

## Features

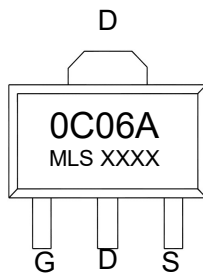
- Trench Power LV MOSFET technology
- High Power and current handing capability

## Product Summary

| $V_{DS}$ | $R_{DS(ON)}$ MAX | $I_D$ MAX |
|----------|------------------|-----------|
| 20V      | 27mΩ@4.5V        | 6A        |
|          | 35mΩ@2.5V        |           |

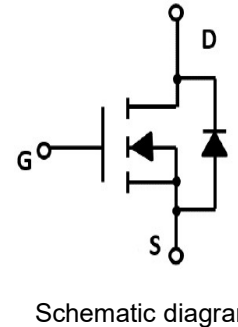
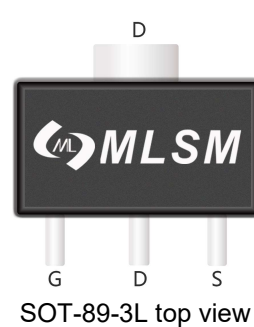
## Application

- PWM application
- Load switch



0C06A: Device code  
 XXXX : Code

Marking and pin assignment



Halogen-Free

## Absolute Maximum Ratings (TA=25°C unless otherwise noted)

| Symbol | Parameter | Rating | Unit |
|--------|-----------|--------|------|
|--------|-----------|--------|------|

## Common Ratings (TC=25°C Unless Otherwise Noted)

|                  |                                  |         |            |    |
|------------------|----------------------------------|---------|------------|----|
| V <sub>DS</sub>  | Drain-Source Breakdown Voltage   |         | 20         | V  |
| V <sub>GS</sub>  | Gate-Source Voltage              |         | ±12        | V  |
| T <sub>J</sub>   | Maximum Junction Temperature     |         | 150        | °C |
| T <sub>STG</sub> | Storage Temperature Range        |         | -50 to 150 | °C |
| I <sub>S</sub>   | Diode Continuous Forward Current | Tc=25°C | 6          | A  |

