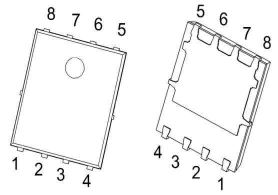
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

PDFNWB5×6-8L Plastic-Encapsulate MOSFETS

CJAC130SN04 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
40V	2.1mΩ@10V	130A

PDFNWB5×6-8L



DESCRIPTION

These N-Channel enhancement mode power field effect transistors are using trench DMOS technology.This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.

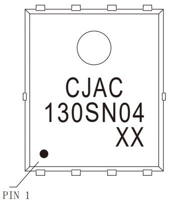
FEATURES

- Battery switch
- Load switch
- High density cell design for ultra low $R_{DS(ON)}$
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

APPLICATIONS

- Networking
- Load Switch
- LED applications

MARKING

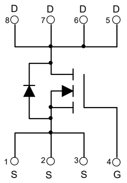


CJAC130SN04 = Part No.

Solid dot=Pin1 indicator.

XX=Code.

EQUIVALENT CIRCUIT



MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	+20/-12	V
Continuous Drain Current	I_D①	130	A
Pulsed Drain Current	I_{DM}②	520	A
Single Pulsed Avalanche Energy	E_{AS}③	320	mJ
Power Dissipation	P_D①	120	W
Thermal Resistance from Junction to Ambient	$R_{θJA}$⑥	62.5	℃/W
Thermal Resistance from Junction to Case	$R_{θJC}$①	1.04	℃/W
Operating Junction and Storage Temperature Range	T_J ,T_{stg}	-55~+150	℃

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	40	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =40V, V_{GS} =0V, T_J =25℃	-	-	1	μA
		T_J =125℃	-	-	100	
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =+20V/-12V	-	-	±100	nA
On characteristics ④						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.0	2.9	4.0	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A	-	2.1	2.5	mΩ
Forward transconductance	g_{FS}	V_{DS} =5V, I_D =20A	-	32	-	S
Dynamic characteristics ④ ⑤						
Input capacitance	C_{iss}	V_{DS} =20V,V_{GS} =0V, f =1MHz	-	3350	5200	pF
Output capacitance	C_{oss}		-	1100	1700	
Reverse transfer capacitance	C_{rss}		-	120	190	
Switching characteristics ④ ⑤						
Total gate charge	Q_g	V_{GS}=10V, V_{DS}=20V, I_D=70A	-	61	100	nC
Gate-source charge	Q_{gs}		-	15	25	
Gate-drain charge	Q_{gd}		-	14	26	
Turn-on delay time	$t_{d(on)}$	V_{DS}=20V,I_D=1A , V_{GS}=10V,R_G=6Ω	-	13	-	ns
Turn-on rise time	t_r		-	22	-	
Turn-off delay time	$t_{d(off)}$		-	55	-	
Turn-off fall time	t_f		-	85	-	
Drain-Source Diode Characteristics						
Drain-source diode forward voltage	V_{SD} ④	V_{GS} =0V, I_S=10A	-	-	1.2	V
Continuous drain-source diode forward current	I_S ①		-	-	130	A
Pulsed drain-source diode forward current	I_{SM} ②		-	-	450	A

Notes:

1.T_C=25℃ Limited only by maximum temperature allowed.

2.P_W≤10μs, Duty cycle≤1%.

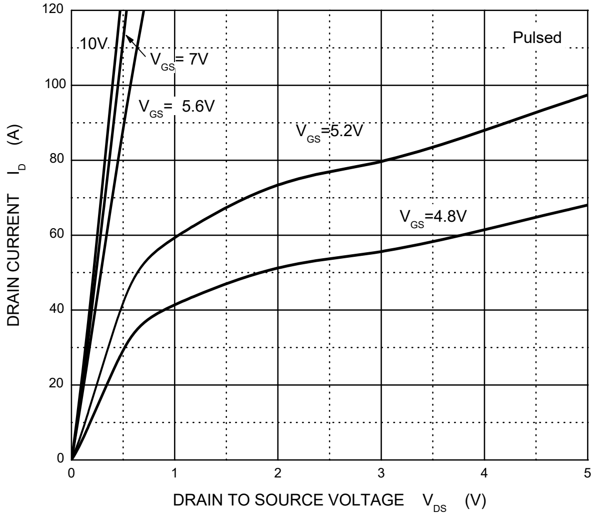
3.EAS condition: V_{DD}=25V,V_{GS}=10V, L=0.1mH, Rg=25Ω Starting T_J = 25°℃.

