# MIC5206

## 150 mA Low-Noise LDO Regulator

### Features

- Error Flag Indicates Undervoltage Fault
- High Output Voltage Accuracy
- Ensured 150 mA Output
- Ultra Low Noise Output (8-Lead Versions)
- Low Quiescent Current
- Low Dropout Voltage
- Extremely Tight Load and Line Regulation
- Very Low Temperature Coefficient
- Current and Thermal Limiting
- Reversed-Battery Protection
- “Zero” Off-Mode Current
- Logic-Controlled Electronic Enable

### Applications

- Cellular Telephones
- Laptop, Notebook, and Palmtop Computers
- Battery-Powered Equipment
- PCMCIA $V_{CC}$ and $V_{PP}$ Regulation/Switching
- Consumer/Personal Electronics
- SMPS Post-Regulator/DC-to-DC Modules
- High-Efficiency Linear Power Supplies

### General Description

The MIC5206 is an efficient linear voltage regulator with very low dropout voltage (typically 17 mV at light loads and 165 mV at 150 mA), and very low ground current (600 µA at 100 mA output), with better than 1% initial accuracy. It has a logic compatible enable/shutdown control input and an internal undervoltage monitor.

Designed especially for hand-held, battery-powered devices, the MIC5206 can be switched by a CMOS or TTL compatible logic signal. When disabled, power consumption drops nearly to zero. Dropout ground current is minimized to prolong battery life.

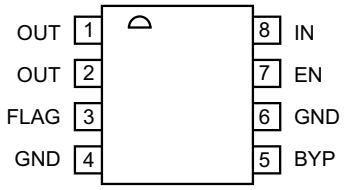
Key features include an undervoltage monitor with an error flag output, a reference bypass pin to improve its already low-noise performance (8-lead versions only), reversed-battery protection, current limiting, and overtemperature shutdown.

The MIC5206 is available in several fixed voltages in a tiny SOT-23-5 package. It features a pinout similar to the LP2980, but has significantly better performance. Fixed and adjustable output voltage versions, featuring the reference bypass option, are available in the 8-lead MSOP option.

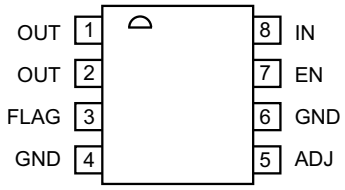
For low-dropout regulators that are stable with ceramic output capacitors, see the µCap MIC5245/6/7 family.

### Package Types

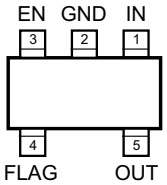
**MIC5206 (Fixed Output Voltage)**
8-Lead MSOP (MM)
(Top View)




**MIC5206 (Adj. Output Voltage)**
8-Lead MSOP (MM)
(Top View)

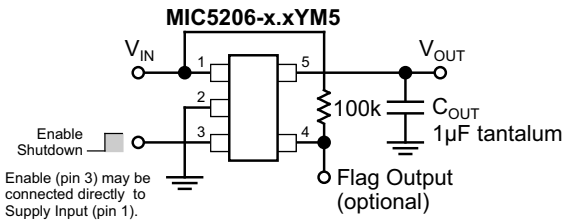



**MIC5206 (Fixed Output Voltage)**
5-Lead SOT-23 (M5)
(Top View)

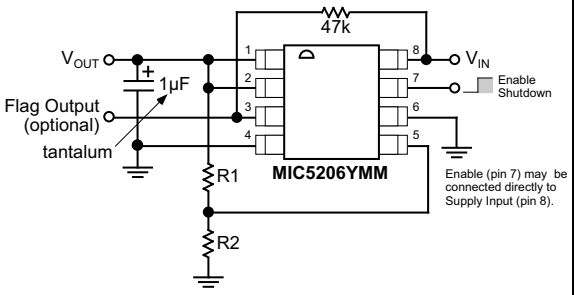


## Typical Application Circuits

**SOT-23-5 Fixed Voltage Application**




**Adjustable Voltage Application**



## 1.0 ELECTRICAL CHARACTERISTICS

### Absolute Maximum Ratings †

Supply Input Voltage ($V_{IN}$) ..... –20V to +20V
Enable Input Voltage ($V_{EN}$) ..... –20V to +20V
Power Dissipation ($P_D$) Note 1 ..... Internally Limited

### Operating Ratings ‡

Supply Input Voltage ($V_{IN}$) ..... +2.5V to +16V
Enable Input Voltage ($V_{EN}$) ..... 0V to $V_{IN}$

**† 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 its operating ratings.

**Note 1:** The maximum allowable power dissipation at any $T_A$ (ambient temperature) is $P_{D(MAX)} = (T_{J(MAX)} – T_A)/\theta_{JA}$. Exceeding the maximum allowable power dissipation will result in excessive die temperature, and the regulator will go into thermal shutdown. The $\theta_{JA}$ of the MIC5205-x.xYM5 (all versions) is 220°C/W, and the MIC5206-x.xYMM (all versions) is 200°C/W, mounted on a PC board (see "Thermal Considerations" for further details).

## ELECTRICAL CHARACTERISTICS

**Electrical Characteristics:** $V_{IN} = V_{OUT} + 1V$; $I_L$ = 100 µA; $C_L$ = 1.0 µF; $V_{EN} \geq 2.0V$; $T_J$ = +25°C, **bold** values valid for –40°C ≤ $T_J$ ≤ +125°C, unless noted.

