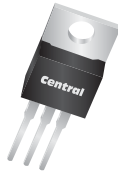


CDM2206-800LR

N-CHANNEL  
LR POWER MOSFET  
6.0 AMP, 800 VOLT



TO-220 CASE



www.centrasemi.com

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CDM2206-800LR is an 800 volt N-Channel MOSFET designed for high voltage, fast switching applications such as Power Factor Correction (PFC), lighting and power inverters. This MOSFET combines high voltage capability with ultra low  $r_{DS(ON)}$ , low threshold voltage, and low gate charge for optimal efficiency.

**MARKING CODE: CDM06-800LR**

**APPLICATIONS:**

- Power Factor Correction
- Alternative energy inverters
- Solid State Lighting (SSL)

**FEATURES:**

- High voltage capability ( $V_{DS}=800V$ )
- Low gate charge ( $Q_{gs}=2.8nC$  TYP)
- Ultra low  $r_{DS(ON)}$  ( $0.8\Omega$  TYP)

**MAXIMUM RATINGS:** ( $T_C=25^\circ C$  unless otherwise noted)

	SYMBOL		UNITS
Drain-Source Voltage	$V_{DS}$	800	V
Gate-Source Voltage	$V_{GS}$	30	V
Continuous Drain Current (Steady State)	$I_D$	6.0	A
Continuous Drain Current ( $T_C=100^\circ C$ )	$I_D$	4.0	A
Maximum Pulsed Drain Current, $t_p=10\mu s$	$I_{DM}$	24	A
Continuous Source Current (Body Diode)	$I_S$	6.0	A
Maximum Pulsed Source Current (Body Diode)	$I_{SM}$	24	A
Single Pulse Avalanche Energy (Note 1)	$E_{AS}$	250	mJ
Power Dissipation	$P_D$	110	W
Operating and Storage Junction Temperature	$T_J, T_{stg}$	-55 to +150	$^\circ C$
Thermal Resistance	$\theta_{JC}$	1.14	$^\circ C/W$
Thermal Resistance	$\theta_{JA}$	62.5	$^\circ C/W$

Note 1:  $L=79mH, I_{AS}=2.4A, V_{DD}=100V, R_G=25\Omega, \text{Initial } T_J=25^\circ C$

**ELECTRICAL CHARACTERISTICS:** ( $T_C=25^\circ C$  unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$I_{GSSF}, I_{GSSR}$	$V_{GS}=30V, V_{DS}=0$			100	nA
$I_{DSS}$	$V_{DS}=800V, V_{GS}=0$		0.0426	1.0	$\mu A$
$BV_{DSS}$	$V_{GS}=0, I_D=250\mu A$	800			V
$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	2.0	3.2	4.0	V
$V_{SD}$	$V_{GS}=0, I_S=6.0A$		0.89	1.4	V
$r_{DS(ON)}$	$V_{GS}=10V, I_D=3.0A$		0.8	0.95	$\Omega$
$C_{rss}$	$V_{DS}=100V, V_{GS}=0, f=1.0MHz$		3.3		pF
$C_{iss}$	$V_{DS}=100V, V_{GS}=0, f=1.0MHz$		474.7		pF
$C_{oss}$	$V_{DS}=100V, V_{GS}=0, f=1.0MHz$		23.2		pF

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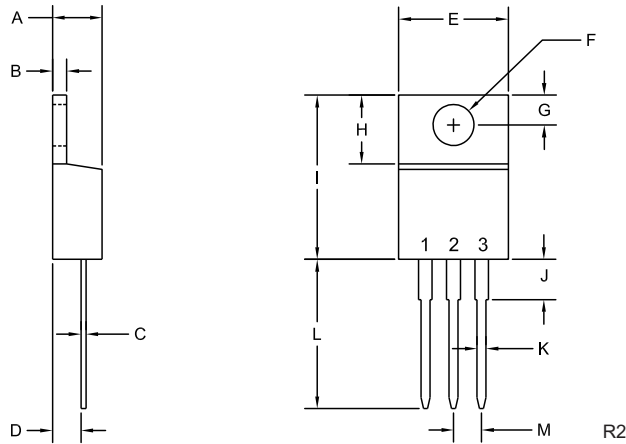


**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_C=25^\circ\text{C}$  unless otherwise noted)

SYMBOL	TEST CONDITIONS	TYP	UNITS
$Q_{g(\text{tot})}$	$V_{DD}=640\text{V}$ , $V_{GS}=10\text{V}$ , $I_D=6.0\text{A}$ (Note 2)	24.3	nC
$Q_{gs}$	$V_{DD}=640\text{V}$ , $V_{GS}=10\text{V}$ , $I_D=6.0\text{A}$ (Note 2)	2.8	nC
$Q_{gd}$	$V_{DD}=640\text{V}$ , $V_{GS}=10\text{V}$ , $I_D=6.0\text{A}$ (Note 2)	14.9	nC
$t_{d(\text{on})}$	$V_{DD}=400\text{V}$ , $V_{GS}=10\text{V}$ , $I_D=6.0\text{A}$ , $R_G=4.7\Omega$ (Note 2)	9.3	ns
$t_r$	$V_{DD}=400\text{V}$ , $V_{GS}=10\text{V}$ , $I_D=6.0\text{A}$ , $R_G=4.7\Omega$ (Note 2)	22.7	ns
$t_{d(\text{off})}$	$V_{DD}=400\text{V}$ , $V_{GS}=10\text{V}$ , $I_D=6.0\text{A}$ , $R_G=4.7\Omega$ (Note 2)	42.3	ns
$t_f$	$V_{DD}=400\text{V}$ , $V_{GS}=10\text{V}$ , $I_D=6.0\text{A}$ , $R_G=4.7\Omega$ (Note 2)	25.6	ns
$t_{rr}$	$V_{GS}=0$ , $I_S=6.0\text{A}$ , $di/dt=100\text{A}/\mu\text{s}$ (Note 2)	398.6	ns
$Q_{rr}$	$V_{GS}=0$ , $I_S=6.0\text{A}$ , $di/dt=100\text{A}/\mu\text{s}$ (Note 2)	3.5	$\mu\text{C}$