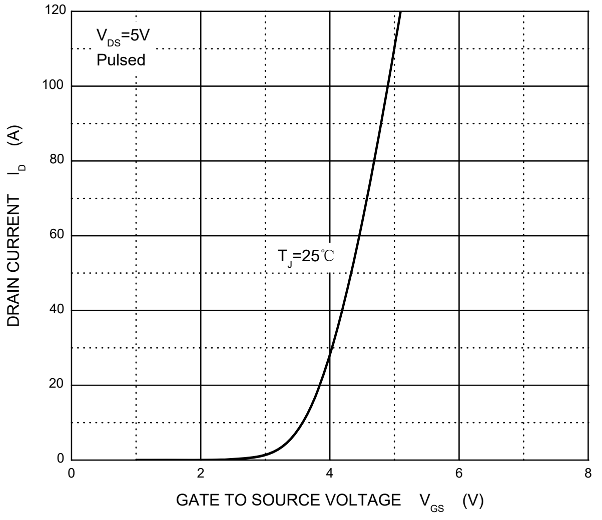
4.Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.

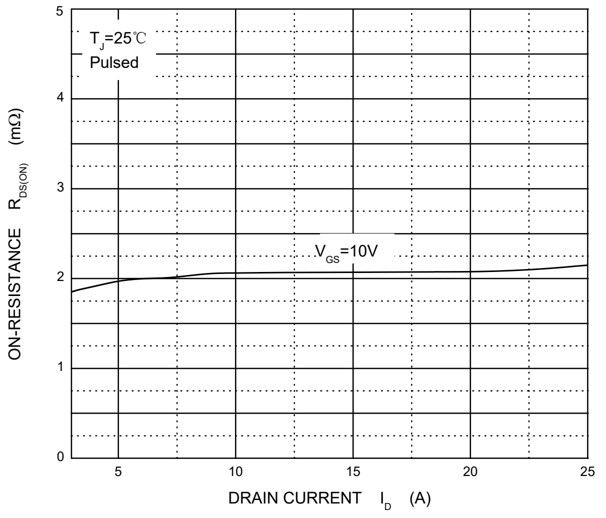
5.Guaranteed by design, not subject to production.

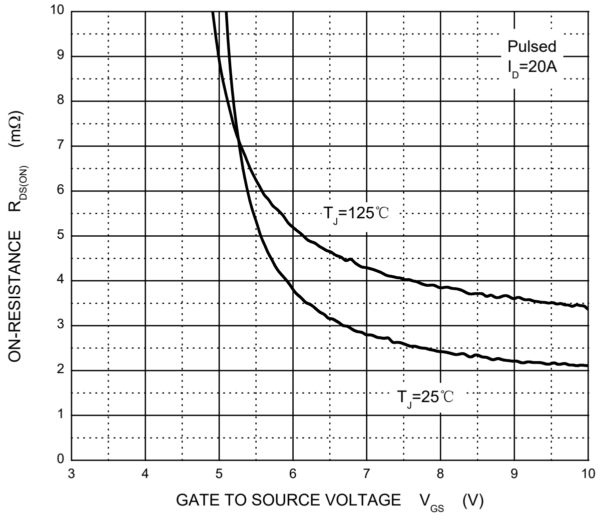
6.The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25 ℃.

