

CDM2205-800FP

SILICON
N-CHANNEL POWER MOSFET
5.0 AMP, 800 VOLT



TO-220FP CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CDM2205-800FP 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 low $r_{DS(ON)}$, low threshold voltage, and low gate charge for optimal efficiency.

MARKING CODE: CDM05-800FP

APPLICATIONS:

- Power Factor Correction
- Alternative energy inverters
- Solid State Lighting

FEATURES:

- High voltage capability ($V_{DS}=800V$)
- Low gate charge ($Q_{g(tot)}=17.4nC$ TYP)
- Low $r_{DS(ON)}$ (2.2Ω 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	5.0	A
Maximum Pulsed Drain Current, $t_p=10\mu s$	I_{DM}	20	A
Continuous Source Current (Body Diode)	I_S	5.0	A
Maximum Pulsed Source Current (Body Diode)	I_{SM}	20	A
Single Pulse Avalanche Energy (Note 1)	E_{AS}	323	mJ
Power Dissipation	P_D	48	W
Operating and Storage Junction Temperature	T_J, T_{stg}	-55 to +150	$^\circ C$
Thermal Resistance	θ_{JC}	2.6	$^\circ C/W$
Thermal Resistance	θ_{JA}	120	$^\circ C/W$

Note 1: $L=30mH$, $I_{AS}=4.5A$, $V_{DD}=60V$, $R_G=25\Omega$, Initial $T_J=25^\circ C$

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{GSSS}, I_{GSSR}	$V_{GS}=30V, V_{DS}=0$			100	nA
I_{DSS}	$V_{DS}=800V, V_{GS}=0$			1.0	μA
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	3.0	4.0	V
V_{SD}	$V_{GS}=0, I_S=5.0A$		0.9	1.4	V
$r_{DS(ON)}$	$V_{GS}=10V, I_D=2.5A$		2.2	2.7	Ω
C_{rss}	$V_{DS}=25V, V_{GS}=0, f=1.0MHz$		2.8		pF
C_{iss}	$V_{DS}=25V, V_{GS}=0, f=1.0MHz$		705		pF
C_{oss}	$V_{DS}=25V, V_{GS}=0, f=1.0MHz$		72		pF

R3 (19-August 2015)

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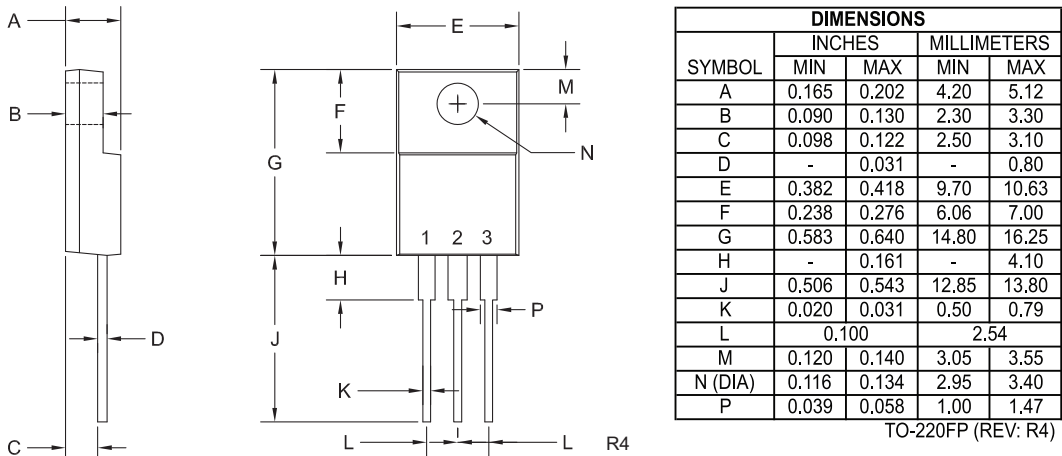


ELECTRICAL CHARACTERISTICS - Continued: (T_C=25°C unless otherwise noted)

