

## GENERAL DESCRIPTION

The CM03X provides excellent  $R_{DS(ON)}$  and low gate charge by using advanced BiCMOS technology.

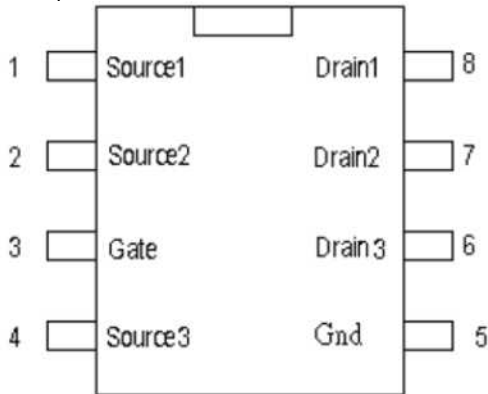
The CM03X is designed to reduce the no load consumption or so called Phantom power for AC Adapter, Desk Top PC power supply, LCD Power Supply and others.

## FEATURES

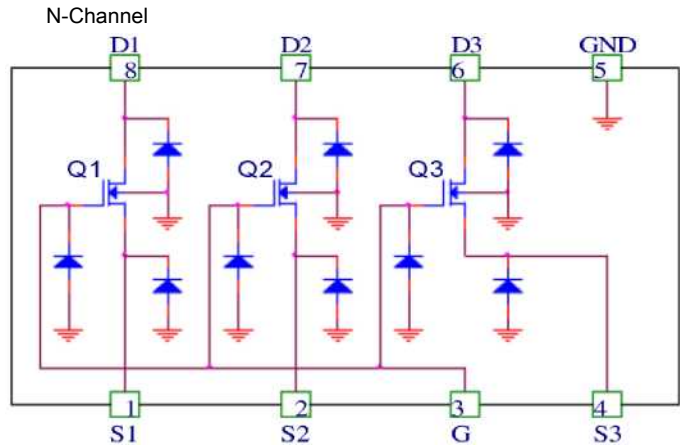
- ◆ No load consumption can be reduced ~180mW for EPA/Climate Saver Application to reduce the phantom power.
- ◆  $R_{DS(ON)} = 176 \Omega$  (typ.) @  $V_{GS} = 5V$  /  $I_D = 10mA$
- ◆  $R_{DS(ON)} = 200 \Omega$  (typ.) @  $V_{GS} = 2.5V$  /  $I_D = 10mA$
- ◆ Reliable and rugged
- ◆ Package DIP-8Pin

## PIN CONFIGURATION

DIP-8 Pin Top View



## SYMBOL



## ORDERING INFORMATION

| Part Number | Temperature Range | Package        |
|-------------|-------------------|----------------|
| CM03XIP*    | -55°C to 150°C    | 8-Pin DIP (P8) |

\*Note: X : Suffix for Halogen Free and PB Free Product

## ABSOLUTE MAXIMUM RATINGS (TA=25 °C, unless otherwise specified)

| PARAMETER Symbol                  |              | RATINGS    | Unit |
|-----------------------------------|--------------|------------|------|
| Drain-Source Voltage              | $V_{DSS}$    | 650        | V    |
| Gate-Source Voltage               | $V_{GSS}$    | +20/-0.3   | V    |
| Continuous Drain Current *        | $I_D$        | 25         | mA   |
| Pulsed Continuous Drain Current * | $I_{DM}$     | 200        | mA   |
| Power Dissipation                 | $P_{D(MAX)}$ | 1.35       | W    |
| Junction Temperature              | $T_J$        | +150       | °C   |
| Storage Temperature               | $T_{STG}$    | -55 ~ +150 | °C   |

\* : Surface Mounted on 1 in<sup>2</sup> pad area,  $t \leq 10sec$

## THERMAL DATA

| PARAMETER Symbol      |               | Min | TYP | MAX | Unit |
|-----------------------|---------------|-----|-----|-----|------|
| Junction to Ambient * | $\theta_{JA}$ |     | 74  | 110 | °C/W |