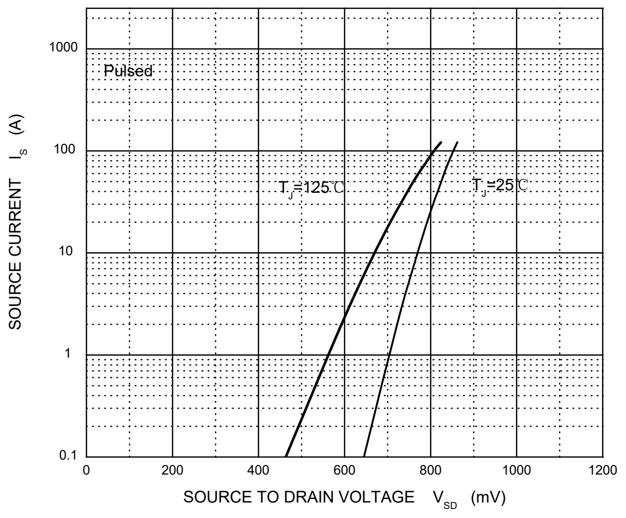
Typical Characteristics

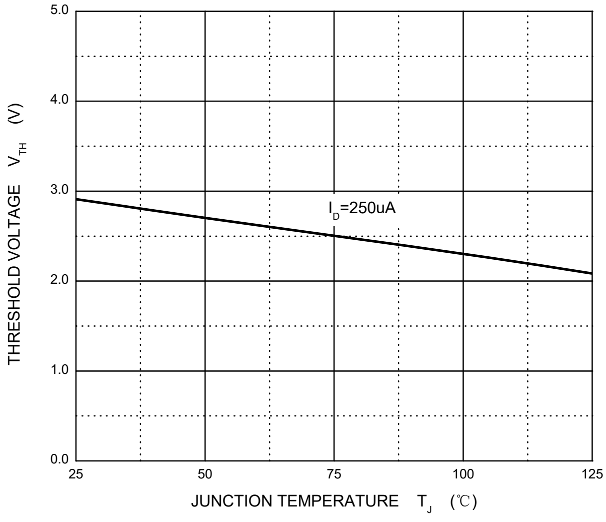

Output Characteristics


Transfer Characteristics

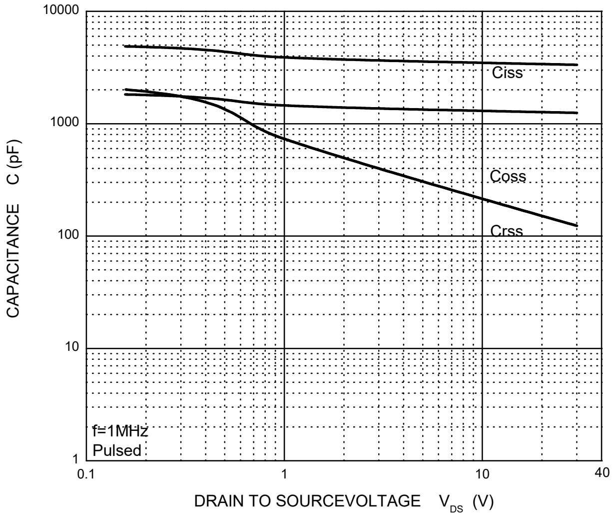

$R_{DS(ON)}$ —— I_D

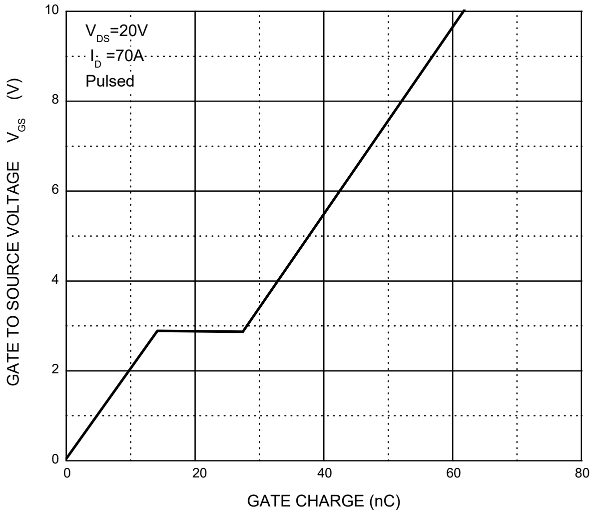

$R_{DS(ON)}$ —— V_{GS}

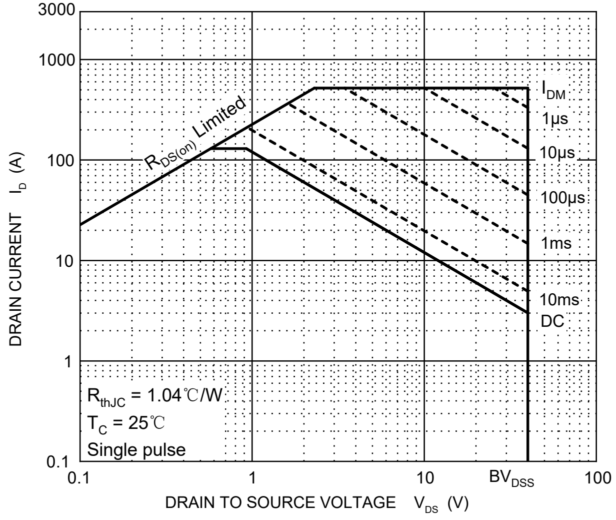

I_S —— V_{SD}

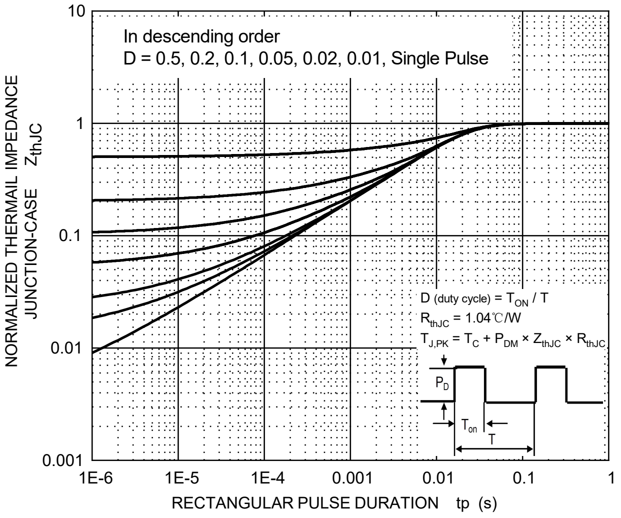

Threshold Voltage

Typical Characteristics

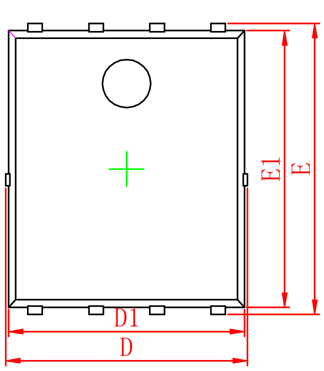

Capacitances


Gate Charge

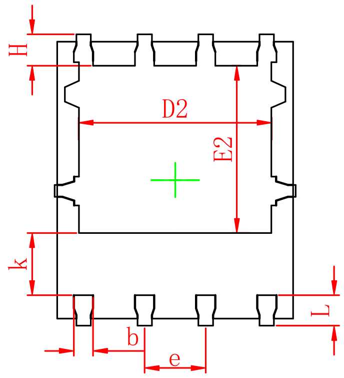

Maximum Safe Operating Area


Transient Thermal Impedance, Junction-Case