## Mounted on Large Heat Sink

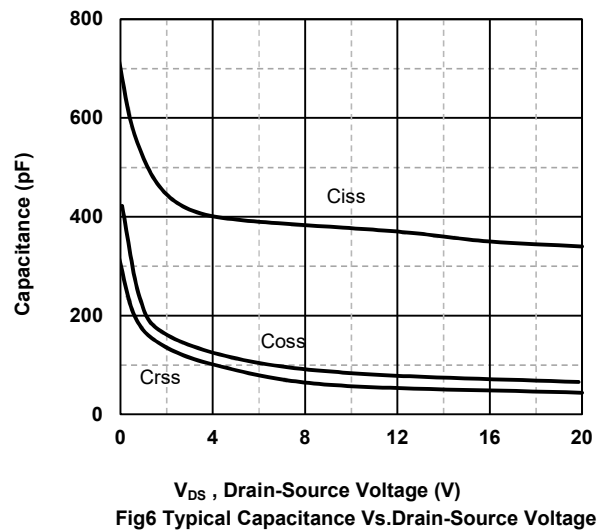
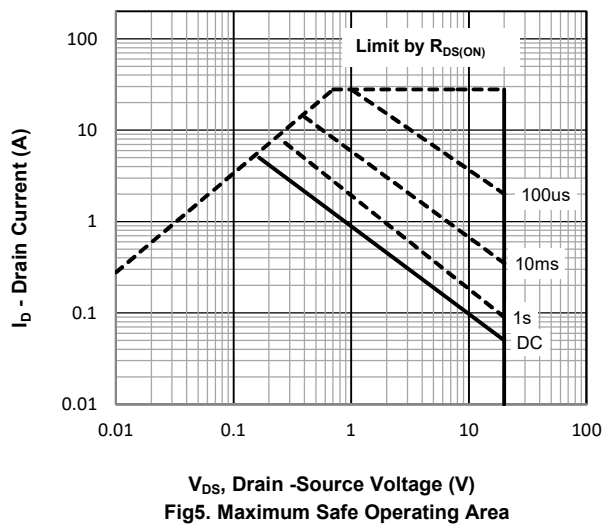
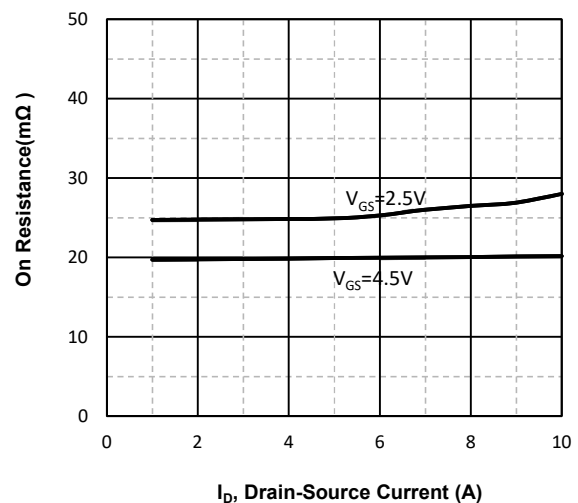
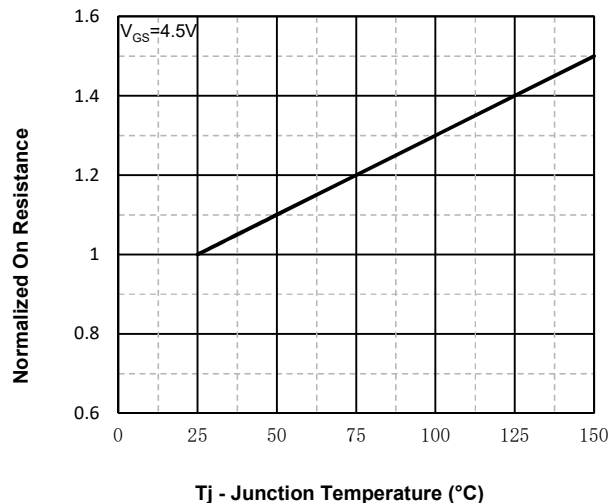
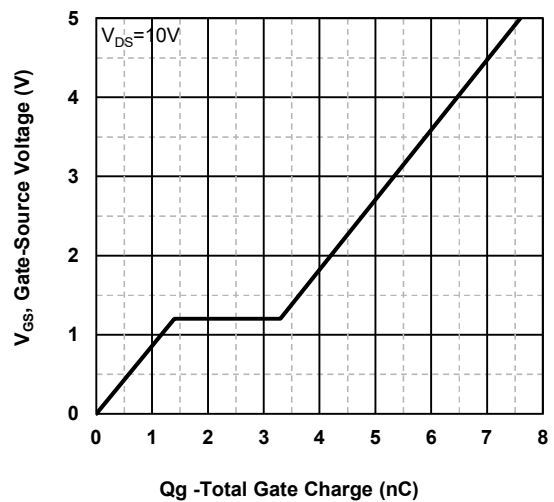
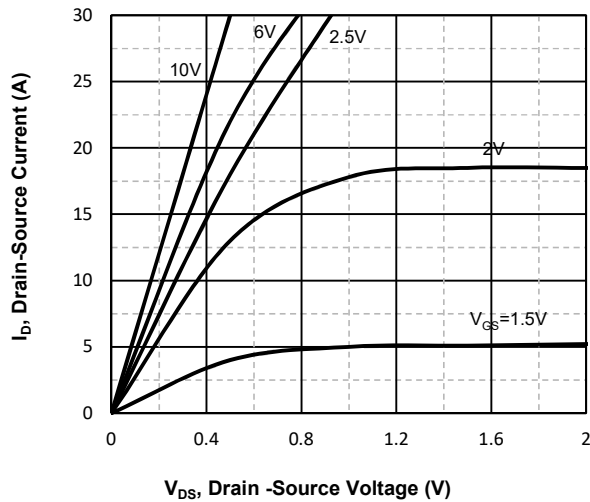
|                 |                                     |                   |     |      |
|-----------------|-------------------------------------|-------------------|-----|------|
| $I_{DM}$        | Pulse Drain Current Tested          | $T_c=25^{\circ}C$ | 28  | A    |
| $I_D$           | Continuous Drain Current            | $T_c=25^{\circ}C$ | 6   | A    |
| $P_D$           | Maximum Power Dissipation           | $T_c=25^{\circ}C$ | 0.8 | W    |
| $R_{\theta JA}$ | Thermal Resistance Junction-Ambient |                   | 125 | °C/W |

