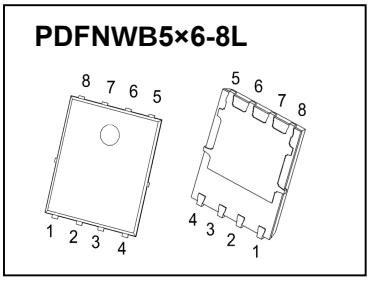
SZCJ

Shenzhen Changji Semiconductor Co., LTD.

PDFNWB5×6-8L Plastic-Encapsulate MOSFETS

CJAC90N04 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
40V	4.1mΩ@10V	90A
	5.6mΩ@4.5V	



DESCRIPTION

The CJAC90N04 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

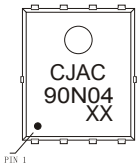
FEATURES

- Battery switch
- Load switch
- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Special process technology for high ESD capability

APPLICATIONS

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

MARKING

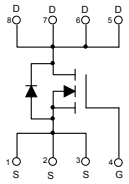


CJAC90N04 = Part No.

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	V
Continuous Drain Current	I_D ①	90	A
Pulsed Drain Current	I_{DM} ②	360	A
Single Pulsed Avalanche Energy	E_{AS} ③	110	mJ
Power Dissipation	P_D ①	85	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$ ⑥	62.5	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$ ①	1.47	℃/W
Operating Junction and Storage Temperature Range	T_J ,T_{stg}	-55~+150	℃

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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} =32V, V_{GS} =0V, T_J =25℃			1	μA
		V_{DS} =32V, V_{GS} =0V, T_J =125℃			10	
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
On characteristics ④						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.7	2.5	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		4.1	5.5	mΩ
		V_{GS} =4.5V, I_D =10A		5.6	7.0	mΩ
Forward transconductance	g_{Fs}	V_{DS} =10V, I_D =10A		17		S
Dynamic characteristics ④⑤						
Input capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V, f =1MHz		2630	5260	pF
Output capacitance	C_{oss}			213	426	
Reverse transfer capacitance	C_{rss}			180	360	
Gate resistance	R_g	f =1MHz		2.0		Ω
Switching characteristics ④⑤						
Total gate charge	Q_g	V_{GS}=4.5V, V_{DS}=32V, I_D=10A		25.5	52	nC
Gate-source charge	Q_{gs}			6.0	12	
Gate-drain charge	Q_{gd}			12.8	25	
Turn-on delay time	$t_{d(on)}$	V_{DS}=20V,I_D=1A , V_{GS}=10V,R_G=3.3Ω		15	30	ns
Turn-on rise time	t_r			19	38	
Turn-off delay time	$t_{d(off)}$			39	78	
Turn-off fall time	t_f			14	28	
Drain-Source Diode Characteristics						
Drain-source diode forward voltage	V_{SD} ④	V_{GS} =0V, I_S=10A			1.0	V
Continuous drain-source diode forward current	I_S ①				90	A
Pulsed drain-source diode forward current	I_{SM} ②				360	A

Notes:

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

2.P_W≤10μs, Duty cycle≤1%.

3.EAS condition: V_{DD}=20V,V_{GS}=10V, L=0.1mH, R_g=25Ω Starting T_J = 25°℃.

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

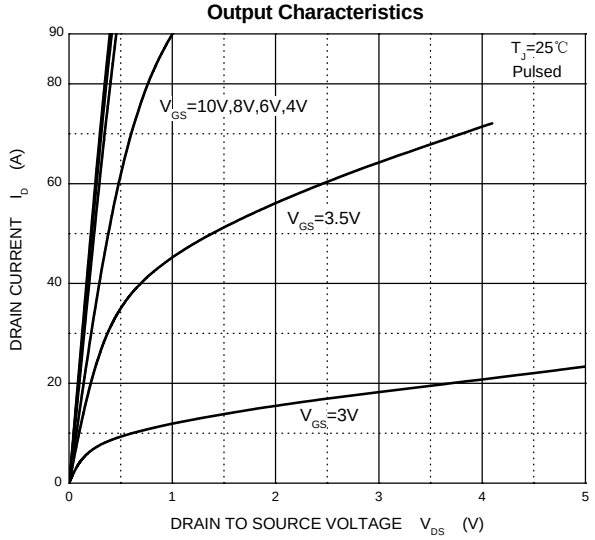
5.Guaranteed by design, not subject to production.

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℃.

