

**CMLDM7585****SURFACE MOUNT SILICON  
N-CHANNEL AND P-CHANNEL  
ENHANCEMENT-MODE  
COMPLEMENTARY MOSFET****SOT-563 CASE****APPLICATIONS:**

- Load/Power switches
- Power supply converter circuits
- Battery powered portable devices

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

|                                                      |  |
|------------------------------------------------------|--|
| Drain-Source Voltage                                 |  |
| Gate-Source Voltage                                  |  |
| Continuous Drain Current (Steady State)              |  |
| Maximum Pulsed Drain Current ( $t_p=10\mu\text{s}$ ) |  |
| Power Dissipation (Note 1)                           |  |
| Power Dissipation (Note 2)                           |  |
| Power Dissipation (Note 3)                           |  |
| Operating and Storage Junction Temperature           |  |
| Thermal Resistance (Note 1)                          |  |

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

| SYMBOL              | TEST CONDITIONS                        | N-CH (Q1) |      |       | P-CH (Q2) |      |      | UNITS         |
|---------------------|----------------------------------------|-----------|------|-------|-----------|------|------|---------------|
|                     |                                        | MIN       | TYP  | MAX   | MIN       | TYP  | MAX  |               |
| $I_{GSS}, I_{GSSR}$ | $V_{GS}=4.5\text{V}, V_{DS}=0$         | -         | -    | 1.0   | -         | -    | 10   | $\mu\text{A}$ |
| $I_{DSS}$           | $V_{DS}=16\text{V}, V_{GS}=0$          | -         | -    | 100   | -         | -    | 100  | nA            |
| $BV_{DSS}$          | $V_{GS}=0, I_D=250\mu\text{A}$         | 20        | -    | -     | 20        | -    | -    | V             |
| $V_{GS(th)}$        | $V_{DS}=V_{GS}, I_D=250\mu\text{A}$    | 0.5       | -    | 1.1   | 0.5       | -    | 1.0  | V             |
| $V_{SD}$            | $V_{GS}=0, I_S=200\text{mA}$           | -         | -    | 1.1   | -         | -    | -    | V             |
| $V_{SD}$            | $V_{GS}=0, I_S=250\text{mA}$           | -         | -    | -     | -         | -    | 1.1  | V             |
| $r_{DS(ON)}$        | $V_{GS}=4.5\text{V}, I_D=600\text{mA}$ | -         | 0.14 | 0.23  | -         | -    | -    | $\Omega$      |
| $r_{DS(ON)}$        | $V_{GS}=4.5\text{V}, I_D=350\text{mA}$ | -         | -    | -     | -         | 0.25 | 0.36 | $\Omega$      |
| $r_{DS(ON)}$        | $V_{GS}=2.5\text{V}, I_D=500\text{mA}$ | -         | 0.2  | 0.275 | -         | -    | -    | $\Omega$      |
| $r_{DS(ON)}$        | $V_{GS}=2.5\text{V}, I_D=300\text{mA}$ | -         | -    | -     | -         | 0.37 | 0.5  | $\Omega$      |
| $r_{DS(ON)}$        | $V_{GS}=1.8\text{V}, I_D=350\text{mA}$ | -         | -    | 0.7   | -         | -    | -    | $\Omega$      |
| $r_{DS(ON)}$        | $V_{GS}=1.8\text{V}, I_D=150\text{mA}$ | -         | -    | -     | -         | -    | 0.8  | $\Omega$      |

Notes: (1) Ceramic or aluminum core PC Board with copper mounting pad area of  $4.0\text{mm}^2$   
 (2) FR-4 Epoxy PC Board with copper mounting pad area of  $4.0\text{mm}^2$   
 (3) FR-4 Epoxy PC Board with copper mounting pad area of  $1.4\text{mm}^2$

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

The CENTRAL SEMICONDUCTOR CMLDM7585 consists of complementary N-Channel and P-Channel enhancement-mode silicon MOSFETs designed for high speed pulsed amplifier and driver applications. These MOSFETs offer very low  $r_{DS(ON)}$  and low threshold voltage.

