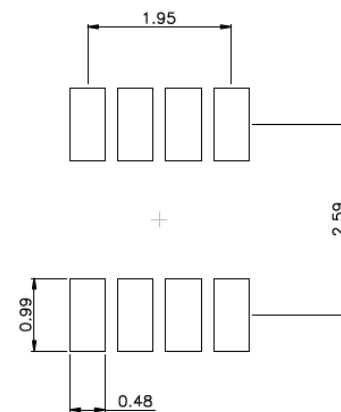
DETAIL A

VARIATION (ALL DIMENSIONS SHOWN IN MM)

SYMBOL	MIN.	NOM.	MAX.
A	—	—	1.45
A1	0.00	—	0.15
A2	0.90	1.15	1.30
b	0.22	—	0.38
c	0.08	—	0.22
D	2.90	BSC.	—
E	2.80	BSC.	—
E1	1.60	BSC.	—
e	0.65	BSC.	—
e1	1.95	BSC.	—
L	0.30	0.45	0.60
L1	—	0.60	REF.
L2	—	0.25	BSC.
R	0.10	—	—
R1	0.10	—	0.25
theta	0°	4°	8°
theta 1	5°	10°	15°

NOTE :

1. JEDEC OUTLINE : MO-178 BA.



RECOMMENDED LAND PATTERN

APPENDIX A: REVISION HISTORY

Revision A (March 2020)

- Converted Micrel document MIC863 to Microchip data sheet template DS20006308A.
- Minor text changes throughout.

NOTES:

PRODUCT IDENTIFICATION SYSTEM

To order or obtain information, e.g., on pricing or delivery, contact your local Microchip representative or sales office.

<u>PART NO.</u>	<u>X</u>	<u>XX</u>	<u>-XX</u>
Device	Temperature	Package	Media Type

Device:	MIC863:	Dual Ultra-Low Power Op Amp
Temperature:	Y =	−40°C to +85°C
Package:	M8 =	8-Lead SOT-23
Media Type:	TR =	3,000/Reel

Examples:

a) MIC863YM8-TR: Dual Ultra-Low Power Op Amp −40°C to +85°C Junction Temperature Range, 8-Lead SOT-23 Package, 3,000/Reel

Note 1: Tape and Reel identifier only appears in the catalog part number description. This identifier is used for ordering purposes and is not printed on the device package. Check with your Microchip Sales Office for package availability with the Tape and Reel option.

NOTES:

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