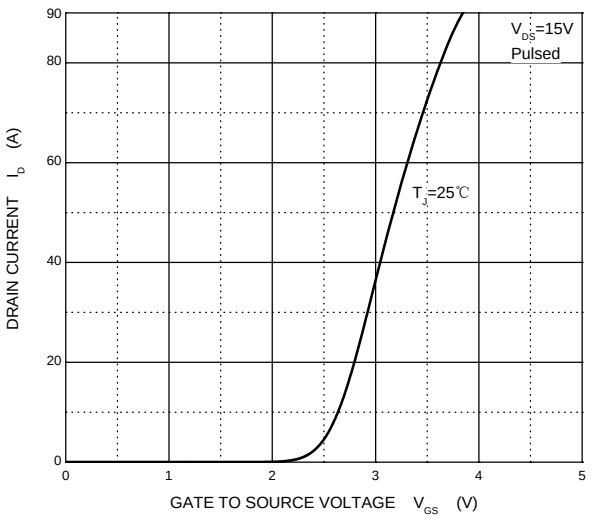
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Typical Characteristics

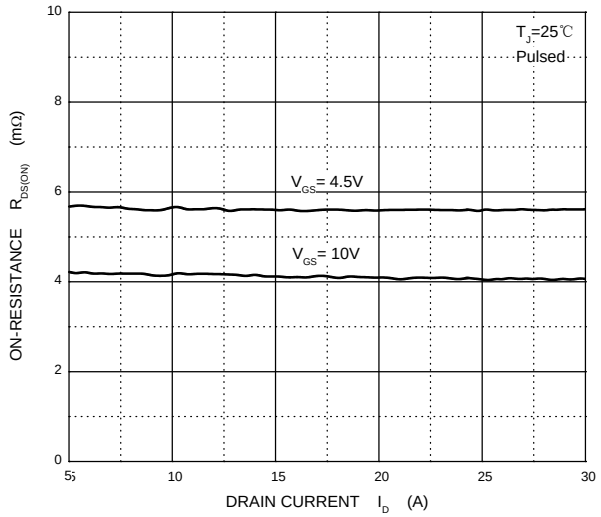
Output Characteristics



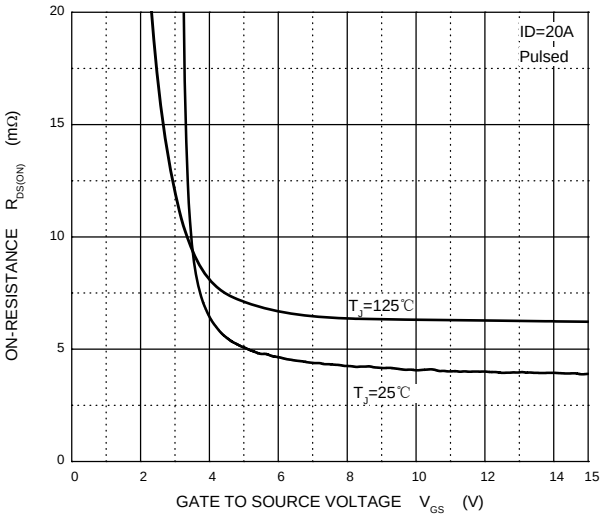
Transfer Characteristics



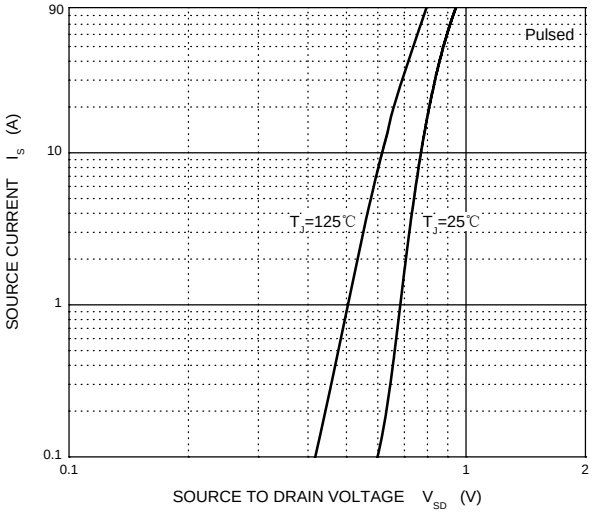
$R_{DS(ON)}$ —— I_D



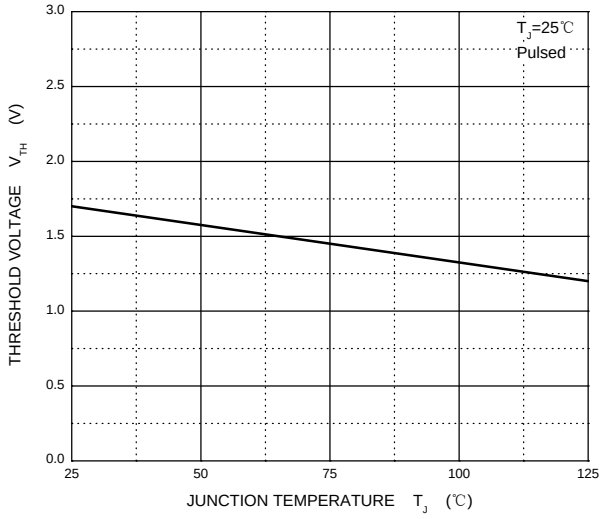
$R_{DS(ON)}$—— V_{GS}



I_S —— V_{SD}

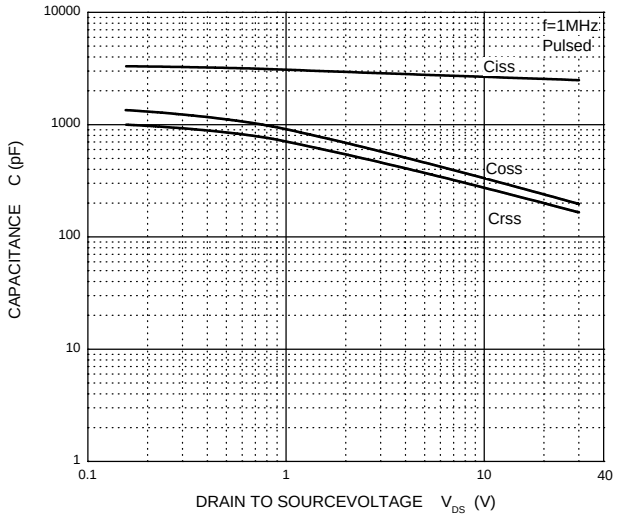


Threshold Voltage

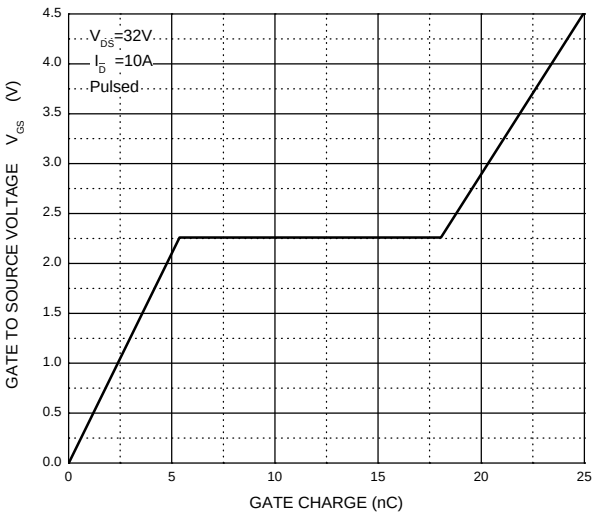


Typical Characteristics

Capacitances

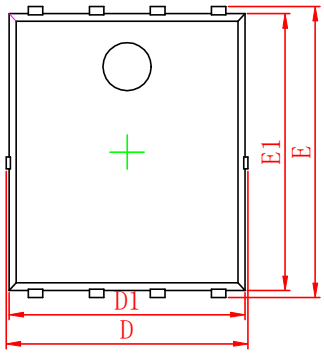


Gate Charge

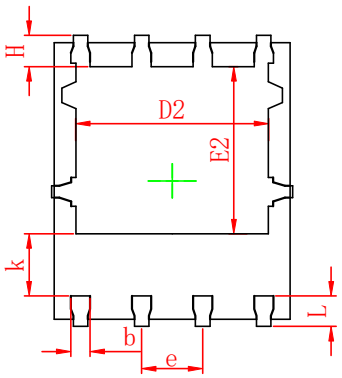