**MARKING CODE: 87C****FEATURES:**

- ESD protection up to 1800V (Human Body Model)
- 350mW power dissipation
- Very low  $r_{DS(ON)}$
- Low threshold voltage
- Logic level compatible
- Small, SOT-563 surface mount package

| SYMBOL         | N-CH (Q1)   | P-CH (Q2) | UNITS              |
|----------------|-------------|-----------|--------------------|
| $V_{DS}$       | 20          |           | V                  |
| $V_{GS}$       | 8.0         |           | V                  |
| $I_D$          | 650         |           | mA                 |
| $I_{DM}$       | 1.3         | 1.0       | A                  |
| $P_D$          | 350         |           | mW                 |
| $P_D$          | 300         |           | mW                 |
| $P_D$          | 150         |           | mW                 |
| $T_J, T_{stg}$ | -65 to +150 |           | $^\circ\text{C}$   |
| $\Theta_{JA}$  | 357         |           | $^\circ\text{C/W}$ |

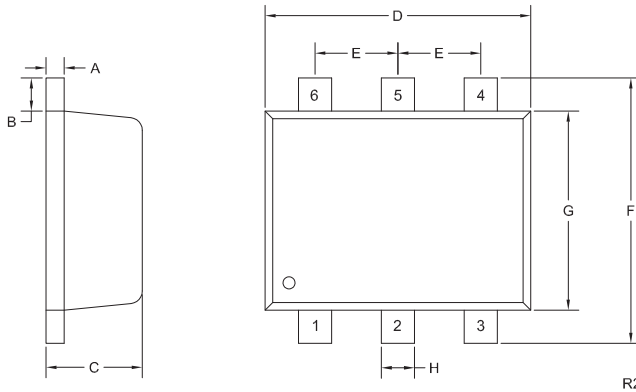
R6 (8-June 2015)

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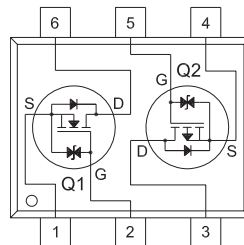
**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^\circ\text{C}$ )

| SYMBOL          | TEST CONDITIONS                                                                  | N-CH (Q1) |      | P-CH (Q2) |      | UNITS |
|-----------------|----------------------------------------------------------------------------------|-----------|------|-----------|------|-------|
|                 |                                                                                  | MIN       | TYP  | MIN       | TYP  |       |
| g <sub>FS</sub> | $V_{DS}=10\text{V}$ , $I_D=400\text{mA}$                                         | 1.0       | -    | -         | -    | S     |
| g <sub>FS</sub> | $V_{DS}=10\text{V}$ , $I_D=200\text{mA}$                                         | -         | -    | 0.2       | -    | S     |
| $C_{rss}$       | $V_{DS}=16\text{V}$ , $V_{GS}=0$ , $f=1.0\text{MHz}$                             | -         | 18   | -         | 25   | pF    |
| $C_{iss}$       | $V_{DS}=16\text{V}$ , $V_{GS}=0$ , $f=1.0\text{MHz}$                             | -         | 100  | -         | 100  | pF    |
| $C_{oss}$       | $V_{DS}=16\text{V}$ , $V_{GS}=0$ , $f=1.0\text{MHz}$                             | -         | 16   | -         | 21   | pF    |
| $Q_{g(tot)}$    | $V_{DS}=10\text{V}$ , $V_{GS}=4.5\text{V}$ , $I_D=500\text{mA}$                  | -         | 1.58 | -         | -    | nC    |
| $Q_{g(tot)}$    | $V_{DS}=10\text{V}$ , $V_{GS}=4.5\text{V}$ , $I_D=200\text{mA}$                  | -         | -    | -         | 1.2  | nC    |
| $Q_{gs}$        | $V_{DS}=10\text{V}$ , $V_{GS}=4.5\text{V}$ , $I_D=500\text{mA}$                  | -         | 0.17 | -         | -    | nC    |
| $Q_{gs}$        | $V_{DS}=10\text{V}$ , $V_{GS}=4.5\text{V}$ , $I_D=200\text{mA}$                  | -         | -    | -         | 0.24 | nC    |
| $Q_{gd}$        | $V_{DS}=10\text{V}$ , $V_{GS}=4.5\text{V}$ , $I_D=500\text{mA}$                  | -         | 0.24 | -         | -    | nC    |
| $Q_{gd}$        | $V_{DS}=10\text{V}$ , $V_{GS}=4.5\text{V}$ , $I_D=200\text{mA}$                  | -         | -    | -         | 0.36 | nC    |
| $t_{on}$        | $V_{DD}=10\text{V}$ , $V_{GS}=4.5\text{V}$ , $I_D=200\text{mA}$ , $R_G=10\Omega$ | -         | 10   | -         | 38   | ns    |
| $t_{off}$       | $V_{DD}=10\text{V}$ , $V_{GS}=4.5\text{V}$ , $I_D=200\text{mA}$ , $R_G=10\Omega$ | -         | 25   | -         | 48   | ns    |

