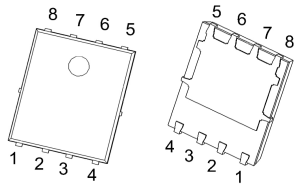
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD

PDFNWB5×6-8L Plastic-Encapsulate MOSFETS

CJAC50P03 P-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
-30V	7mΩ@-10V	-50A

PDFNWB5×6-8L



DESCRIPTION

The CJAC50P03 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 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

- Battery and loading switching

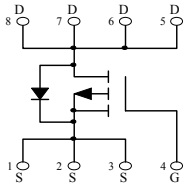
MARKING

CJAC50P03 = Part No.

Solid dot=Pin1 indicator

XXX=Date Code

EQUIVALENT CIRCUIT



MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D(1)	-50	A
Pulsed Drain Current	I_{DM}	-200	A
Single Pulsed Avalanche Energy	E_{AS}(2)	300	mJ
Power Dissipation	P_D	2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$(1)	62.5	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 ~+150	℃
Lead Temperature for Soldering Purposes(1/8'' from case for 10s)	T_L	260	℃

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

(2).E_{AS} condition: V_{DD}=15V,L=0.5mH, R_G=25Ω, Starting T_J = 25°C

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

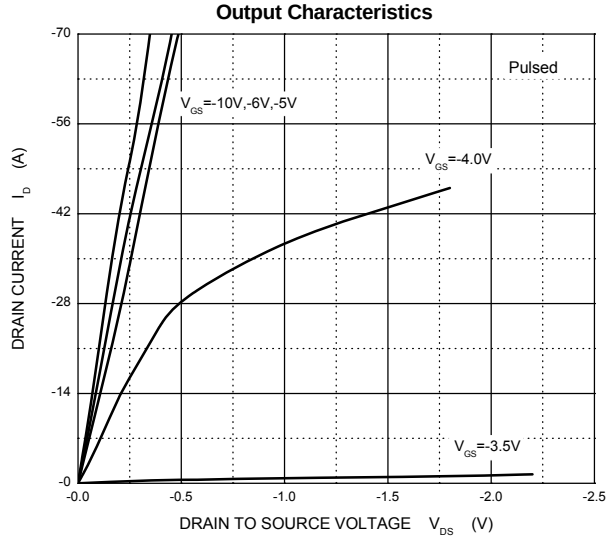
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-30V, V_{GS} =0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
On characteristics (note1)						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.0	-1.5	-2.5	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-10A		4.4	7	mΩ
Forward transconductance	g_{Fs}	V_{DS} =-10V, I_D =-15A		20		S
Dynamic characteristics (note 2)						
Input capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V, f =1MHz		3590		pF
Output capacitance	C_{oss}			695		
Reverse transfer capacitance	C_{rss}			665		
Switching characteristics (note 2)						
Total gate charge	Q_g	V_{DS}=-15V, V_{GS}=-10V, I_D=-10A		84		nC
Gate-source charge	Q_{gs}			11.7		
Gate-drain charge	Q_{gd}			25		
Turn-on delay time	$t_{d(on)}$	V_{DD}=-15V,I_D=-10A, V_{GS}=-10V,R_G=6Ω		13		ns
Turn-on rise time	t_r			12		
Turn-off delay time	$t_{d(off)}$			50		
Turn-off fall time	t_f			14		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage**(note1)**	V_{SD}	V_{GS} =0V, I_S=-10A		-0.85	-1.2	V
Continuous drain-source diode forward current**(note3)**	I_S				-50	A
Pulsed drain-source diode forward current	I_{SM}				-70	A
Reverse Recovery Time	t_{rr}	T_J=25℃,I_F=-10A di/dt=100A/μs(Note1)			45	ns
Reverse Recovery Charge	Q_{rr}				43	nC

Notes:

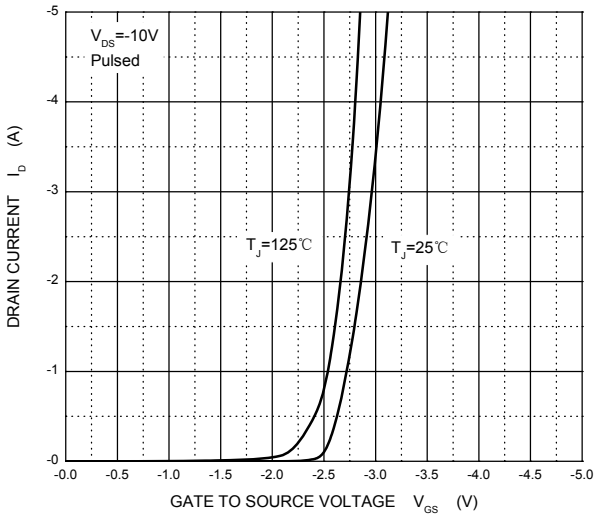
1. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
2. Guaranteed by design, not subject to production.
3. Surface Mounted on FR4 Board, t ≤ 10 sec.

