

CTLDM8002A-M621

**SURFACE MOUNT SILICON  
P-CHANNEL  
ENHANCEMENT-MODE  
MOSFET**



Top View Bottom View

**TLM621 CASE**



[www.centrasemi.com](http://www.centrasemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CTLDM8002A-M621 is a silicon P-Channel enhancement-mode MOSFET in a small, thermally efficient, TLM™ 2x1mm package.

**MARKING CODE: CN**

**FEATURES:**

- Low  $r_{DS(on)}$
- Low  $V_{DS(on)}$
- Low Threshold Voltage
- Fast Switching
- Logic Level Compatible
- Small TLM™ 2x1mm Package

**APPLICATIONS:**

- Load/Power Switches
- Power Supply Converter Circuits
- Battery Powered Portable Equipment

**MAXIMUM RATINGS:** ( $T_A=25^\circ\text{C}$ )

|                                            |
|--------------------------------------------|
| Drain-Source Voltage                       |
| Drain-Gate Voltage                         |
| Gate-Source Voltage                        |
| Continuous Drain Current                   |
| Continuous Source Current (Body Diode)     |
| Maximum Pulsed Drain Current               |
| Maximum Pulsed Source Current              |
| Power Dissipation (Note 1)                 |
| Operating and Storage Junction Temperature |
| Thermal Resistance (Note 1)                |

**SYMBOL**

|                |             |
|----------------|-------------|
| $V_{DS}$       | 50          |
| $V_{DG}$       | 50          |
| $V_{GS}$       | 20          |
| $I_D$          | 280         |
| $I_S$          | 280         |
| $I_{DM}$       | 1.5         |
| $I_{SM}$       | 1.5         |
| $P_D$          | 0.9         |
| $T_J, T_{stg}$ | -65 to +150 |
| $\theta_{JA}$  | 139         |

**UNITS**

|                    |
|--------------------|
| V                  |
| V                  |
| V                  |
| mA                 |
| mA                 |
| A                  |
| A                  |
| W                  |
| $^\circ\text{C}$   |
| $^\circ\text{C/W}$ |

**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

| SYMBOL               | TEST CONDITIONS                                              | MIN | MAX  | UNITS         |
|----------------------|--------------------------------------------------------------|-----|------|---------------|
| $I_{GSSF}, I_{GSSR}$ | $V_{GS}=20\text{V}, V_{DS}=0$                                |     | 100  | nA            |
| $I_{DSS}$            | $V_{DS}=50\text{V}, V_{GS}=0$                                |     | 1.0  | $\mu\text{A}$ |
| $I_{DSS}$            | $V_{DS}=50\text{V}, V_{GS}=0, T_J=125^\circ\text{C}$         |     | 500  | $\mu\text{A}$ |
| $I_{D(ON)}$          | $V_{GS}=10\text{V}, V_{DS}=10\text{V}$                       | 500 |      | mA            |
| $BV_{DSS}$           | $V_{GS}=0, I_D=10\mu\text{A}$                                | 50  |      | V             |
| $V_{GS(th)}$         | $V_{DS}=V_{GS}, I_D=250\mu\text{A}$                          | 1.0 | 2.5  | V             |
| $V_{DS(ON)}$         | $V_{GS}=10\text{V}, I_D=500\text{mA}$                        |     | 1.5  | V             |
| $V_{DS(ON)}$         | $V_{GS}=5.0\text{V}, I_D=50\text{mA}$                        |     | 0.15 | V             |
| $V_{SD}$             | $V_{GS}=0, I_S=115\text{mA}$                                 |     | 1.3  | V             |
| $r_{DS(ON)}$         | $V_{GS}=10\text{V}, I_D=500\text{mA}$                        |     | 2.5  | $\Omega$      |
| $r_{DS(ON)}$         | $V_{GS}=10\text{V}, I_D=500\text{mA}, T_J=125^\circ\text{C}$ |     | 4.0  | $\Omega$      |
| $r_{DS(ON)}$         | $V_{GS}=5.0\text{V}, I_D=50\text{mA}$                        |     | 3.0  | $\Omega$      |
| $r_{DS(ON)}$         | $V_{GS}=5.0\text{V}, I_D=50\text{mA}, T_J=125^\circ\text{C}$ |     | 5.0  | $\Omega$      |
| $g_{FS}$             | $V_{DS}=10\text{V}, I_D=200\text{mA}$                        | 200 |      | mS            |
| $C_{rss}$            | $V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$               |     | 7.0  | pF            |
| $C_{iss}$            | $V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$               |     | 70   | pF            |
| $C_{oss}$            | $V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$               |     | 15   | pF            |

Note: (1) FR-4 Epoxy PCB with copper mounting pad area of 33mm<sup>2</sup>.

