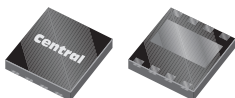


CDFG6510N

**SURFACE MOUNT GaN
N-CHANNEL
POWER FET
10 AMP, 650 VOLT**



Top View Bottom View

DFN8X8 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CDFG6510N is a 650 Volt N-Channel GaN FET designed for high voltage, soft switching applications. This GaN FET combines high voltage capability with low $r_{DS(ON)}$ and low gate charge for optimal efficiency.

MARKING: FULL PART NUMBER

APPLICATIONS:

- Power supplies
- High power chargers
- Electric vehicle inverters

FEATURES:

- High voltage capability
- Low gate charge
- Efficient soft switching

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

	SYMBOL		UNITS
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	± 6.0	V
Continuous Drain Current (Steady State)	I_D	10	A
Power Dissipation	P_D	62.5	W
Operating and Storage Junction Temperature	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JC}	2.0	$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{GSSF}, I_{GSSR}	$V_{GS}=6.0\text{V}, V_{DS}=0, T_J=150^\circ\text{C}$		0.5		mA
I_{DSS}	$V_{DS}=650\text{V}, V_{GS}=0, T_J=150^\circ\text{C}$			80	μA
BV_{DSS}	$V_{GS}=0, I_D=250\mu\text{A}$	650			V
$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=3.5\text{mA}$		1.0		V
V_{SD}	$V_{GS}=0, I_S=1.0\text{A}$		1.35		V
$r_{DS(ON)}$	$V_{GS}=6.0\text{V}, I_D=5.0\text{A}, T_J=150^\circ\text{C}$		430	490	m Ω
C_{iss}	$V_{DS}=400\text{V}, V_{GS}=0, f=1.0\text{MHz}$		80		pF
C_{oss}	$V_{DS}=400\text{V}, V_{GS}=0, f=1.0\text{MHz}$		55		pF
C_{rss}	$V_{DS}=400\text{V}, V_{GS}=0, f=1.0\text{MHz}$		5.0		pF
$C_{oss(er)}$	$V_{DS}=0$ to 400V, $V_{GS}=0$		51.1		pF
$C_{oss(tr)}$	$V_{DS}=0$ to 400V, $V_{GS}=0$		60.2		pF

CDFG6510N

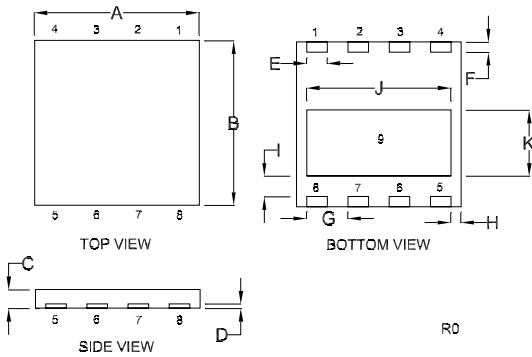
**SURFACE MOUNT GaN
N-CHANNEL
POWER FET
10 AMP, 650 VOLT**



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

SYMBOL	TEST CONDITIONS	TYP	UNITS
$Q_{g(\text{tot})}$	$V_{DS}=400\text{V}$, $V_{GS}=0$ to 6.0V	2.03	nC
Q_{gd}	$V_{DS}=400\text{V}$, $V_{GS}=0$ to 6.0V	0.9	nC
Q_{gs}	$V_{DS}=400\text{V}$, $V_{GS}=0$ to 6.0V	0.4	nC

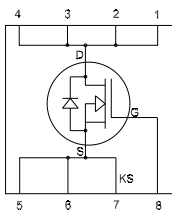
DFN8X8 CASE - MECHANICAL OUTLINE



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.307	0.323	7.80	8.20
B	0.307	0.323	7.80	8.20
C	0.031	0.039	0.80	1.00
D	0.006	0.010	0.15	0.25
E	0.037	0.041	0.95	1.05
F	0.018	0.022	0.45	0.55
G	0.071	0.087	1.80	2.20
H	0.018	0.022	0.45	0.55
I	0.037	0.041	0.95	1.05
J	0.268	0.283	6.80	7.20
K	0.120	0.132	3.05	3.35

DFN8X8 (REV: R0)

PIN CONFIGURATION



LEAD CODE:

- 1) Drain 5) Source
- 2) Drain 6) Source
- 3) Drain 7) Kelvin Source
- 4) Drain 8) Gate

Pins 5, 6, 7 are common to the pad (9)

MARKING: C6510

R1 (6-June 2022)