| Parameter | Symbol | Min. | Typ. | Max. | Units | Conditions |
|---|---|---|---|---|---|---|
| Output Voltage Accuracy | $V_O$ | –1 | — | 1 | % | Variation from nominal VOUT |
| | | **–2** | — | **2** | | |
| Output Voltage Temperature Coefficient | $\Delta V_O/\Delta T$ | — | **40** | — | ppm/°C | Note 1 |
| Line Regulation | $\Delta V_O/V_O$ | — | 0.0114 | — | % | $V_{IN} = V_{OUT}$ + 1V to 16V |
| Load Regulation | $\Delta V_O/V_O$ | — | 0.19 | — | % | $I_L$ = 0.1 mA to 150 mA, Note 2 |
| Dropout Voltage, Note 3 | $V_{IN} – V_O$ | — | 17 | 50 | mV | $I_L$ = 100 µA |
| | | — | — | **70** | | |
| | | — | 110 | 150 | | $I_L$ = 50 mA |
| | | — | — | **230** | | |
| | | — | 140 | 250 | | $I_L$ = 100 mA |
| | | — | — | **300** | | |
| | | — | 165 | 275 | | $I_L$ = 150 mA |
| | | — | — | **350** | | |
| Quiescent Current | $I_Q$ | — | 0.01 | 1 | µA | $V_{EN} \leq 0.4V$ (shutdown) |
| | | — | — | **5** | | $V_{EN} \leq 0.18V$ (shutdown) |
| Ground Pin Current, Note 4 | $I_{GND}$ | — | 80 | 125 | µA | $V_{EN} \geq 2.0V$, $I_L$ = 100 µA |
| | | — | — | **150** | | |
| | | — | 350 | 600 | | $I_L$ = 50 mA |
| | | — | — | **800** | | |
| | | — | 600 | 1000 | | $I_L$ = 100 mA |
| | | — | — | **1500** | | |
| | | — | 1300 | 1900 | | $I_L$ = 150 mA |
| | | — | — | **2500** | | |

## ELECTRICAL CHARACTERISTICS (CONTINUED)

**Electrical Characteristics:** $V_{IN} = V_{OUT} + 1V$; $I_L$ = 100 µA; $C_L$ = 1.0 µF; $V_{EN} \geq 2.0V$; $T_J$ = +25°C, **bold** values valid for –40°C ≤ $T_J$ ≤ +125°C, unless noted.

| Parameter | Symbol | Min. | Typ. | Max. | Units | Conditions |
|---|---|---|---|---|---|---|
| Ripple Rejection | PSRR | — | 75 | — | dB | — |
| Current Limit | $I_{LIM}$ | — | **320** | 500 | mA | $V_{OUT}$ = 0V |
| Thermal Regulation | $\Delta V_O/\Delta P_D$ | — | 0.05 | — | %/W | Note 5 |
| Output Noise | $e_n$ | — | 260 | — | $nV\sqrt{Hz}$ | $I_L$ = 50 mA, $C_L$ = 4.7 µF, 470 pF from BYP to GND (MSOP package only) |
| **Enable Input** | | | | | | |
| Enable Input Logic-Low Voltage | $V_{IL}$ | — | — | 0.4 | V | Regulator shutdown |
| | | — | — | **0.18** | | |
| Enable Input Logic-High Voltage | $V_{IH}$ | **2.0** | — | — | V | Regulator enable |
| Enable Input Current | $I_{IL}$ | — | 0.01 | –1 | µA | $V_{IL} \leq 0.4V$ |
| | | — | — | **–2** | | $V_{IL} \leq 0.18V$ |
| | $I_{IH}$ | — | 5 | 20 | | $V_{IH} \geq 2.0V$ |
| | | — | — | **25** | | $V_{IH} \geq 2.0V$ |
| **Error Flag Output** | | | | | | |
| Flag Threshold | $V_{ERR}$ | –2 | –6 | –10 | % | Undervoltage condition (below nominal), Note 6 |
| Output Logic-Low Voltage | $V_{OL}$ | — | 0.2 | **0.4** | V | $I_L$ = 1 mA, undervoltage condition |
| Flag Leakage Current | $I_{FL}$ | –1 | 0.1 | 1 | µA | Flag off, $V_{FLAG}$ = 0V to 16V |

**Note 1:** Output voltage temperature coefficient is defined as the worst-case voltage change divided by the total temperature range.

**2:** Regulation is measured at constant junction temperature using low duty cycle pulse testing. Parts are tested for load regulation in the load range from 0.1 mA to 150 mA. Changes in output voltage due to heating effects are covered by the thermal regulation specification.

**3:** Dropout voltage is defined as the input to output differential at which the output voltage drops 2% below its nominal value measured at 1V differential.

**4:** Ground pin current is the regulator quiescent current plus pass transistor base current. The total current drawn from the supply is the sum of the load current plus the ground pin current.

**5:** Thermal regulation is defined as the change in output voltage at a time “t” after a change in power dissipation is applied, excluding load or line regulation effects. Specifications are for a 150 mA load pulse at $V_{IN}$ = 16V for t = 10 ms.

**6:** The error flag comparator includes 3% hysteresis.

## TEMPERATURE SPECIFICATIONS

| Parameters | Sym. | Min. | Typ. | Max. | Units | Conditions |
|---|---|---|---|---|---|---|
| **Temperature Ranges** | | | | | | |
| Operating Junction Temperature Range | $T_J$ | –40 | — | +125 | °C | Note 1 |
| Lead Temperature | $T_{LEAD}$ | — | — | +260 | °C | Soldering, 5 sec. |
| **Package Thermal Resistances** | | | | | | |
| Thermal Resistance, MSOP 8-Ld | $\theta_{JA}$ | — | 200 | — | °C/W | — |
| Thermal Resistance, SOT-23 5-Ld | $\theta_{JA}$ | — | 220 | — | °C/W | — |

**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., $T_A$, $T_J$, $\theta_{JA}$), $P_{D(MAX)} = (T_{J(MAX)} - T_A)/\theta_{JA}$. Exceeding the maximum allowable power dissipation will cause the device operating junction temperature to exceed the maximum +125°C rating. Sustained junction temperatures above +125°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.