Note 2: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

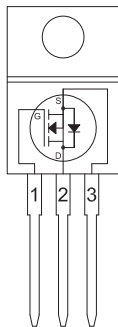
**TO-220 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.170	0.190	4.31	4.82
B	0.045	0.055	1.15	1.39
C	0.013	0.026	0.33	0.65
D	0.083	0.107	2.10	2.72
E	0.394	0.417	10.01	10.60
F (DIA)	0.140	0.157	3.55	4.00
G	0.100	0.118	2.54	3.00
H	0.230	0.270	5.85	6.85
I	0.560	0.625	14.23	15.87
J	-	0.250	-	6.35
K	0.025	0.038	0.64	0.96
L	0.500	0.579	12.70	14.70
M	0.090	0.110	2.29	2.79

TO-220 (REV: R2)

**PIN CONFIGURATION**



**LEAD CODE:**

- 1) Gate
  - 2) Drain
  - 3) Source
- (Tab is common to pin 2)

**MARKING CODE: CDM06-800LR**

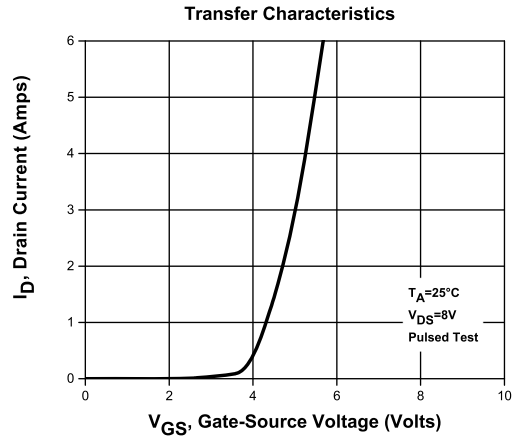
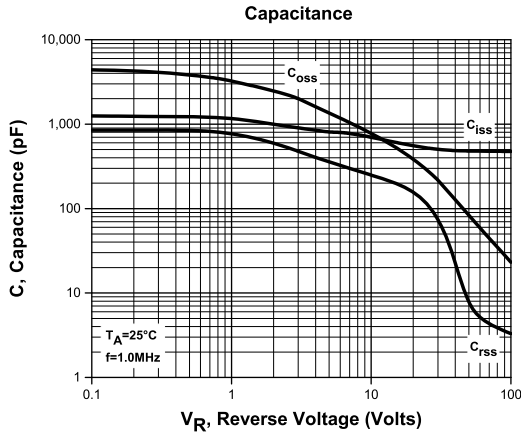
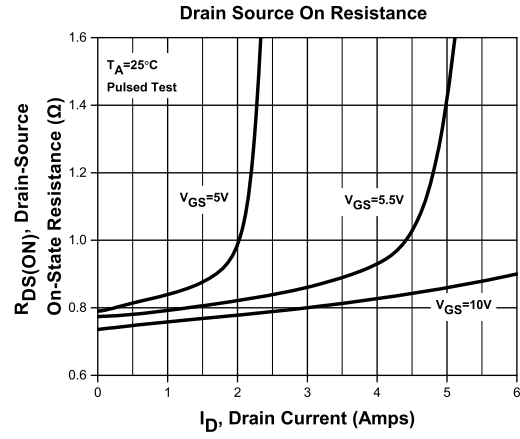
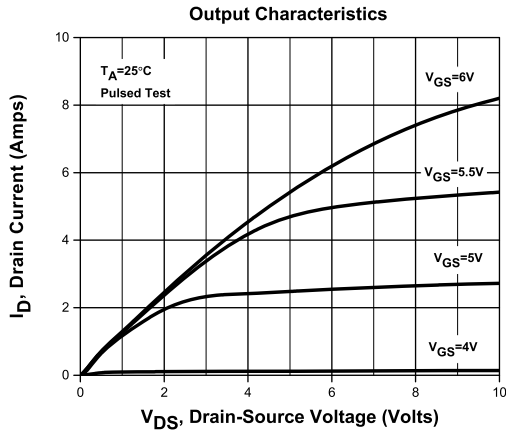
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TYPICAL ELECTRICAL CHARACTERISTICS



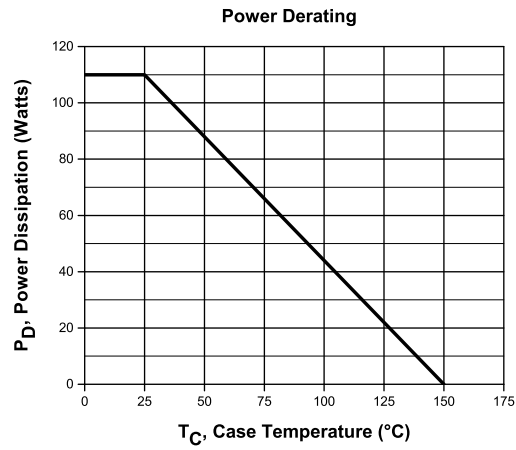
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### TYPICAL ELECTRICAL CHARACTERISTICS



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

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