R2 (6-February 2015)

CTLDM8002A-M621

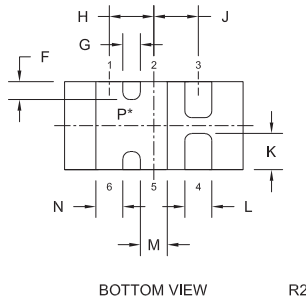
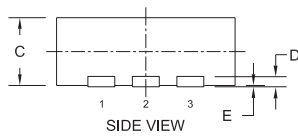
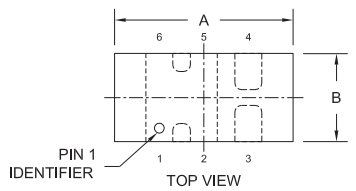
**SURFACE MOUNT SILICON  
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**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

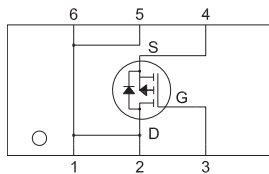
| SYMBOL                             | TEST CONDITIONS                                                                                      | TYP  | MAX | UNITS |
|------------------------------------|------------------------------------------------------------------------------------------------------|------|-----|-------|
| $Q_{g(\text{tot})}$                | $V_{DS}=25\text{V}$ , $V_{GS}=4.5\text{V}$ , $I_D=100\text{mA}$                                      | 0.72 |     | nC    |
| $Q_{gs}$                           | $V_{DS}=25\text{V}$ , $V_{GS}=4.5\text{V}$ , $I_D=100\text{mA}$                                      | 0.25 |     | nC    |
| $Q_{gd}$                           | $V_{DS}=25\text{V}$ , $V_{GS}=4.5\text{V}$ , $I_D=100\text{mA}$                                      | 0.16 |     | nC    |
| $t_{\text{on}}$ , $t_{\text{off}}$ | $V_{DD}=30\text{V}$ , $V_{GS}=10\text{V}$ , $I_D=200\text{mA}$ ,<br>$R_G=25\Omega$ , $R_L=150\Omega$ |      | 20  | ns    |

**TLM621 CASE - MECHANICAL OUTLINE**



\*Exposed pad P connects pins 1, 2, 5, and 6

**PIN CONFIGURATION**

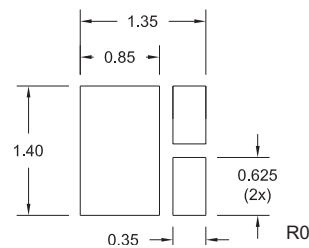


| SYMBOL | INCHES |       | MILLIMETERS |       |
|--------|--------|-------|-------------|-------|
|        | MIN    | MAX   | MIN         | MAX   |
| A      | 0.073  | 0.085 | 1.850       | 2.150 |
| B      | 0.033  | 0.045 | 0.850       | 1.150 |
| C      | 0.028  | 0.031 | 0.700       | 0.800 |
| D      |        | 0.006 |             | 0.150 |
| E      | 0.000  | 0.002 | 0.000       | 0.050 |
| F      |        | 0.008 |             | 0.200 |
| G      |        | 0.010 |             | 0.250 |
| H      |        | 0.020 |             | 0.500 |
| J      |        | 0.020 |             | 0.500 |
| K      | 0.012  | 0.020 | 0.300       | 0.500 |
| L      | 0.007  | 0.012 | 0.180       | 0.300 |
| M      | 0.007  | 0.012 | 0.180       | 0.300 |
| N      | 0.007  | 0.012 | 0.180       | 0.300 |

TLM621 (REV: R2)

**SUGGESTED MOUNTING PADS**

(Dimensions in mm)



**LEAD CODE:**

- 1) Drain
- 2) Drain
- 3) Gate
- 4) Source
- 5) Drain
- 6) Drain

**MARKING CODE: CN**

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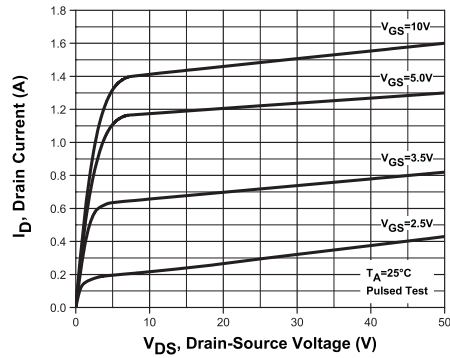
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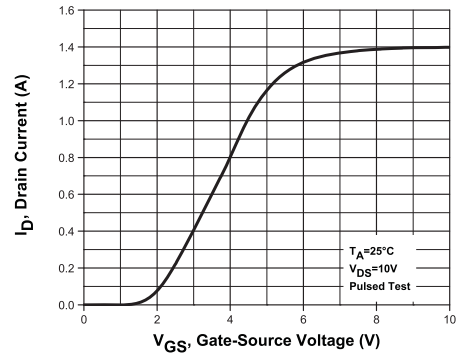