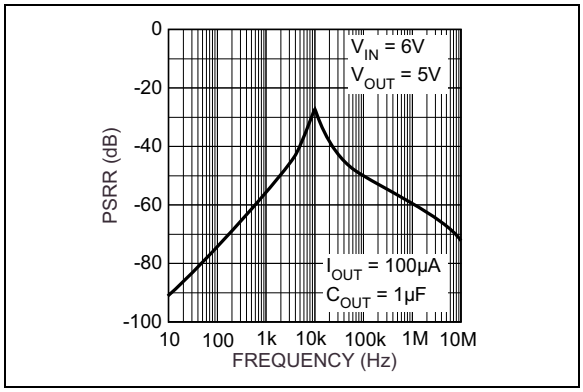



***FIGURE 2-1:*** *Power Supply Rejection Ratio.*

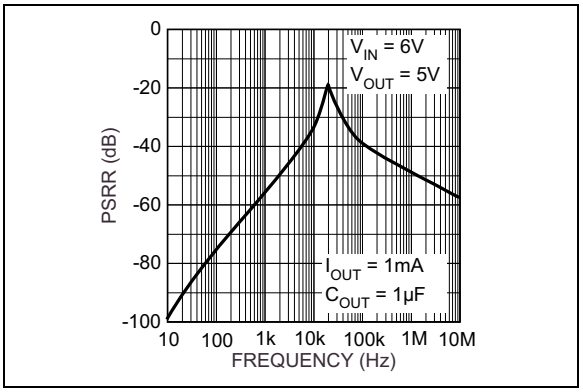



***FIGURE 2-4:*** *Power Supply Rejection Ratio.*

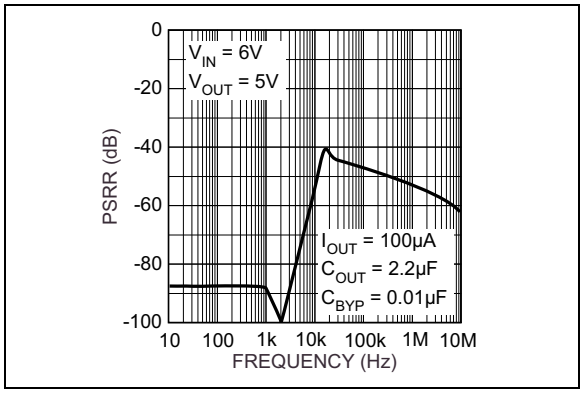



***FIGURE 2-2:*** *Power Supply Rejection Ratio.*

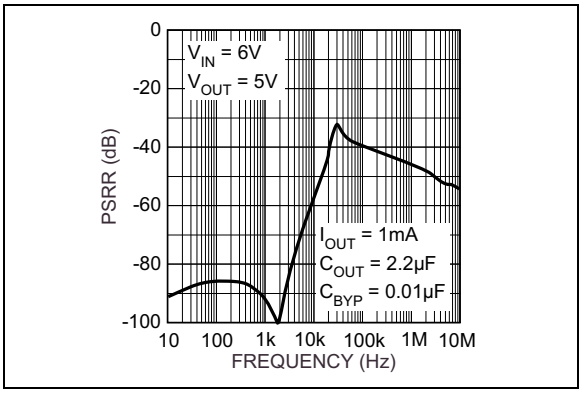



***FIGURE 2-5:*** *Power Supply Rejection Ratio.*

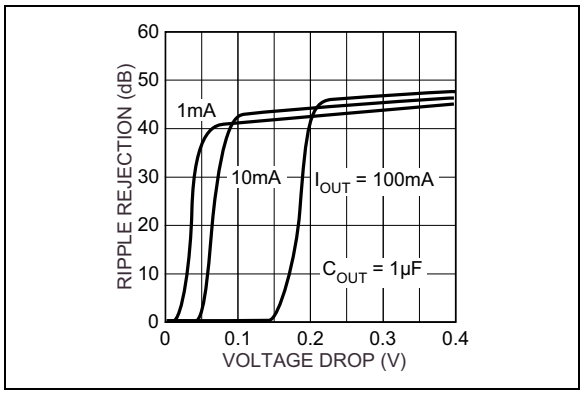



***FIGURE 2-3:*** *Power Supply Ripple Rejection vs. Voltage Drop.*

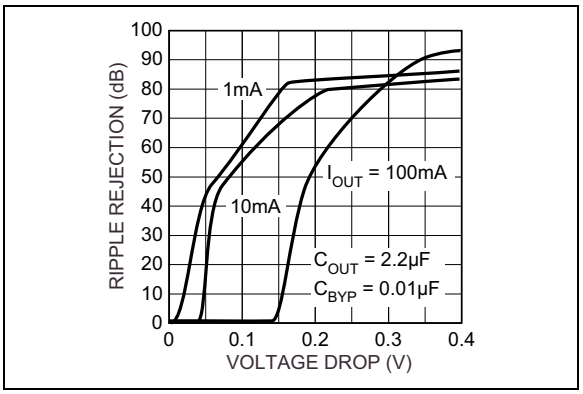



***FIGURE 2-6:*** *Power Supply Ripple Rejection vs. Voltage Drop.*

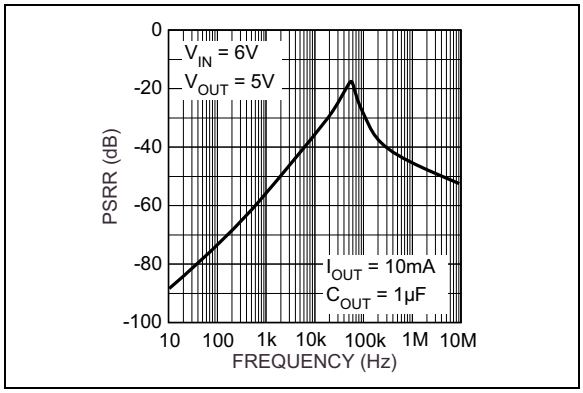



***FIGURE 2-7:*** *Power Supply Rejection Ratio.*

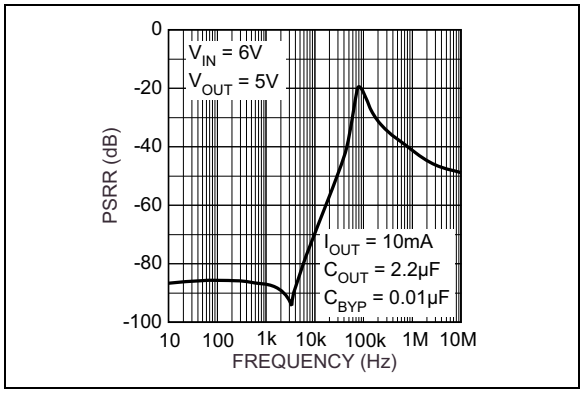



***FIGURE 2-8:*** *Power Supply Rejection Ratio.*

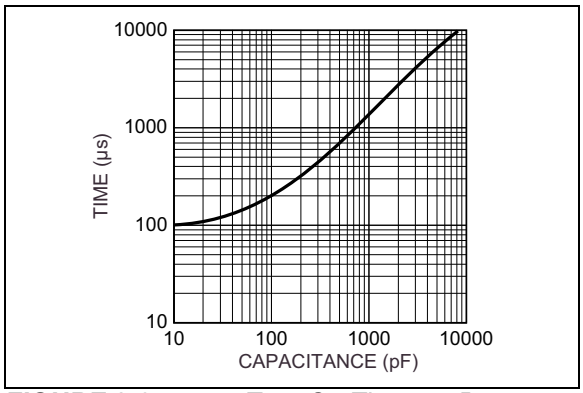



***FIGURE 2-9:*** *Turn-On Time vs. Bypass Capacitance.*

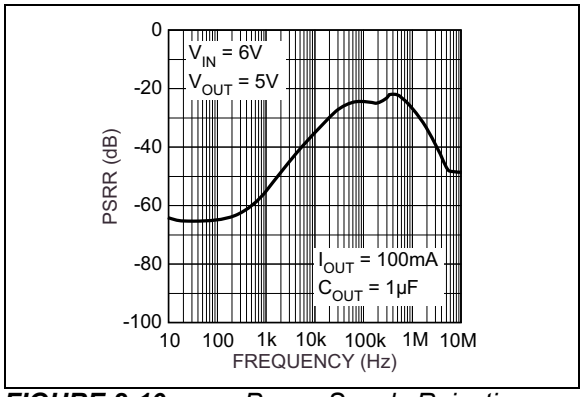



***FIGURE 2-10:*** *Power Supply Rejection Ratio.*

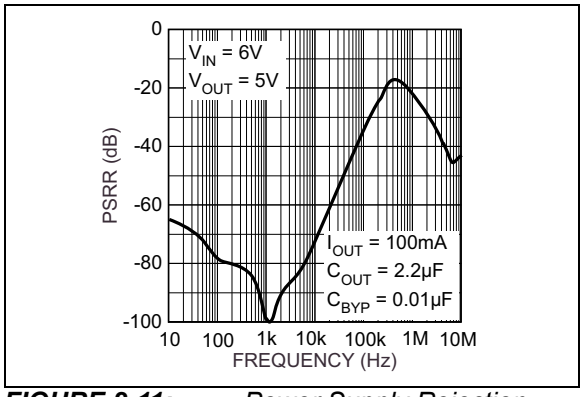



***FIGURE 2-11:*** *Power Supply Rejection Ratio.*

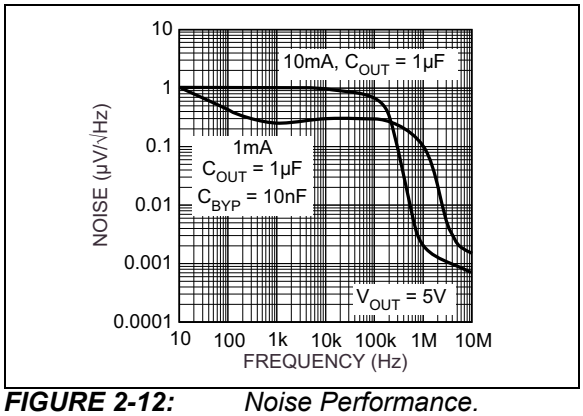



***FIGURE 2-12:*** *Noise Performance.*

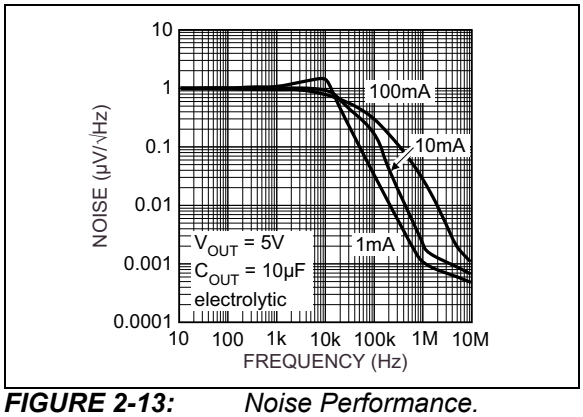



***FIGURE 2-13:*** *Noise Performance.*

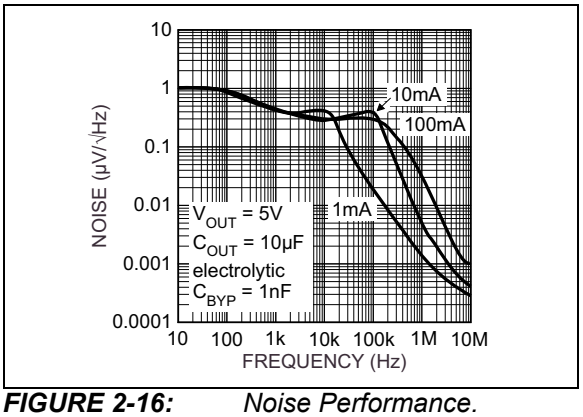



***FIGURE 2-16:*** *Noise Performance.*

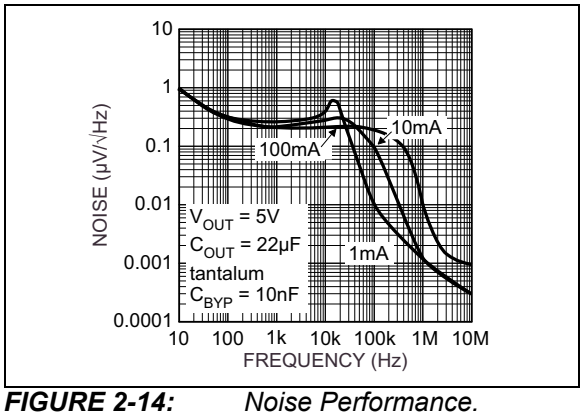



***FIGURE 2-14:*** *Noise Performance.*

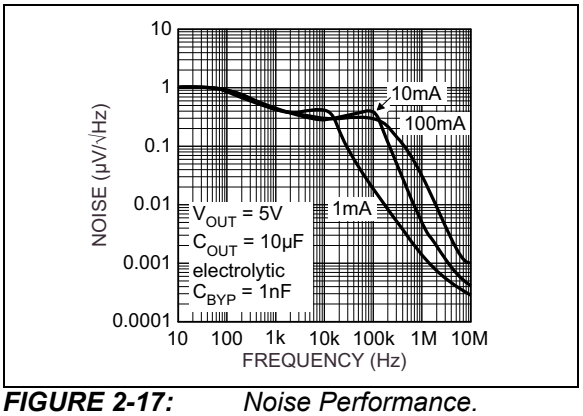



***FIGURE 2-17:*** *Noise Performance.*

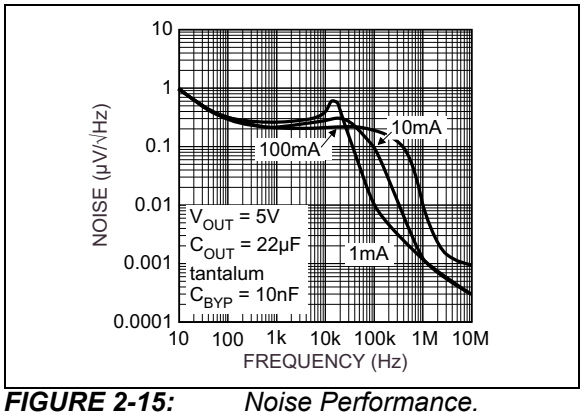



***FIGURE 2-15:*** *Noise Performance.*

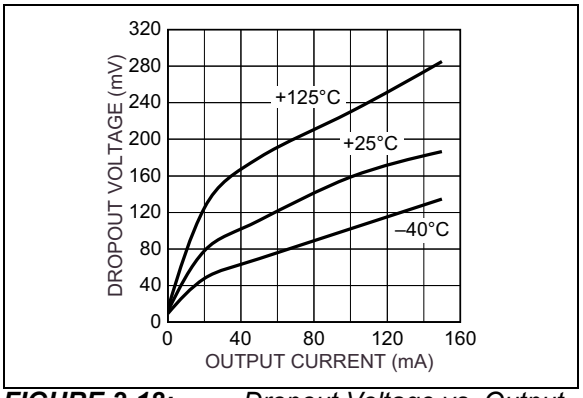



***FIGURE 2-18:*** *Dropout Voltage vs. Output Current.*

## 3.0 PIN DESCRIPTIONS

The descriptions of the pins are listed in Table 3-1.

**TABLE 3-1: PIN FUNCTION TABLE**

| Pin Number SOT-23 | Pin Number MSOP | Pin Name | Description |
|---|---|---|---|
| 1 | 8 | IN | Supply Input. |
| 2 | 4, 6 | GND | Ground. |