Typical Characteristics

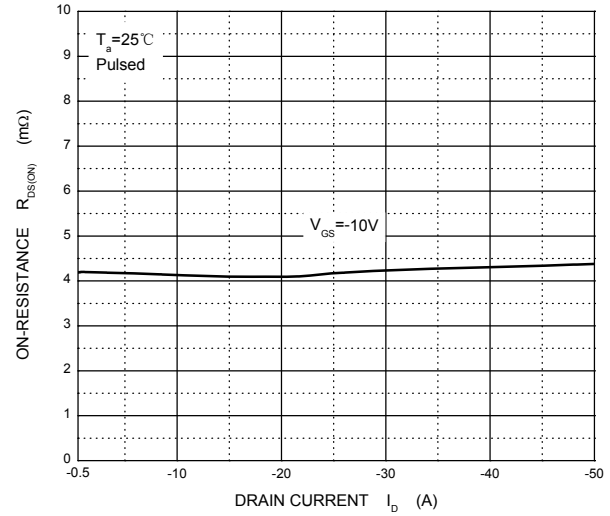
Output Characteristics



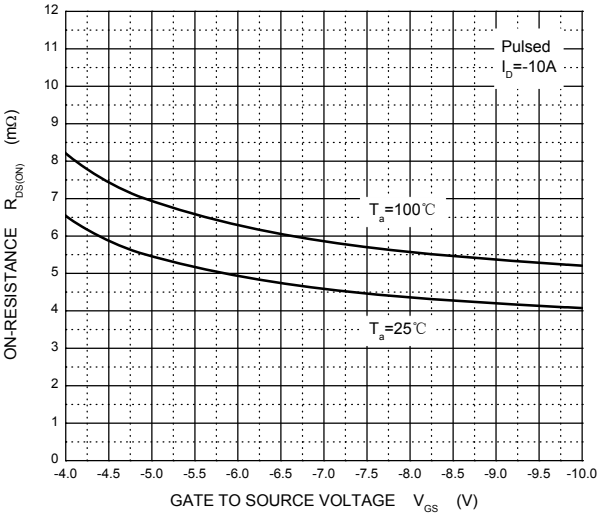
Transfer Characteristics



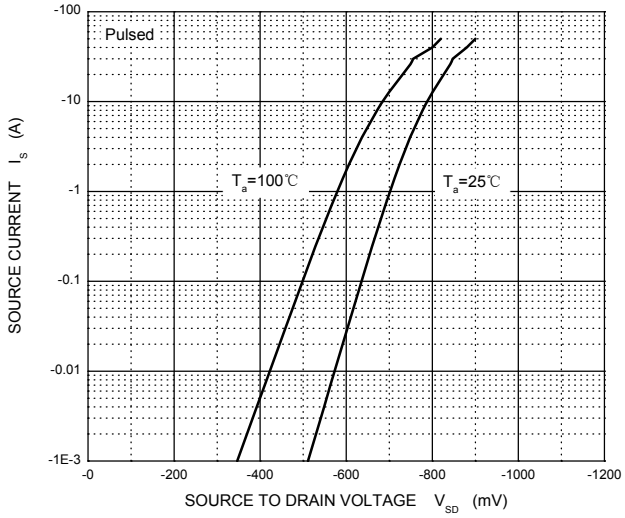
$R_{DS(ON)}$ —— I_D



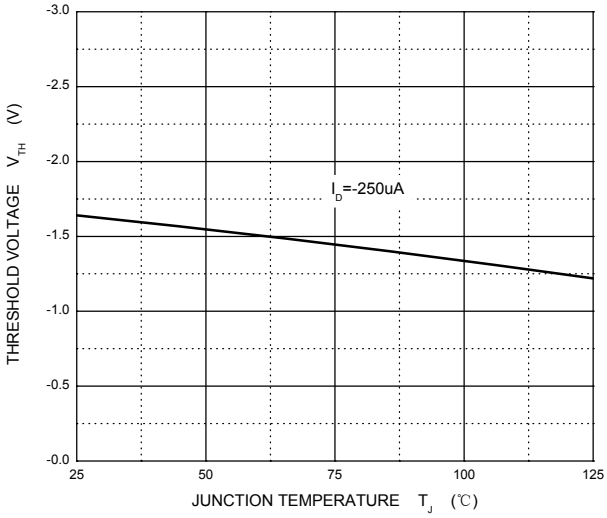
$R_{DS(ON)}$—— V_{GS}



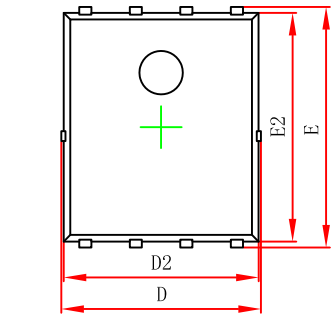
I_S —— V_{SD}



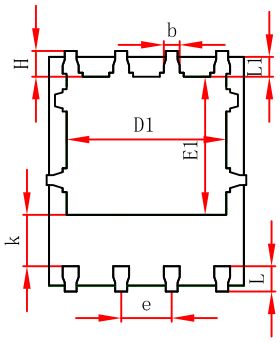
Threshold Voltage



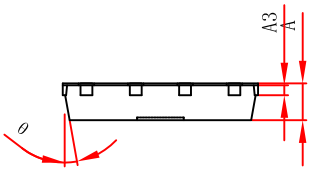
PDFNWB5x6-8L Package Outline Dimensions



Top View
[顶视图]