## Ordering Information (Example)

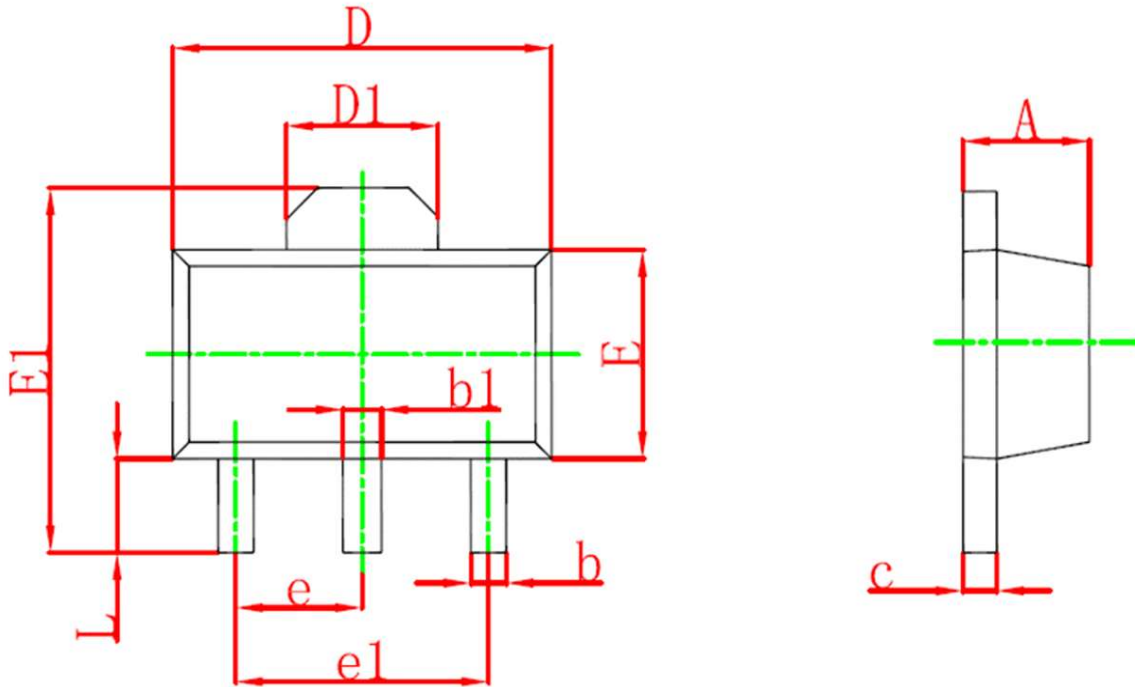
| Type    | Package   | Marking | Minimum Package(pcs) | Inner Box Quantity(pcs) | Outer Carton Quantity(pcs) | Delivery Mode |
|---------|-----------|---------|----------------------|-------------------------|----------------------------|---------------|
| MZ0C06A | SOT-89-3L | 0C06A   | 1,000                | 10,000                  | 40,000                     | 7"reel        |