| 3 | 7 | EN | Enable/Shutdown (Input): CMOS compatible input. Logic high = enable, logic low or open = shutdown. Do not leave floating. |
| 4 | 3 | FLAG | Error Flag (Output): Open-collector output. Active low indicates an output undervoltage condition |
| — | 5 (Fixed) | BYP | Reference Bypass: Connect external 470 pF capacitor to GND to reduce output noise. May be left open |
| — | 5 (Adj.) | ADJ | Adjust (Input): Adjustable regulator feedback input. Connect to resistor voltage divider. |
| 5 | 1, 2 | OUT | Regulator Output. |

# 4.0 APPLICATION INFORMATION

## 4.1 Enable/Shutdown

Forcing EN (enable/shutdown) high (> 2V) enables the regulator. EN is compatible with CMOS logic gates.

If the enable/shutdown feature is not required, connect EN (enable) to IN (supply input). Refer to the text with Figure 4-1 and Figure 4-3.

## 4.2 Input Capacitor

A 1 µF capacitor should be placed from IN to GND if there is more than 10 inches of wire between the input and the ac filter capacitor or if a battery is used as the input.

## 4.3 Reference Bypass Capacitor

BYP (reference bypass) is connected to the internal voltage reference. A 470 pF capacitor ($C_{BYP}$) connected from BYP to GND quiets this reference, providing a significant reduction in output noise. See Figure 4-3. $C_{BYP}$ reduces the regulator phase margin; when using $C_{BYP}$, output capacitors of 2.2 µF or greater are generally required to maintain stability.

The start-up speed of the MIC5206 is inversely proportional to the size of the reference bypass capacitor. Applications requiring a slow ramp-up of output voltage should consider larger values of $C_{BYP}$. Likewise, if rapid turn-on is necessary, consider omitting $C_{BYP}$.

If output noise is not a major concern, omit $C_{BYP}$ and leave BYP open.

