CDM7-600LR

SURFACE MOUNT SILICON N-CHANNEL LR POWER MOSFET 7.0 AMP, 600 VOLT

UltraMOS™



DPAK CASE

Central Semiconductor Corp.

www.centralsemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CDM7-600LR is a 600 Volt N-Channel MOSFET designed for high voltage, fast switching applications such as Power Factor Correction (PFC), lighting and power inverters. This UltraMOS™ MOSFET combines high voltage capability with ultra low $r_{DS(ON)}$, low threshold voltage, and low gate charge for optimal efficiency.

MARKING: FULL PART NUMBER

APPLICATIONS:

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

FEATURES:

- High voltage capability (V_{DS}=600V)
- Low gate charge (Q_{gs}=3.54nC TYP)
- Ultra low $r_{DS(ON)}$ (0.48Ω TYP)

MAXIMUM RATINGS: (T_C=25°C unless otherwise noted)

	SYMBOL		UNITS
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	30	V
Continuous Drain Current (Steady State)	I_D	7.0	A
Maximum Pulsed Drain Current, tp=10μs	I_{DM}	28	A
Continuous Source Current (Body Diode)	I_S	7.0	A
Maximum Pulsed Source Current (Body Diode)	I_{SM}	28	A
Single Pulse Avalanche Energy (Note 1)	E_{AS}	255	mJ
Power Dissipation	P_D	60	W
Operating and Storage Junction Temperature	T_J, T_{stg}	-55 to +150	°C
Thermal Resistance	Θ_{JC}	2.08	°C/W
Thermal Resistance	Θ_{JA}	110	°C/W

Note 1: L=79mH, I_{AS}=2.4A, V_{DD}=100V, R_G=25Ω, Initial T_J=25°C

ELECTRICAL CHARACTERISTICS: (T_C=25°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}=600V, V_{GS}=0			1.0	μA
BV_{DSS}	V_{GS}=0, I_D=250μA	600			V
$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250μA	2.0		4.0	V
V_{SD}	V_{GS}=0, I_S=7.0A			1.4	V
$r_{DS(ON)}$	V_{GS}=10V, I_D=3.5A		0.48	0.58	Ω
C_{rss}	V_{DS}=100V, V_{GS}=0, f=1.0MHz		6.7		pF
C_{iss}	V_{DS}=100V, V_{GS}=0, f=1.0MHz		450		pF
C_{oss}	V_{DS}=100V, V_{GS}=0, f=1.0MHz		29		pF

R4 (8-October 2020)

CDM7-600LR

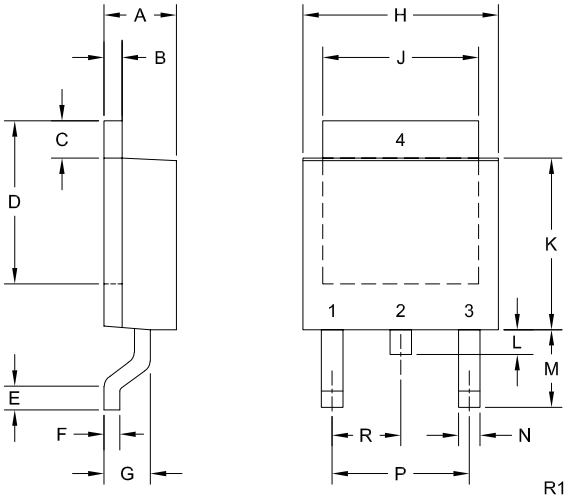
SURFACE MOUNT SILICON
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7.0 AMP, 600 VOLT

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

SYMBOL	TEST CONDITIONS	TYP	UNITS
$Q_{g(tot)}$	V_{DS}=480V, V_{GS}=10V, I_D=7.0A (Note 2)	22.9	nC
Q_{gs}	V_{DS}=480V, V_{GS}=10V, I_D=7.0A (Note 2)	3.54	nC
Q_{gd}	V_{DS}=480V, V_{GS}=10V, I_D=7.0A (Note 2)	13.2	nC
$t_{d(on)}$	V_{DD}=300V, V_{GS}=10V, I_D=7.0A, R_G=24Ω (Note 2)	10.3	ns
t_r	V_{DD}=300V, V_{GS}=10V, I_D=7.0A, R_G=24Ω (Note 2)	32.6	ns
$t_{d(off)}$	V_{DD}=300V, V_{GS}=10V, I_D=7.0A, R_G=24Ω (Note 2)	72.2	ns
t_f	V_{DD}=300V, V_{GS}=10V, I_D=7.0A, R_G=24Ω (Note 2)	28.9	ns
t_{rr}	V_{GS}=0, I_S=7.0A, di/dt=100A/μs (Note 2)	430	ns
Q_{rr}	V_{GS}=0, I_S=7.0A, di/dt=100A/μs (Note 2)	3.2	μC