| Electrical Characteristics (TJ=25°C unless otherwise noted)              |                                  |                                 |      |      |      |      |
|--------------------------------------------------------------------------|----------------------------------|---------------------------------|------|------|------|------|
| Symbol                                                                   | Parameter                        | Condition                       | Min  | Typ  | Max  | Unit |
| Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)  |                                  |                                 |      |      |      |      |
| BV(BR)DSS                                                                | Drain-Source Breakdown Voltage   | VGS=0V, ID=250μA                | 20   | --   | --   | V    |
| IDSS                                                                     | Zero Gate Voltage Drain Current  | VDS=20V, VGS=0V                 | --   | --   | 1    | μA   |
| IGSS                                                                     | Gate-Body Leakage Current        | VGS=±12V, VDS=0V                | --   | --   | ±100 | nA   |
| VGS(th)                                                                  | Gate Threshold Voltage           | VDS=VGS, ID=250μA               | 0.45 | 0.7  | 1.0  | V    |
| RDS(on)                                                                  | Drain-Source On-State Resistance | VGS=4.5V, ID=6.0A               | --   | 20   | 27   | mΩ   |
|                                                                          |                                  | VGS=2.5V, ID=3.0A               | --   | 25   | 35   | mΩ   |
|                                                                          |                                  | VGS=1.8V, ID=1.0A               | --   | 38   | 50   | mΩ   |
| Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated) |                                  |                                 |      |      |      |      |
| CISS                                                                     | Input Capacitance                | VDS=10V, VGS=0V, f=1MHz         | --   | 378  | --   | pF   |
| COSS                                                                     | Output Capacitance               |                                 | --   | 74   | --   | pF   |
| CRSS                                                                     | Reverse Transfer Capacitance     |                                 | --   | 58   | --   | pF   |
| Switching Characteristics                                                |                                  |                                 |      |      |      |      |
| Qg                                                                       | Total Gate Charge                | VDS=10V, ID=4.5A, VGS=4.5V      | --   | 6.05 | --   | nC   |
| Qgs                                                                      | Gate Source Charge               |                                 | --   | 1.07 | --   | nC   |
| Qgd                                                                      | Gate Drain Charge                |                                 | --   | 1.95 | --   | nC   |
| td(on)                                                                   | Turn-on Delay Time               | VDD=10V, RL=1Ω, VGS=4.5V, RG=3Ω | --   | 4.2  | --   | nS   |
| tr                                                                       | Turn-on Rise Time                |                                 | --   | 19.8 | --   | nS   |
| td(off)                                                                  | Turn-Off Delay Time              |                                 | --   | 22.6 | --   | nS   |
| tf                                                                       | Turn-Off Fall Time               |                                 | --   | 23.2 | --   | nS   |
| Source- Drain Diode Characteristics                                      |                                  |                                 |      |      |      |      |
| VSD                                                                      | Forward on voltage               | TJ=25°C, IS=6A                  | --   | --   | 1.2  | V    |

## Typical Operating Characteristics



SOT-89-3L Package information



| Symbol | Dimensions in Millimeters(mm) |       | Dimensions in Inches |       |
|--------|-------------------------------|-------|----------------------|-------|
|        | Min                           | Max   | Min                  | Max   |
| A      | 1.400                         | 1.600 | 0.055                | 0.063 |
| b      | 0.320                         | 0.520 | 0.013                | 0.020 |
| b1     | 0.400                         | 0.580 | 0.016                | 0.023 |
| c      | 0.350                         | 0.440 | 0.014                | 0.017 |
| D      | 4.400                         | 4.600 | 0.173                | 0.181 |
| D1     | 1.550 REF                     |       | 0.061 REF            |       |
| E      | 2.300                         | 2.600 | 0.091                | 0.102 |
| E1     | 3.940                         | 4.250 | 0.155                | 0.167 |
| e      | 1.500 TYP                     |       | 0.060 TYP            |       |
| e1     | 3.000 TYP                     |       | 0.118 TYP            |       |
| L      | 0.900                         | 1.200 | 0.035                | 0.047 |