## 4.4 Output Capacitor

An output capacitor is required between OUT and GND to prevent oscillation. The minimum size of the output capacitor is dependent upon whether a reference bypass capacitor is used. 1.0 µF minimum is recommended when $C_{BYP}$ is not used (see Figure 4-3). 2.2 µF minimum is recommended when $C_{BYP}$ is 470 pF (see Figure 4-3). Larger values improve the regulator's transient response. The output capacitor value may be increased without limit.

The output capacitor should have an ESR (effective series resistance) of about 5Ω or less and a resonant frequency above 1 MHz. Most tantalum or aluminum electrolytic capacitors are adequate; film types will work, but are more expensive. Because many aluminum electrolytics have electrolytes that freeze at about –30°C, solid tantalums are recommended for operation below –25°C.

At lower values of output current, less output capacitance is required for output stability. The capacitor can be reduced to 0.47 µF for current below 10 mA or 0.33 µF for currents below 1 mA.

## 4.5 No-Load Stability

The MIC5206 will remain stable and in regulation with no load (other than the internal voltage divider) unlike many other voltage regulators. This is especially important in CMOS RAM keep-alive applications.

## 4.6 Error Flag Output

The error flag is an open-collector output and is active (low) when an undervoltage of approximately 5% below the nominal output voltage is detected. A pull-up resistor from IN to FLAG is shown in all schematics.

If an error indication is not required, FLAG may be left open and the pull-up resistor may be omitted.

## 4.7 Enable Pin Ramp and the Error Flag

To prevent indeterminate behavior on the error flag during power down of the device, ensure that the fall time of the enable pin signal, from logic high to logic low, is faster than 100 µs.

## 4.8 Fixed Regulator Applications

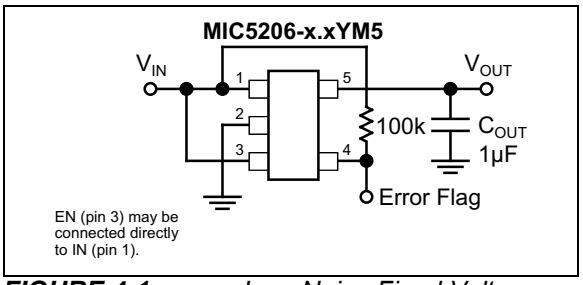



***FIGURE 4-1:*** *Low-Noise Fixed Voltage Application.*

EN (Pin 3) is shown connected to IN (Pin 1) for an application where enable/shutdown is not required. The error flag is shown with a 100 kΩ pull-up resistor.