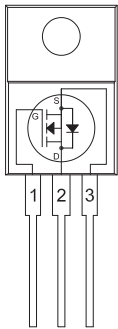
SYMBOL	TEST CONDITIONS	TYP	UNITS
Q _g (tot)	V _{DS} =640V, V _{GS} =10V, I _D =5.0A (Note 2)	17.4	nC
Q _{gs}	V _{DS} =640V, V _{GS} =10V, I _D =5.0A (Note 2)	3.70	nC
Q _{gd}	V _{DS} =640V, V _{GS} =10V, I _D =5.0A (Note 2)	7.88	nC
t _d (on)	V _{DD} =400V, I _D =5.0A, R _G =25Ω (Note 2)	13	ns
t _r	V _{DD} =400V, I _D =5.0A, R _G =25Ω (Note 2)	27	ns
t _d (off)	V _{DD} =400V, I _D =5.0A, R _G =25Ω (Note 2)	44	ns
t _f	V _{DD} =400V, I _D =5.0A, R _G =25Ω (Note 2)	30	ns
t _{rr}	V _{GS} =0, I _S =5.0A, di/dt=100A/μs (Note 2)	549	ns
Q _{rr}	V _{GS} =0, I _S =5.0A, di/dt=100A/μs (Note 2)	2.95	μC

Note 2: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

TO-220FP CASE - MECHANICAL OUTLINE



PIN CONFIGURATION



LEAD CODE:

- 1) Gate
- 2) Drain
- 3) Source

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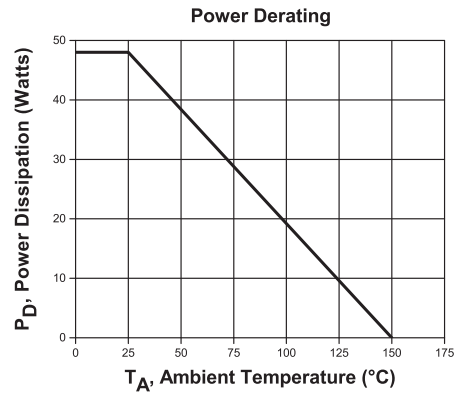
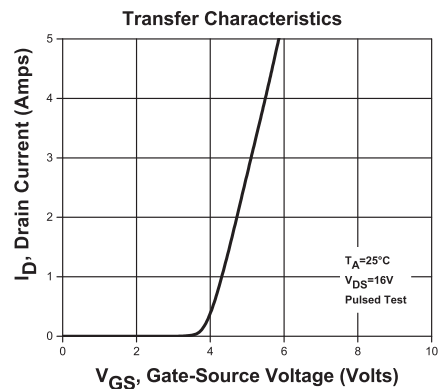
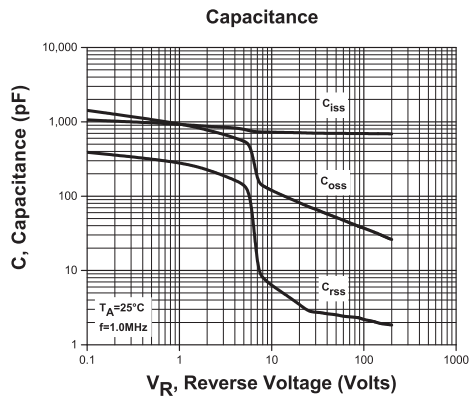
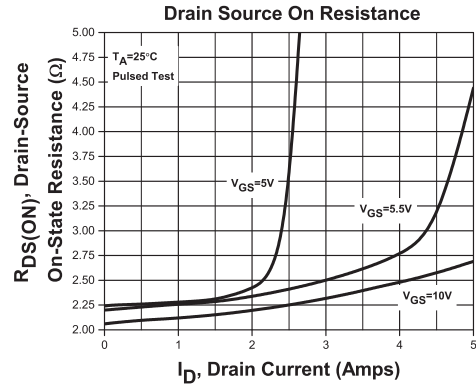
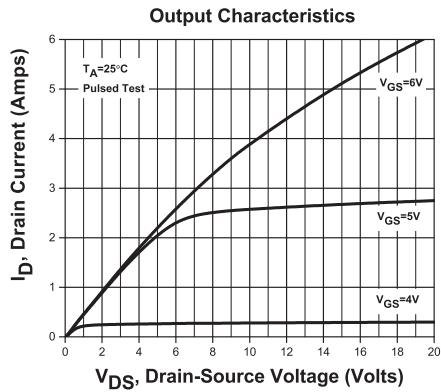
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TYPICAL ELECTRICAL CHARACTERISTICS



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PRODUCT SUPPORT

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

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- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

DESIGNER SUPPORT/SERVICES

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

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- 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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