**SOT-563 CASE - MECHANICAL OUTLINE**

| SYMBOL | DIMENSIONS |       |             |      |
|--------|------------|-------|-------------|------|
|        | INCHES     |       | MILLIMETERS |      |
|        | MIN        | MAX   | MIN         | MAX  |
| A      | 0.0027     | 0.007 | 0.07        | 0.18 |
| B      | 0.008      |       | 0.20        |      |
| C      | 0.017      | 0.024 | 0.45        | 0.60 |
| D      | 0.059      | 0.067 | 1.50        | 1.70 |
| E      | 0.020      |       | 0.50        |      |
| F      | 0.059      | 0.067 | 1.50        | 1.70 |
| G      | 0.043      | 0.051 | 1.10        | 1.30 |
| H      | 0.006      | 0.012 | 0.15        | 0.30 |

SOT-563 (REV: R2)

**PIN CONFIGURATION****LEAD CODE:**

- 1) Source Q1
- 2) Gate Q1
- 3) Drain Q2
- 4) Source Q2
- 5) Gate Q2
- 6) Drain Q1

**MARKING CODE: 87C**

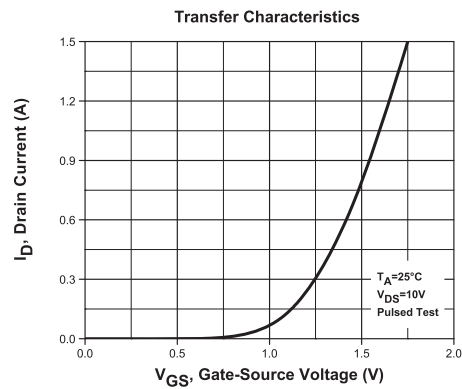
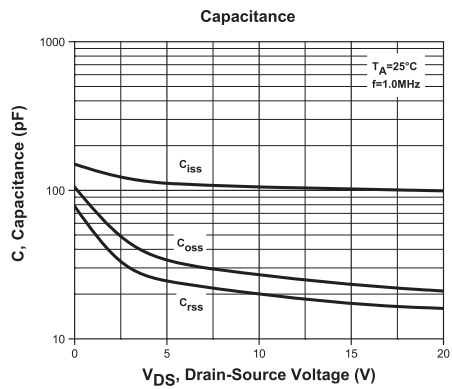
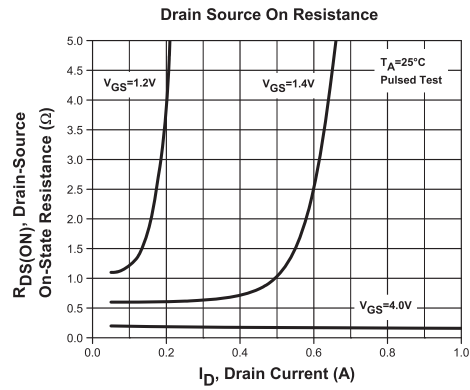
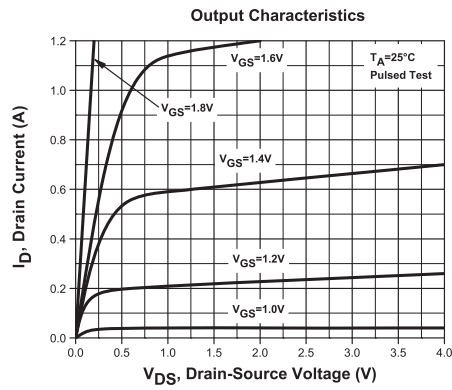
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## N-CHANNEL TYPICAL ELECTRICAL CHARACTERISTICS