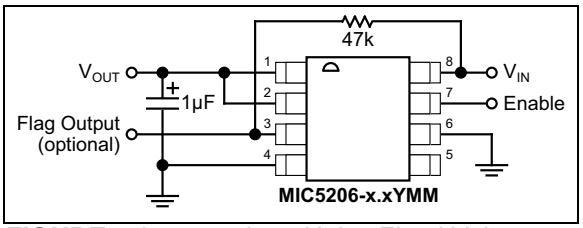



***FIGURE 4-2:*** *Low-Noise Fixed Voltage Application.*

Figure 4-2 is an example of a basic configuration where the lowest-noise operation is not required. $C_{OUT}$ = 1 µF minimum. The error flag is shown with a 47 kΩ pull-up resistor.

## 4.9 Ultra Low Noise Application

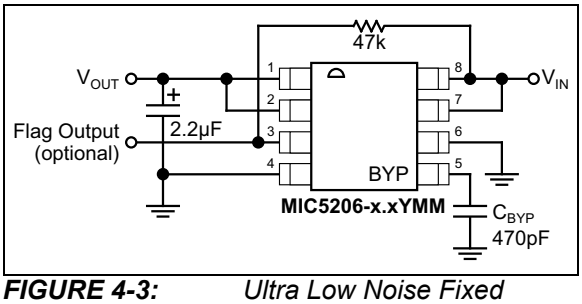



***FIGURE 4-3:*** *Ultra Low Noise Fixed Voltage Application.*

Figure 4-3 includes a 470 pF capacitor for low-noise operation and shows EN (Pin 7) connected to IN (Pin 8) for an application where enable/shutdown is not required. The error flag is shown with a 47 kΩ pull-up resistor.

## 4.10 Adjustable Regulator Applications

Figure 4-4 shows the MIC5206YMM adjustable output voltage configuration. Two resistors set the output voltage. The formula for output voltage is:

**EQUATION 4-1:**

$$V_{OUT} = 1.242V \times \left(\frac{R2}{R1} + 1\right)$$

Resistor values are not critical because ADJ (adjust) has a high input impedance, but for best results use resistors of 470 kΩ or less. A capacitor from ADJ to ground provides greatly improved noise performance.

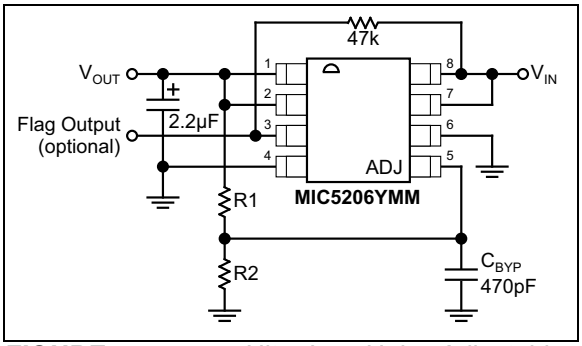



***FIGURE 4-4:*** *Ultra Low Noise Adjustable Voltage Application.*

Figure 4-4 also includes a 470 pF capacitor for lowest-noise operation and shows EN (Pin 7) connected to IN (Pin 8) for an application where enable/shutdown is not required. $C_{OUT}$ = 2.2 µF minimum. The error flag is shown with a 47 kΩ pull-up resistor.

## 4.11 Thermal Considerations

### 4.11.1 LAYOUT

The MIC5206-x.xYM5 (5-lead SOT-23 package) has the following thermal characteristics when mounted on a single layer copper-clad printed circuit board.

Multilayer boards having a ground plane, wide traces near the pads, and large supply bus lines provide better thermal conductivity.

**TABLE 4-1: SOT-23-5 THERMAL CHARACTERISTICS**

| PCB Dielectric | $\theta_{JA}$ |
|---|---|
| FR4 | 220°C/W |
| Ceramic | 200°C/W |

The “worst case” value of 220°C/W assumes no ground plane, minimum trace widths, and a FR4 material board.

The MIC5206-xxYMM (8-lead MSOP) has a thermal resistance of 200°C/W when mounted on a FR4 board with minimum trace widths and no ground plane.

**TABLE 4-2: MSOP THERMAL CHARACTERISTICS**

| PCB Dielectric | $\theta_{JA}$ |
|---|---|
| FR4 | 200°C/W |

## 4.12 Nominal Power Dissipation and Die Temperature

The MIC5206-x.xYM5 at a 25°C ambient temperature will operate reliably at over 450 mW power dissipation when mounted in the “worst case” manner described above. At an ambient temperature of 40°C, the device may safely dissipate over 380 mW. These power levels are equivalent to a die temperature of 125°C, the maximum operating junction temperature for the MIC5206.

For additional heat sink characteristics, please refer to Application Hint 17, “Calculating P.C. Board Heat Sink Area For Surface Mount Packages”.