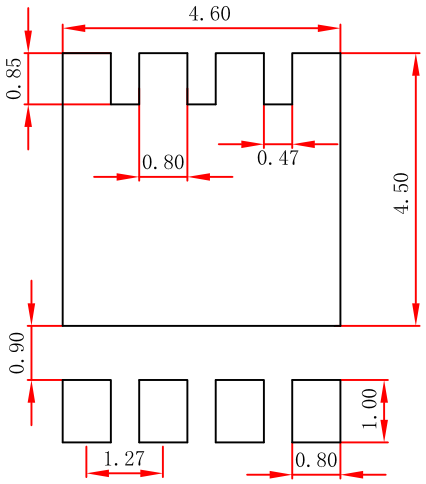
Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

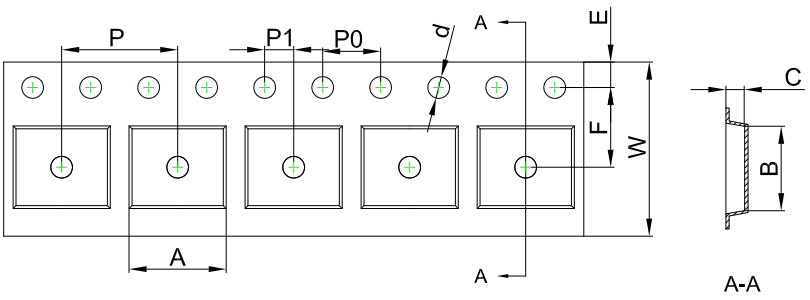
PDFNWB5x6-8L Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

PDFNWB5×6 Tape and Reel

PDFNWB5×6-8L Embossed Carrier Tape

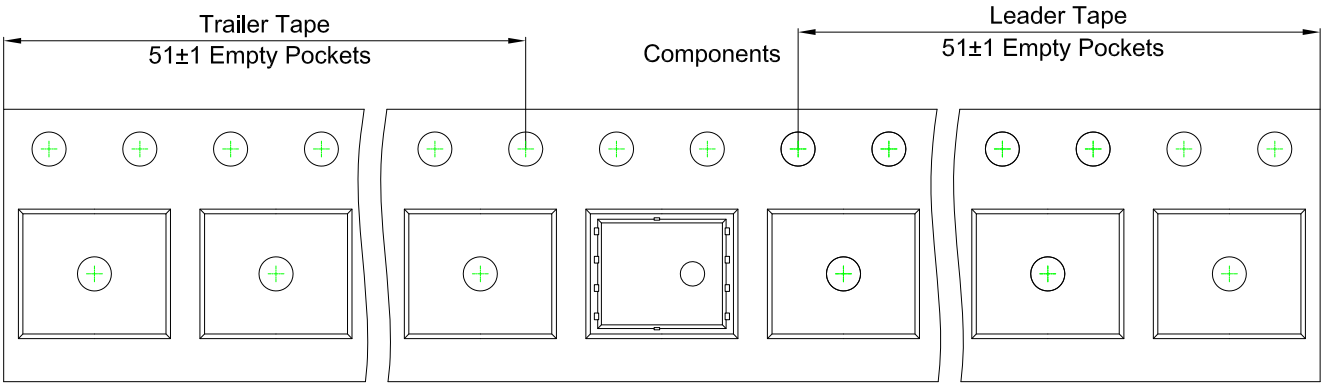


Packaging Description:

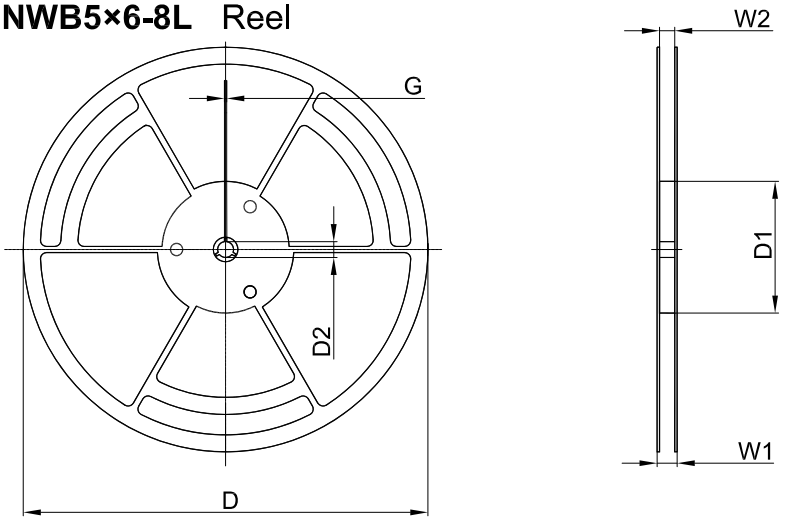
PDFNWB5×6-8L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts 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	Ø330.00	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	5,000 pcs	340×336×29	50,000 pcs	353×346×365

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