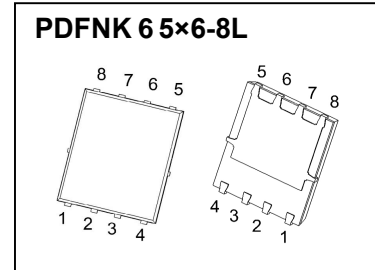


**CJAC40N04 N-Channel Power MOSFET**

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
40V	9.5mΩ@10V	40A
	16mΩ@4.5V	



**DESCRIPTION**

The CJAC40N04 uses advanced trench technology and design to provide excellent  $R_{DS(ON)}$  with low gate charge. It can be used in a wide variety of applications

**FEATURES**

- High Power and current handing capability
- Load switch
- High density cell design for ultra low  $R_{DS(ON)}$
- Lead free product is acquired
- Good stability and uniformity with high  $E_{AS}$
- Excellent package for good heat dissipation

**APPLICATIONS**

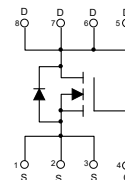
- SMPS and general purpose applications
- Hard switched and high frequency circuits
- Uninterruptible Power Supply
- Power management

**MARKING**



CJAC40N04 = Part No.  
 Solid dot=Pin1 indicator  
 XX=Date Code

**EQUIVALENT CIRCUIT**



**MAXIMUM RATINGS (  $T_a=25^{\circ}C$  unless otherwise noted )**

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	40	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	40	A
Pulsed Drain Current	$I_{DM}$	120	A
Single Pulsed Avalanche Energy	$E_{AS}^{(1)}$	141	mJ
Power Dissipation	$P_D$	4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	31.25	$^{\circ}C/W$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature Range	$T_{stg}$	-55 ~+150	$^{\circ}C$
Lead Temperature for Soldering Purposes(1/8" from case for 10s)	$T_L$	260	$^{\circ}C$

(1). $E_{AS}$  condition:  $V_{DD}=15V, L=0.1mH, R_G=25\Omega$ , Starting  $T_J = 25^{\circ}C$