## 5.0 PACKAGING INFORMATION

### 5.1 Package Marking Information

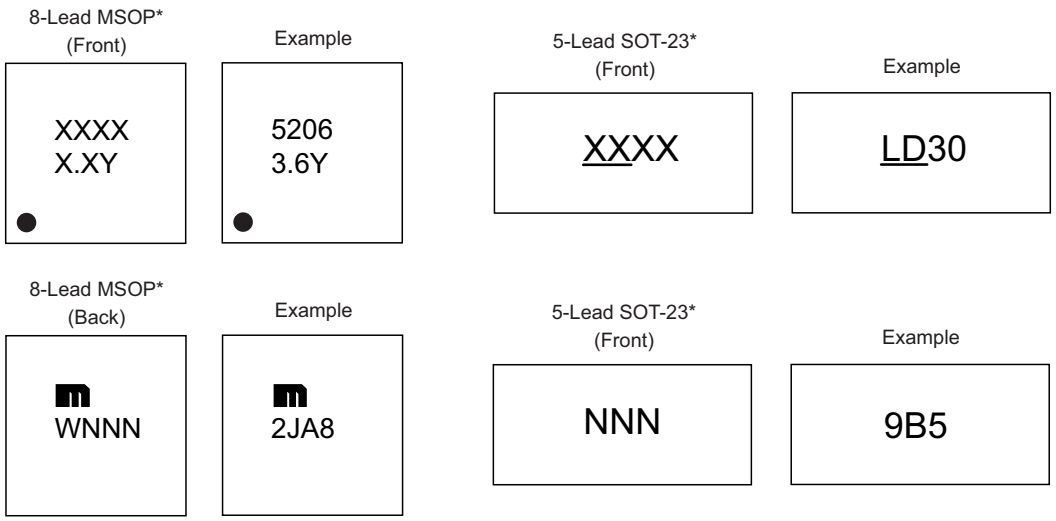



**TABLE 5-1: SOT-23 PACKAGE OPTION MARKING CODES**

| Part Number | Marking Code | Voltage | Part Number | Marking Code | Voltage |
|---|---|---|---|---|---|
| MIC5206-2.5YM5 | LD25 | 2.5V | MIC5206-3.6YM5 | LD36 | 3.6V |
| MIC5206-2.7YM5 | LD27 | 2.7V | MIC5206-3.8YM5 | LD38 | 3.8V |
| MIC5206-3.0YM5 | LD30 | 3.0V | MIC5206-4.0YM5 | LD40 | 4.0V |
| MIC5206-3.2YM5 | LD32 | 3.2V | MIC5206-5.0YM5 | LD50 | 5.0V |
| MIC5206-3.3YM5 | LD33 | 3.3V | — | — | — |

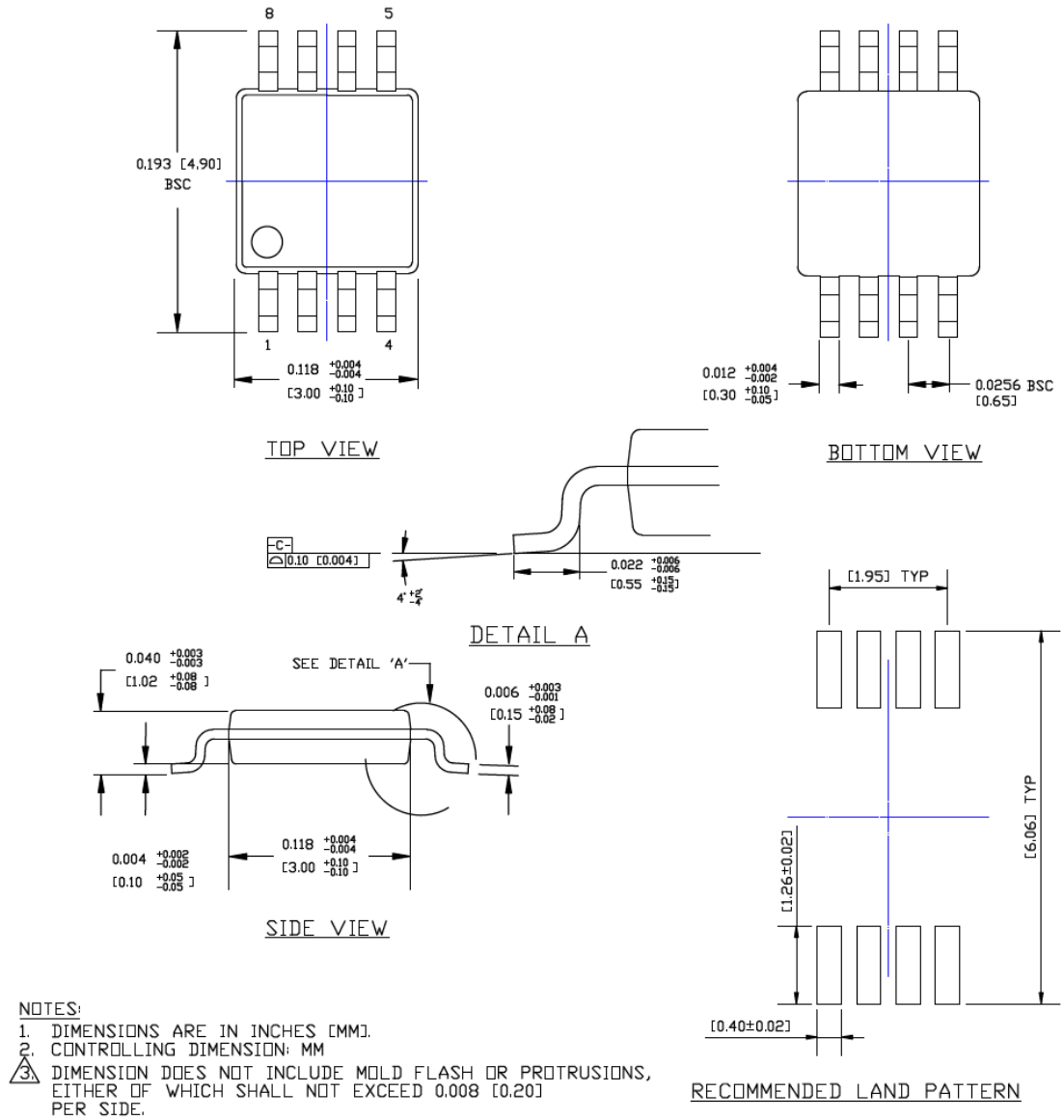
| | | |
|---|---|---|
| **Legend:** | XX...X | Product code or customer-specific information |
| | Y | Year code (last digit of calendar year) |
| | YY | Year code (last 2 digits of calendar year) |
| | WW | Week code (week of January 1 is week ‘01’) |
| | NNN | Alphanumeric traceability code |
| | (e3) | 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 (_) symbol may not be to scale. | |

**Note:** If the full seven-character YYWWNNN code cannot fit on the package, the following truncated codes are used based on the available marking space:
6 Characters = YWWNNN; 5 Characters = WWNNN; 4 Characters = WNNN; 3 Characters = NNN;
2 Characters = NN; 1 Character = N