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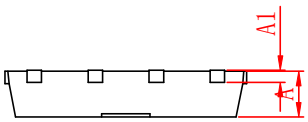
PDFNWB5×6-8L PACKAGE OUTLINE DIMENSIONS



Top View
[顶视图]



Bottom View
[背视图]

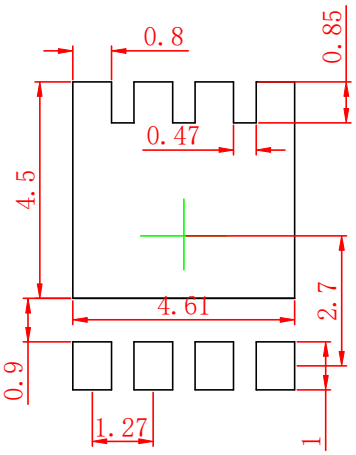


Side View
[侧视图]

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.	
D4.90		5.10	0.193 0.201	
D14.80		5.00	0.189 0.197	
D23.90		4.10	0.154 0.161	
E	5.90	6.10	0.232	0.240
E15.65		5.85	0.222 0.230	
E23.35		3.65	0.132 0.144	
k1.20		1.50	0.047 0.059	
b0.20		0.45	0.008 0.018	
e	1.27 BSC		0.050 BSC	
L0.55		0.75	0.022 0.030	
H0.45		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.