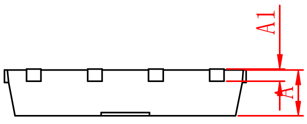
PDFNWB5×6-8L PACKAGE OUTLINE DIMENSIONS



Top View
[顶视图]



Bottom View
[背视图]

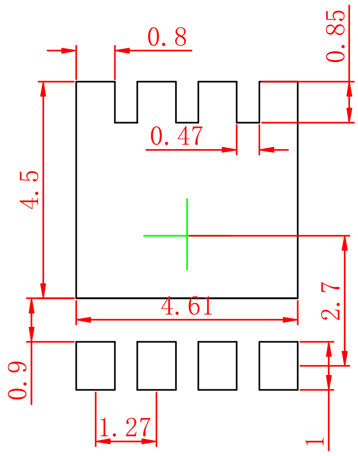


Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.10	0.035	0.043
A1	0.25 REF.		0.010 REF.	
D	4.90	5.10	0.193	0.201
D1	4.80	5.00	0.189	0.197
D2	3.90	4.10	0.154	0.161
E	5.90	6.10	0.232	0.240
E1	5.65	5.85	0.222	0.230
E2	3.35	3.65	0.132	0.144
k	1.20	1.50	0.047	0.059
b	0.20	0.45	0.008	0.018
e	1.27 BSC		0.050 BSC	
L	0.55	0.75	0.022	0.030
H	0.45	0.75	0.018	0.030

Notes：
1 Dimensions exclusive of mold gate burrs。
2 Dimensions exclusive of mold flash and cutting burrs。