## 8-Lead MSOP Package Outline and Recommended Land Pattern

**TITLE**
8 LEAD MSOP PACKAGE OUTLINE & RECOMMENDED LAND PATTERN

| **DRAWING #** | MSOP-8LD-PL-1 | **UNIT** | INCH [MM] |
|---|---|---|---|



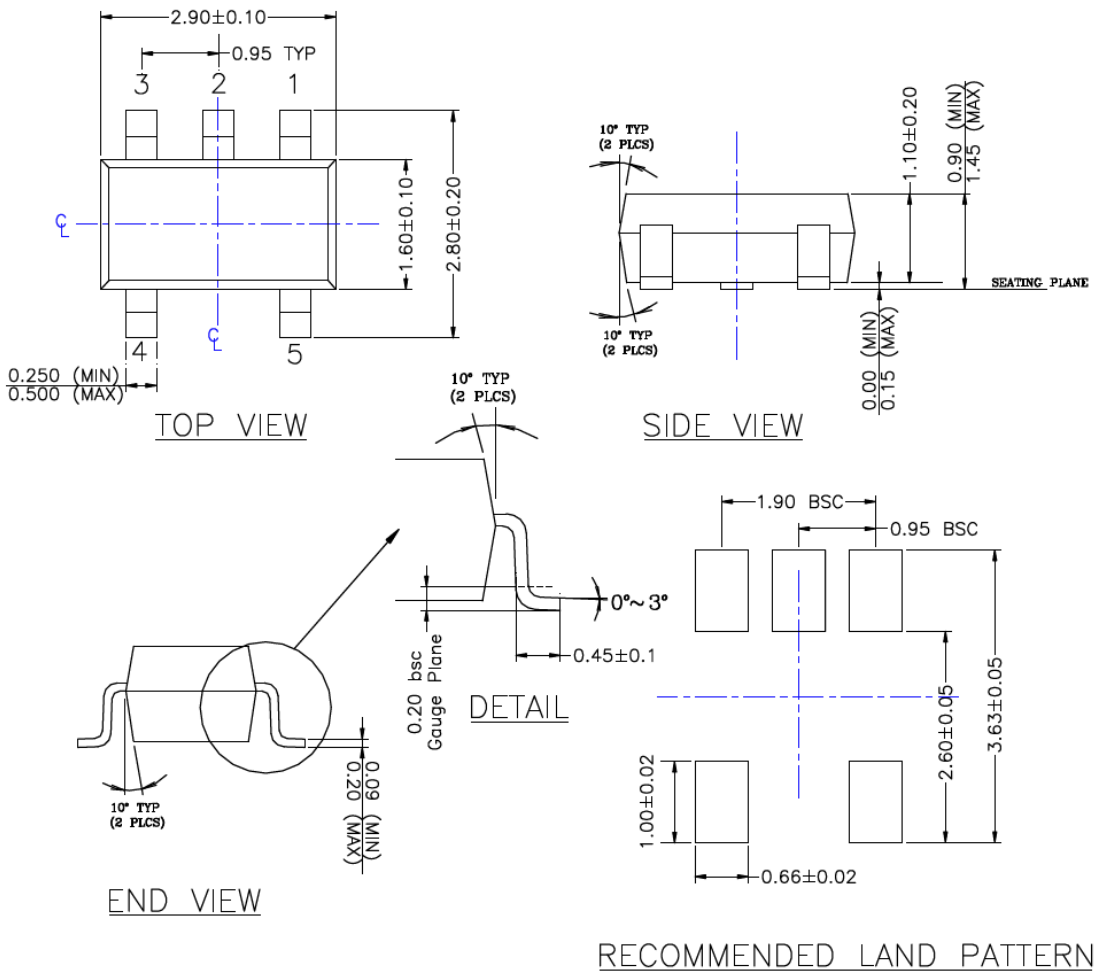

NOTES:
1. DIMENSIONS ARE IN INCHES [MM].
2. CONTROLLING DIMENSION: MM
3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.008 [0.20] PER SIDE.

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

## 5-Lead SOT-23 Package Outline and Recommended Land Pattern

**TITLE**
5 LEAD SOT23 PACKAGE OUTLINE & RECOMMENDED LAND PATTERN

| DRAWING # | SOT23-5LD-PL-1 | UNIT | MM |
|---|---|---|---|




NOTE:
1. PACKAGE OUTLINE EXCLUSIVE OF MOLD FLASH & BURR.
2. PACKAGE OUTLINE INCLUSIVE OF SOLER PLATING.
3. DIMENSION AND TOLERANCE PER ANSI Y14.5M, 1982.
4. FOOT LENGTH MEASUREMENT BASED ON GAUGE PLANE METHOD.
5. DIE FACES UP FOR MOLD, AND FACES DOWN FOR TRIM/FORM.
6. ALL DIMENSIONS ARE IN MILLIMETERS.

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

# APPENDIX A: REVISION HISTORY

## Revision A (June 2022)

- Converted Micrel document MIC5206 to Microchip data sheet DS20006686A.
- 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.

| Part Number | -X.X | X | XX | -XX |
|---|---|---|---|---|
| Device | Output Voltage | Temp. Range | Package | Media Type |

| | | |
|---|---|---|
| **Device:** | MIC5206: | 150 mA Low Noise LDO Regulator |
| **Output Voltage:** | <blank> = | Adjustable (MSOP option only) |
| | 2.5 = | 2.5V |
| | 2.7 = | 2.7V |
| | 3.0 = | 3.0V |
| | 3.2 = | 3.2V |
| | 3.3 = | 3.3V |
| | 3.6 = | 3.6V |
| | 3.8 = | 3.8V |
| | 4.0 = | 4.0V |
| | 5.0 = | 5.0V |
| **Temperature Range:** | Y = | –40°C to +125°C |
| **Package:** | M5 = | 5-Lead SOT-23 |
| | MM = | 8-Lead MSOP |
| **Media Type:** | <blank>= | 100/Tube (MSOP option only) |
| | TR = | 2,500/Reel (MSOP option only) |
| | TR = | 3,000/Reel (SOT-23 option only) |

**Examples:**

| | |
|---|---|
| a) MIC5206-3.0YM5-TR: | MIC5206, 3.0V Output Voltage, –40°C to +125°C Temp. Range, 5-Lead SOT-23, 3,000/Reel |
| b) MIC5206YMM: | MIC5206, Adjustable Output Voltage, –40°C to +125°C Temp. Range, 8-Lead MSOP, 100/Tube |
| c) MIC5206-5.0YMM-TR: | MIC5206, 5.0V Output Voltage, –40°C to +125°C Temp. Range, 8-Lead MSOP, 2,500/Reel |
| d) MIC5206-3.2YM5-TR: | MIC5206, 3.2V Output Voltage, –40°C to +125°C Temp. Range, 5-Lead SOT-23, 3,000/Reel |
| e) MIC5206-3.6YMM: | MIC5206, 3.6V Output Voltage, –40°C to +125°C Temp. Range, 8-Lead MSOP, 100/Tube |
| f) MIC5206-2.5YM5-TR: | MIC5206, 2.5V Output Voltage, –40°C to +125°C Temp. Range, 5-Lead SOT-23, 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.

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