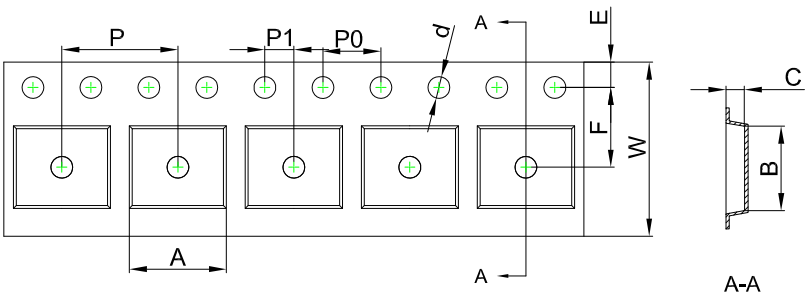
NOTICE

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PDFNWB5×6-8L Tape and Reel

PDFNWB5×6-8L Embossed Carrier Tape

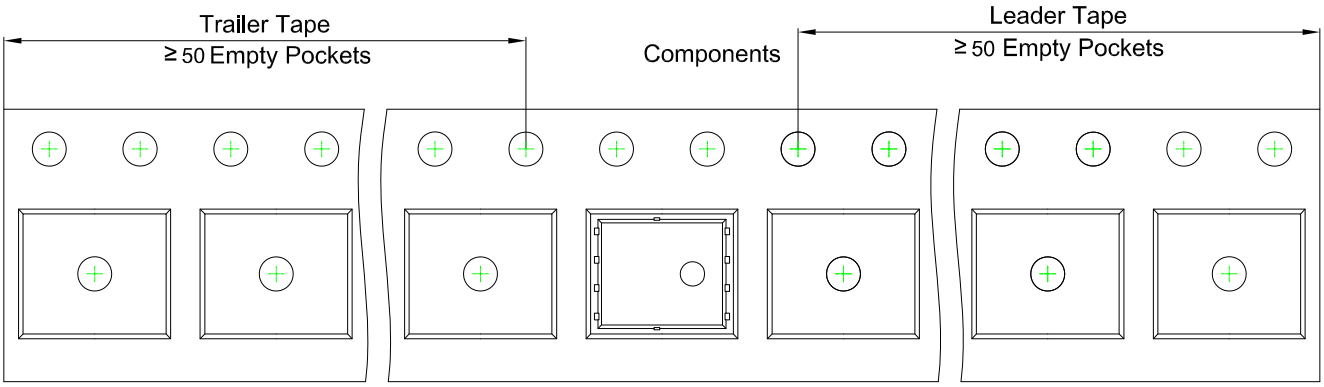


Packaging Description:

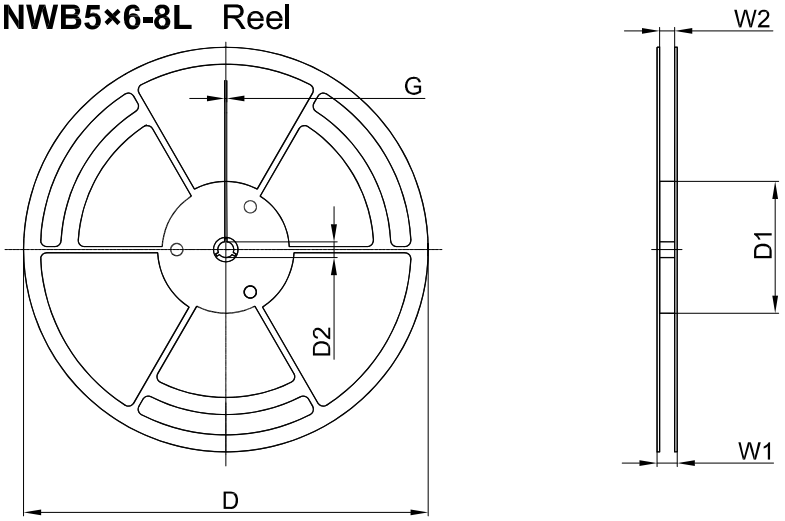
PDFNWB5×6-8L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts 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

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