\* : Surface Mounted on 1 in<sup>2</sup> pad area,  $t \leq 10sec$

## ELECTRICAL CHARACTERISTICS

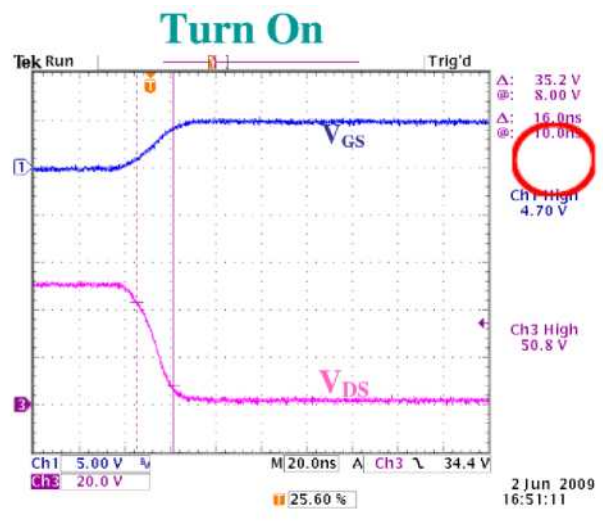
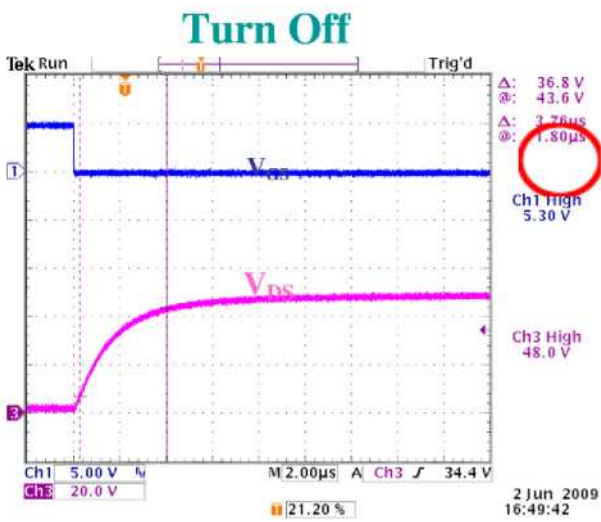
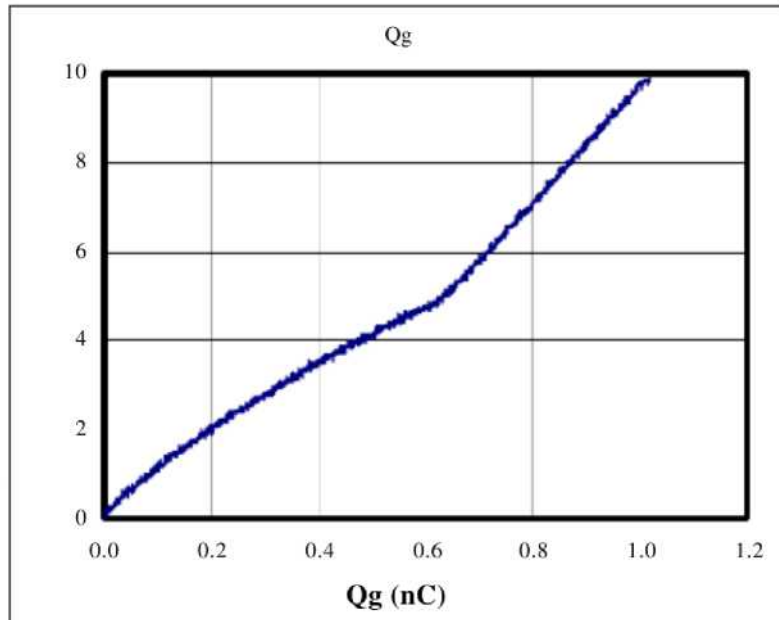
Unless otherwise specified,  $T_A = 25\text{ }^\circ\text{C}$ .

| PARAMETER SYMBOL                                      |              | TEST CONDITIONS                                     | CM03X |     |          |          |
|---|--------------|---|-------|-----|----------|----------|
|   |              |   | Min   | Typ | Max      | Unit     |
| <b>OFF CHARACTERISTICS</b>                            |              |   |       |     |          |          |
| Drain-Source Breakdown Voltage                        | $BV_{DSS}$   | $V_{GS}=0V, I_D=40\mu A$                            | 650   |     |          | V        |
| Drain-Source Leakage Current                          | $I_{DSS}$    | $V_{DS}=650V, V_{GS}=0V$                            |       |     | 1        | $\mu A$  |
| Gate-Source Leakage Current                           | $I_{GSS}$    | $V_{DS}=0V, V_{GS}=\pm 20V$                         |       |     | $\pm 20$ | $\mu A$  |
| <b>ON CHARACTERISTICS</b>                             |              |   |       |     |          |          |
| Gate Threshold Voltage                                | $V_{GS(TH)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$                       | 0.5   | 0.7 | 0.9      | V        |
| Drain-Source On-State Resistance (Note 1)             | $R_{DS(ON)}$ | $V_{GS}=5V, I_D=10mA$                               | 176   |     | 250      | $\Omega$ |
|   |              | $V_{GS}=2.5V, I_D=10mA$                             | 200   |     | 250      | $\Omega$ |
| <b>SWITCHING CHARACTERISTICS</b>                      |              |   |       |     |          |          |
| Turn-On Delay Time (Note 1)                           | $t_{D(ON)}$  | $V_{DS}=50V, V_{GS}=5V, R_G=3\Omega, R_L=2.7\Omega$ | 20    |     |          | ns       |
| Turn-On Rise Time                                     | $t_r$        |   | 16    |     |          | ns       |
| Turn-Off Delay Time                                   | $t_{D(OFF)}$ |   | 4     |     |          | $\mu s$  |
| Turn-Off Fall Time                                    | $t_f$        |   | 3.7   |     |          | $\mu s$  |
| Gate-Source Charge                                    | $Q_{GS}$     | $V_{DS}=50V, V_{GS}=10V, I_D=25mA$                  | 1     |     |          | nC       |
| <b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS</b> |              |   |       |     |          |          |
| Drain-Source Diode Forward Voltage (Note 1)           | $V_{SD}$     | $I_S=25mA, V_{GS}=0V$                               | 0.76  |     | 1        | V        |
| Diode Continuous Forward Current (Note 2)             | $I_S$        |   |       | 25  |          | mA       |