## TYPICAL ELECTRICAL CHARACTERISTICS

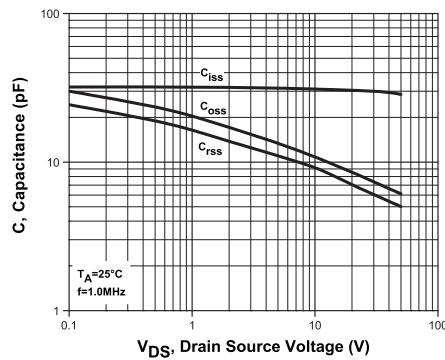
Output Characteristics



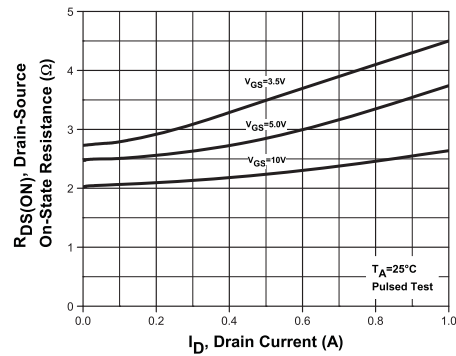
Transfer Characteristics



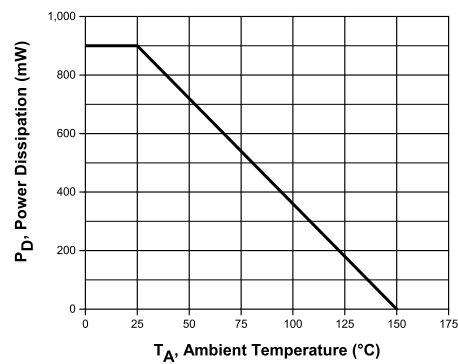
Capacitance



Drain Source On Resistance



Power Derating



R2 (6-February 2015)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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# Product End of Life Notification

|                           |          |
|---------------------------|----------|
| <b>PDN ID:</b>            | PDN01096 |
| <b>Notification Date:</b> | 8/07/18  |
| <b>Last Buy Date:</b>     | 2/07/19  |
| <b>Last Shipment Date</b> | 8/07/19  |

Summary: All devices in the TLM621 and TLM621H packages are discontinued and now classified as End of Life (EOL).

Although Central Semiconductor Corp. makes every effort to continue to produce devices that have been proclaimed EOL (End of Life) by other manufacturers, it is an accepted industry practice to discontinue certain devices when customer demand falls below a minimum level of sustainability. Accordingly, the following product(s) have been transitioned to End of Life status as part of Central's ongoing Product Management Process. Any replacement products are noted below. The effective date for placing last purchase orders will be six (6) months from the date of this notice and twelve (12) months from the notice date for final shipments, and minimum order quantities may apply. The last purchase and shipment dates may be extended if inventory is available.

| <u>Central Part Number</u> | <u>Replacement</u> |
|----------------------------|--------------------|
| CTLDM7002A-M621 BK         | N/A, Stock Only    |
| CTLDM7002A-M621 TR         | N/A, Stock Only    |
| CTLDM7003-M621 BK          | N/A, Stock Only    |
| CTLDM7003-M621 TR          | N/A, Stock Only    |
| CTLDM7120-M621H BK         | N/A, Stock Only    |
| CTLDM7120-M621H TR         | N/A, Stock Only    |
| CTLDM8002A-M621 BK         | N/A, Stock Only    |
| CTLDM8002A-M621 TR         | N/A, Stock Only    |
| CTLDM8002A-M621H BK        | N/A, Stock Only    |
| CTLDM8002A-M621H TR        | N/A, Stock Only    |
| CTLDM8120-M621H BK         | N/A, Stock Only    |
| CTLDM8120-M621H TR         | N/A, Stock Only    |
| CTLSH05-40M621 BK          | N/A, Stock Only    |
| CTLSH05-40M621 TR          | N/A, Stock Only    |
| CTLSH1-40M621H BK          | N/A, Stock Only    |
| CTLSH1-40M621H TR          | N/A, Stock Only    |
| CTLT3410-M621 BK           | N/A, Stock Only    |
| CTLT3410-M621 TR           | N/A, Stock Only    |
| CTLT7410-M621 TR           | N/A, Stock Only    |

Central would be happy to assist you by providing additional information or technical data to help locate an alternate source if we have no replacement available. Please email your requests to [engineering@centrasemi.com](mailto:engineering@centrasemi.com).

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