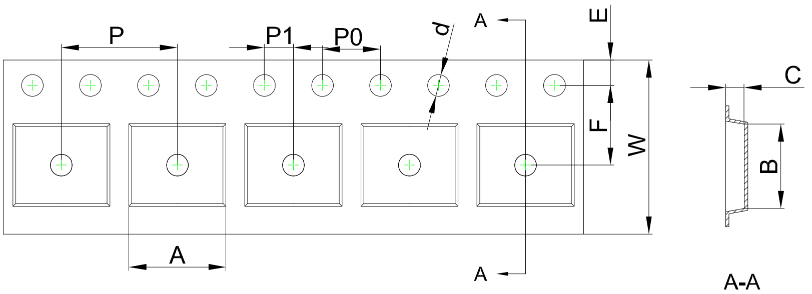
PDFNWB5×6-8L Suggested Pad Layout



Notes：
1 Controlling dimension：in millimeters。
2 General tolerance:±0.05mm.
3 The pad layout is for referance purpose only。

PDFNWB5×6-8L Tape and Reel

PDFNWB5×6-8L Embossed Carrier Tape

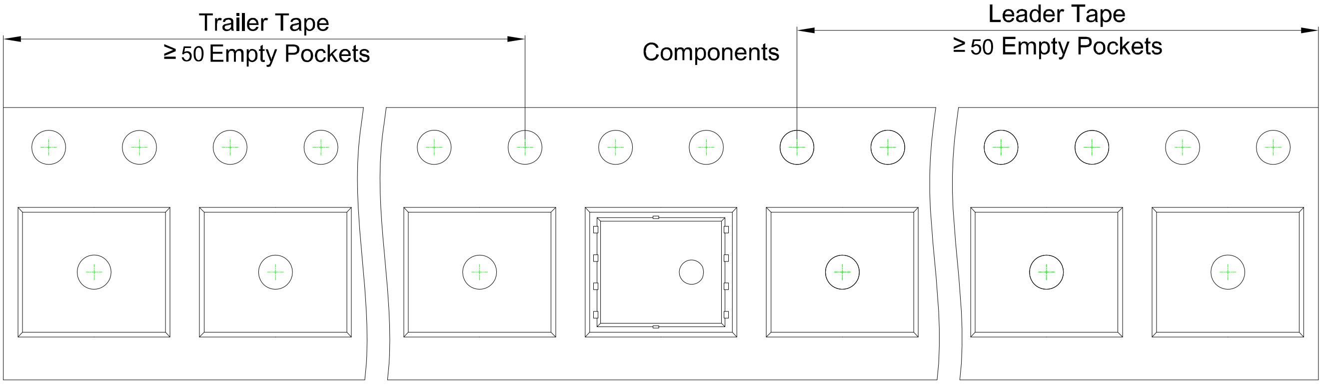


Packaging Description:

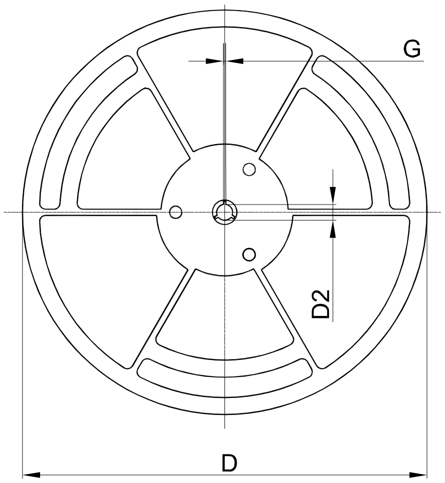
PDFNWB5×6-8L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 5,000 units per 13" or 33.0 cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

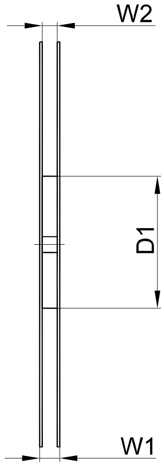
Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
PDFNWB5×6-8L	6.30	5.30	1.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

PDFNWB5×6-8L Tape Leader and Trailer



PDFNWB5×6-8L Reel





Dimensions are in millimeter						
Reel Option	**D**	**D1**	**D2**	**G**	**W1**	**W2**
13" Dia	φ330.00	100.00	13.00	1.90	17.60	12.40

Reel	**Reel Size**	**Box**	**Box Size (mm)**	**Carton**	**Carton Size (mm)**
5,000 pcs	13 inch	10,000 pcs	360×360×65	50,000 pcs	378×358×382