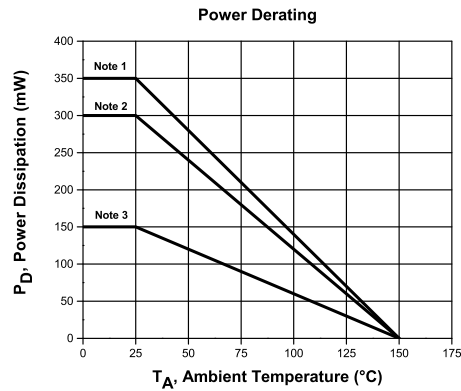
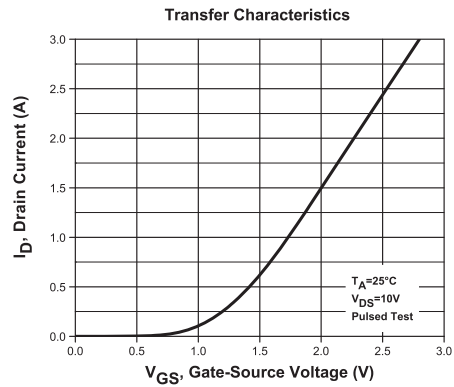
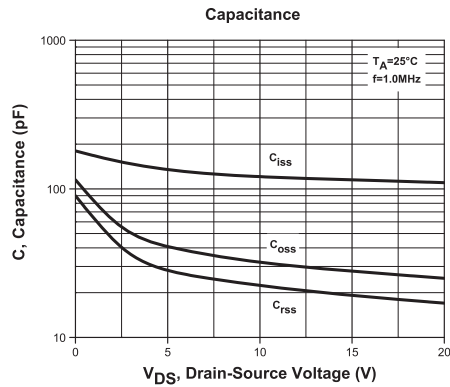
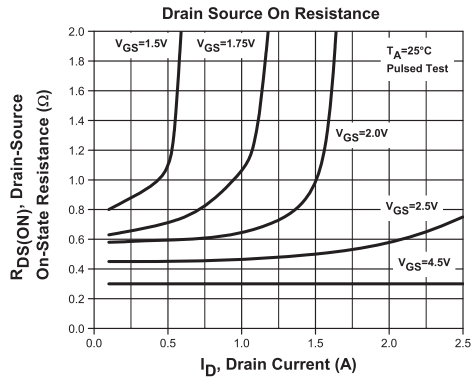
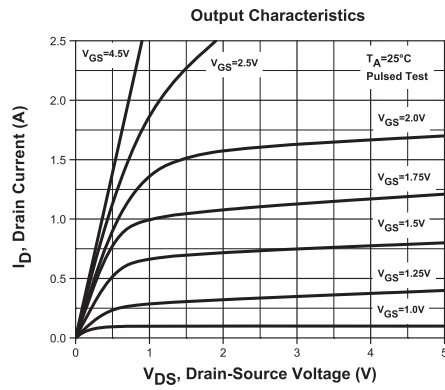
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**P-CHANNEL TYPICAL ELECTRICAL CHARACTERISTICS**



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## 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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