(2).Mounted on a glass epoxy board of 25.4 mm x 25.4 mm x 0.8 mmt

# MOSFET ELECTRICAL CHARACTERISTICS

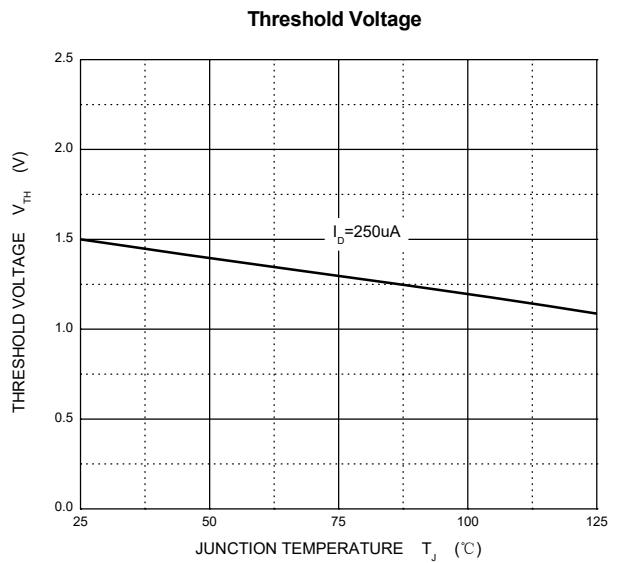
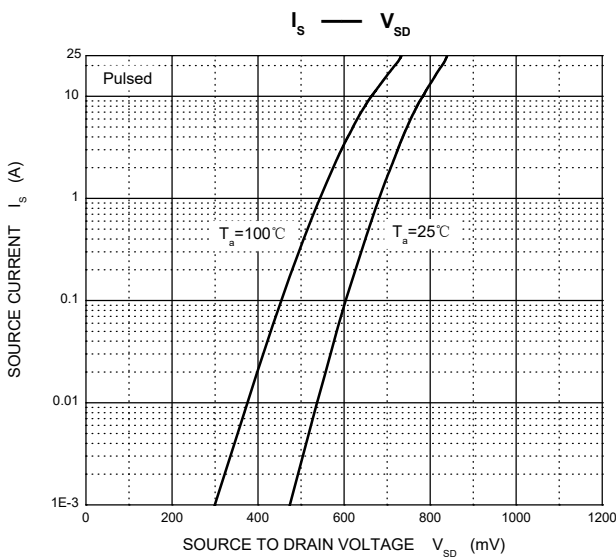
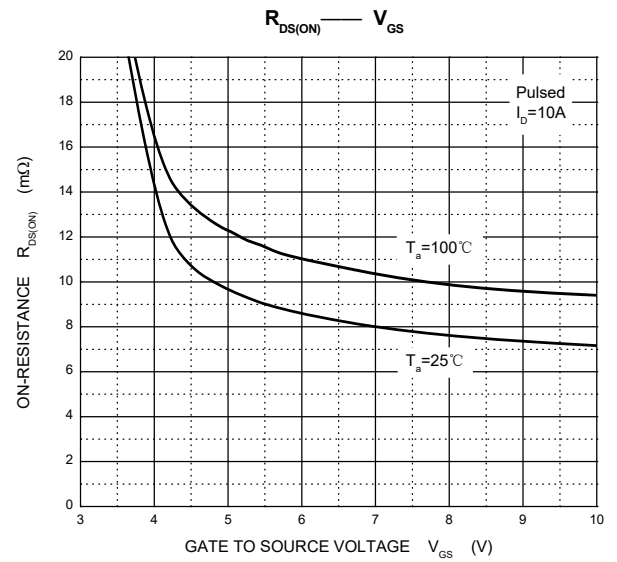
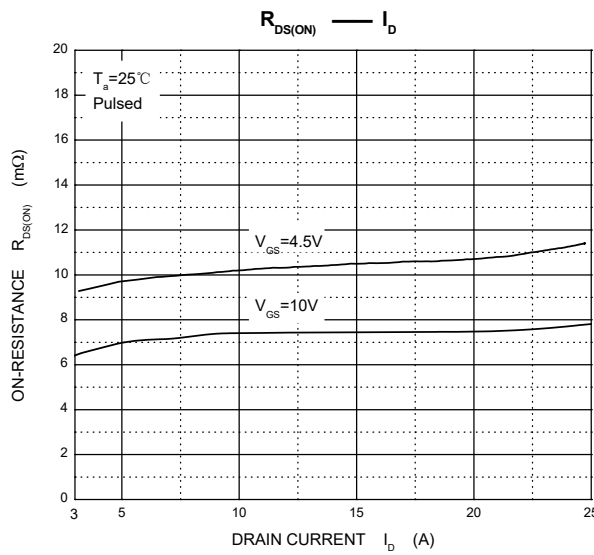
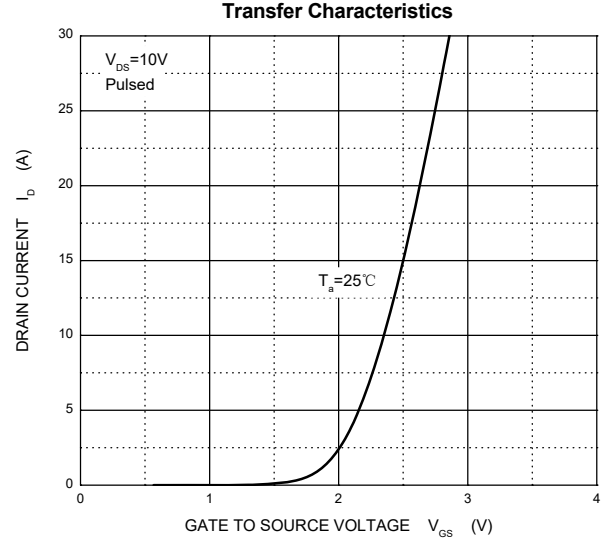
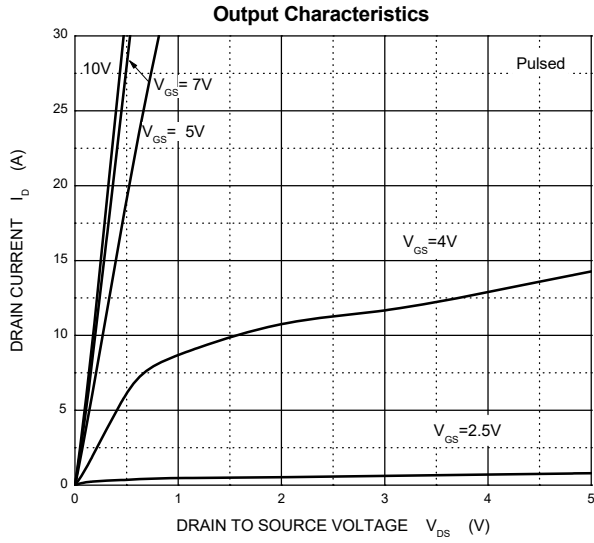
$T_a=25\text{ }^\circ\text{C}$  unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Off characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	40			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 40V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$			$\pm 100$	nA
<b>On characteristics (note1)</b>						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.5	2.5	V
Static drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 10A$		7.2	9.5	$m\Omega$
		$V_{GS} = 4.5V, I_D = 10A$		10	16	$m\Omega$
Forward transconductance	$g_{FS}$	$V_{DS} = 5V, I_D = 20A$		36		S
<b>Dynamic characteristics (note 2)</b>						
Input capacitance	$C_{iss}$	$V_{DS} = 25V, V_{GS} = 0V,$ $f = 1MHz$		1980		pF
Output capacitance	$C_{oss}$			155		
Reverse transfer capacitance	$C_{rss}$			125		
<b>Switching characteristics (note 2)</b>						
Total gate charge	$Q_g$	$V_{DS} = 20V, V_{GS} = 10V,$ $I_D = 10A$		48		nC
Gate-source charge	$Q_{gs}$			5.5		
Gate-drain charge	$Q_{gd}$			12.3		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = 25V, I_D = 14A,$ $V_{GS} = 10V, R_G = 3\Omega$		12		ns
Turn-on rise time	$t_r$			35		
Turn-off delay time	$t_{d(off)}$			48		
Turn-off fall time	$t_f$			11		
<b>Drain-Source Diode Characteristics</b>						
Drain-source diode forward voltage(note1)	$V_{SD}$	$V_{GS} = 0V, I_S = 10A$			1.2	V
Continuous drain-source diode forward current	$I_S$				25	A
Pulsed drain-source diode forward current	$I_{SM}$				100	A