Note 1 : Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .

Note 2 : Surface Mounted on 1 in<sup>2</sup> pad area,  $\leq 10sec$

TYPICAL ELECTRICAL CHARACTERISTICS

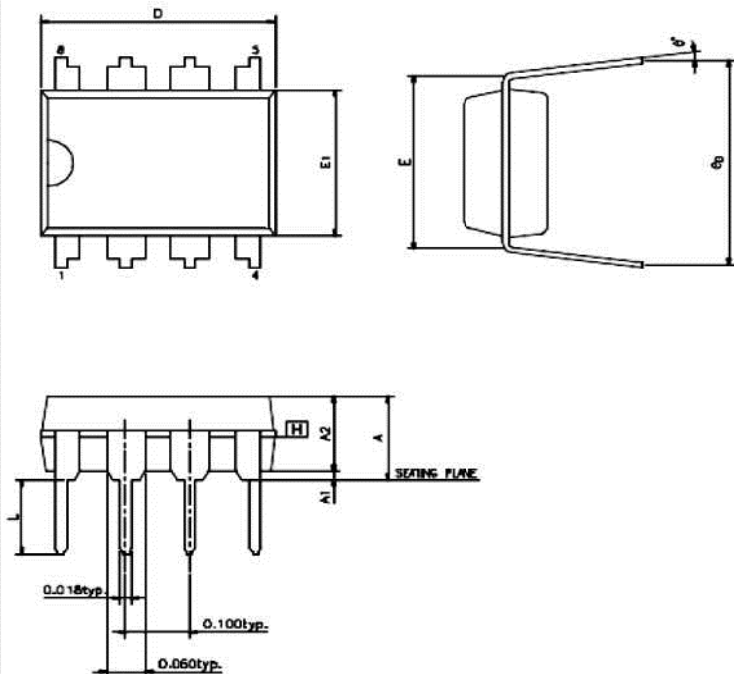


PACKAGE DIMENSION

8-PIN PDIP (P8)

| SYMBOLS        | MIN.       | NOR.  | MAX.  |
|----------------|------------|-------|-------|
| A              | —          | —     | 0.210 |
| A1             | 0.015      | —     | —     |
| A2             | 0.125      | 0.130 | 0.135 |
| D              | 0.355      | 0.365 | 0.400 |
| E              | 0.300 BSC. |       |       |
| E1             | 0.245      | 0.250 | 0.255 |
| L              | 0.115      | 0.130 | 0.150 |
| e <sub>B</sub> | 0.335      | 0.355 | 0.375 |
| ø              | 0          | 7     | 15    |

UNIT : INCH



NOTES:

1. JEDEC OUTLINE : MS-001 BA
2. "D", "E1" DIMENSIONS DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS. MOLD FLASH OR PROTRUSIONS SHALL NOT EXCEED .010 INCH.
3. e<sub>B</sub> IS MEASURED AT THE LEAD TIPS WITH THE LEADS UNCONSTRAINED.
4. POINTED OR ROUNDED LEAD TIPS ARE PREFERRED TO EASE INSERTION.
5. DISTANCE BETWEEN LEADS INCLUDING DAM BAR PROTRUSIONS TO BE .005 INCH MINIMUM.
6. DATUM PLANE [H] COINCIDENT WITH THE BOTTOM OF LEAD, WHERE LEAD EXITS BODY.

## IMPORTANT NOTICE

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