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

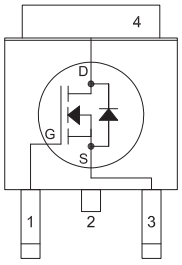
DPAK CASE - MECHANICAL OUTLINE



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0.083	0.108	2.10	2.75
B	0.016	0.032	0.40	0.81
C	0.035	0.063	0.89	1.60
D	0.203	0.228	5.15	5.79
E	0.020	-	0.51	-
F	0.016	0.024	0.40	0.60
G	0.051	0.071	1.30	1.80
H	0.248	0.268	6.30	6.81
J	0.197	0.217	5.00	5.50
K	0.209	0.245	5.30	6.22
L	0.025	0.040	0.64	1.02
M	0.090	0.115	2.30	2.91
N	0.012	0.045	0.30	1.14
P	0.180		4.60	
R	0.090		2.30	

DPAK (REV: R1)

PIN CONFIGURATION



LEAD CODE:
1) Gate
2) Drain
3) Source
4) Drain
Pin 2 is common to the tab (4)

MARKING: FULL PART NUMBER

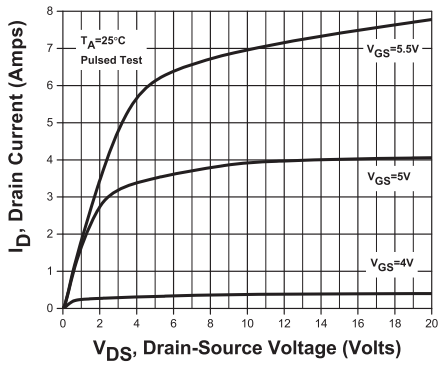
R4 (8-October 2020)

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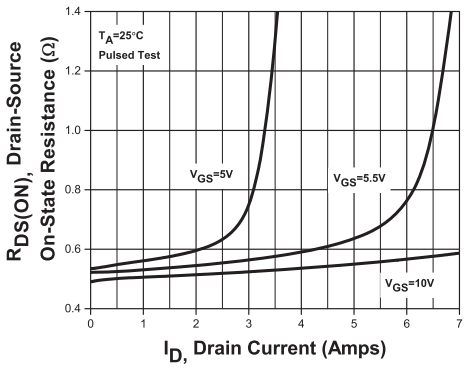
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TYPICAL ELECTRICAL CHARACTERISTICS

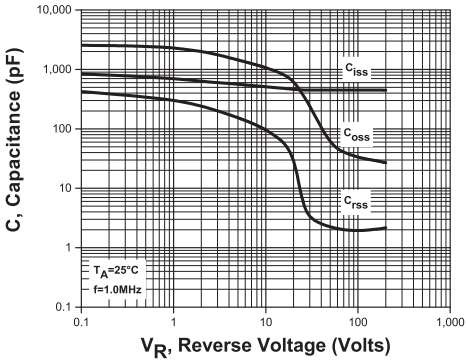
Output Characteristics



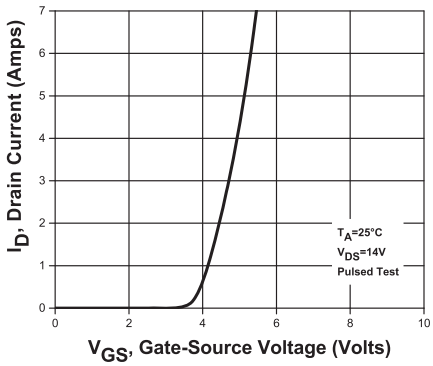
Drain Source On Resistance



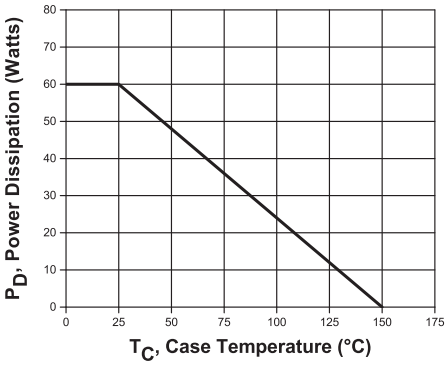
Capacitance



Transfer Characteristics



Power Derating



R3 (21-May 2020)

OUTSTANDING SUPPORT AND SUPERIOR SERVICES

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

DESIGNER SUPPORT/SERVICES

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

- Free quick ship samples (2nd 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

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).

CONTACT US

Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.
145 Adams Avenue
Hauppauge, NY 11788 USA
Main Tel: (631) 435-1110
Main Fax: (631) 435-1824
Support Team Fax: (631) 435-3388
www.centralsemi.com

Worldwide Field Representatives:
www.centralsemi.com/wwreps

Worldwide Distributors:
www.centralsemi.com/wwdistributors

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