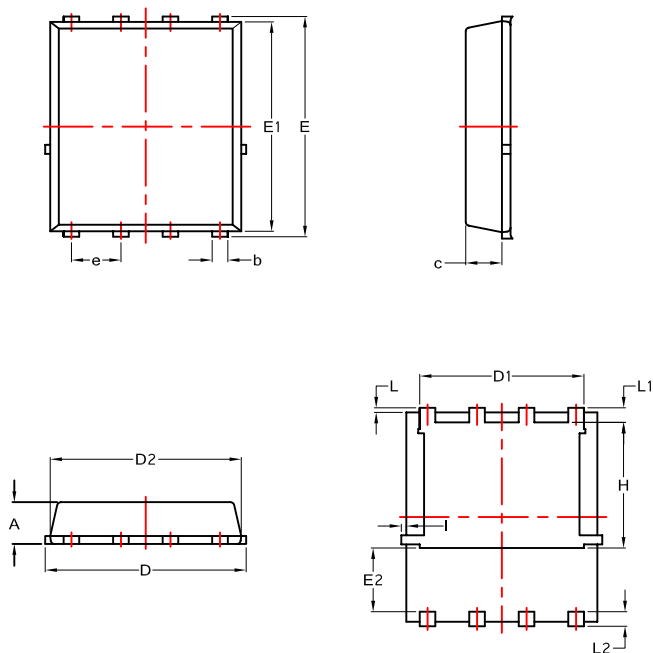
Notes:

1. Pulse Test : Pulse Width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
2. Guaranteed by design, not subject to production.

# Typical Characteristics

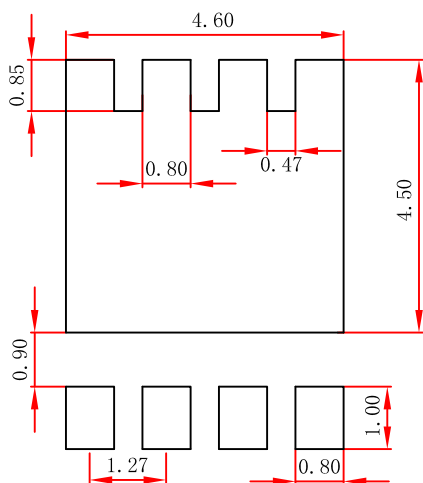


## PDFNWB5x6-8L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.970	0.0324	0.0382
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	-	0.0630	-
e	1.270 BSC		0.050 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	-	0.18	-	0.0070

## PDFNWB5x6-8L Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05\text{mm}$ .
  3. The pad layout is for reference purposes only.

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