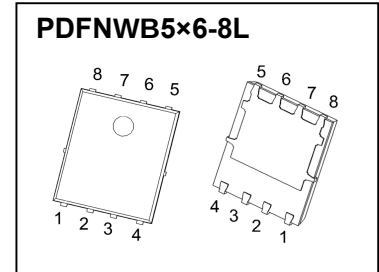




CJAC20N10 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	26mΩ@10V	20A
	29mΩ@4.5V	



DESCRIPTION

This advanced high voltage MOSFET is designed to stand high energy in the avalanche mode and switch efficiently. This new high energy device also offers a drain-to-source diode fast recovery time. Designed for high voltage, high speed switching applications such as power supplies, converters, power motor controls and bridge circuits.

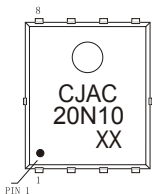
FEATURES

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

APPLICATIONS

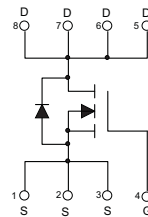
- Hard switched and high frequency circuits
- Uninterruptible power supply
- Power switching application

MARKING



CJAC20N10 = Part No.
Solid dot = Pin1 indicator.
XX = Code.

EQUIVALENT CIRCUIT



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	$I_D^{①}$	20	A
Pulsed Drain Current	$I_{DM}^{②}$	80	A
Single Pulsed Avalanche Energy	$E_{AS}^{③}$	100	mJ
Maximum Power Dissipation	$P_D^{①}$	58	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}^{⑥}$	62.5	$^{\circ}\text{C}/\text{W}$
Thermal Resistance from Junction to Case	$R_{\theta JC}^{①}$	2.15	$^{\circ}\text{C}/\text{W}$
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	$^{\circ}\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS

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

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Off characteristics							
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$		100			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 80V,$	$T_J = 25^{\circ}C$			1.0	μA
		$V_{GS} = 0V$	$T_J = 125^{\circ}C$			100	
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$				± 100	nA
On characteristics ^④							
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$		1.3	1.8	2.5	V
Static drain-source on-sate resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 15A$			26	31	m Ω
		$V_{GS} = 4.5V, I_D = 15A$			29	40	m Ω
Forward transconductance	g_{fs}	$V_{DS} = 5V, I_D = 10A$			15		S
Dynamic characteristics ^{④ ⑤}							
Input capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V,$ $f = 1MHz$			2540	5080	pF
Output capacitance	C_{oss}				116	232	
Reverse transfer capacitance	C_{rss}				100	200	
Gate resistance	R_g	$f = 1MHz$			2.4		Ω
Switching characteristics ^{④ ⑤}							
Total gate charge	Q_g	$V_{GS} = 10V,$ $V_{DS} = 50V, I_D = 10A$			60	120	nC
Gate-source charge	Q_{gs}				6	12	
Gate-drain charge	Q_{gd}				13	26	
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 30V, R_L = 5\Omega,$ $V_{GS} = 10V, R_G = 3\Omega,$ $I_D = 2A$			7	14	ns
Turn-on rise time	t_r				7	14	
Turn-off delay time	$t_{d(off)}$				29	58	
Turn-off fall time	t_f				7	14	
Drain-Source Diode Characteristics							
Drain-source diode forward voltage	V_{SD} ^④	$V_{GS} = 0V, I_S = 15A$				1.2	V
Continuous drain-source diode forward current	I_S ^①					20	A
Pulsed drain-source diode forward current	I_{SM} ^②					80	A

Notes:

1. $T_C = 25^{\circ}\text{C}$ Limited only by maximum temperature allowed.

2. $P_W \leq 10\mu s$, Duty cycle $\leq 1\%$.

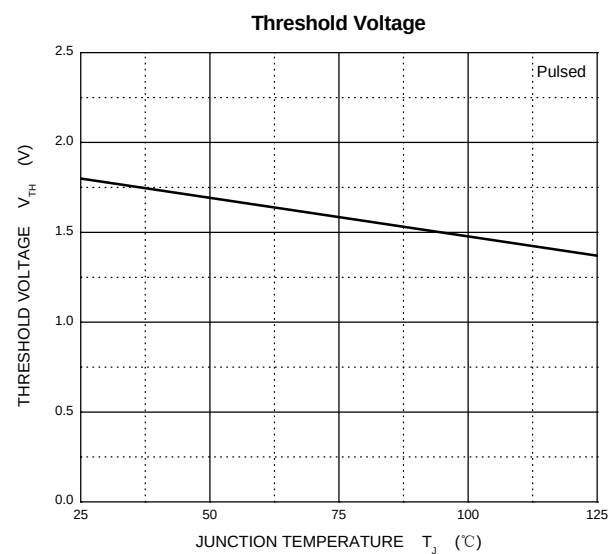
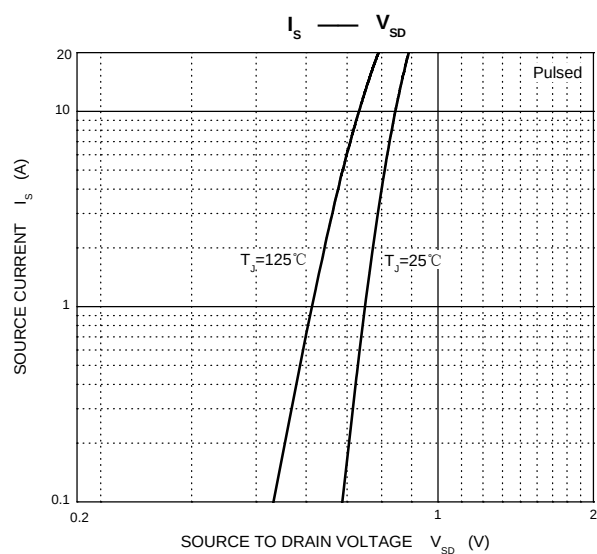
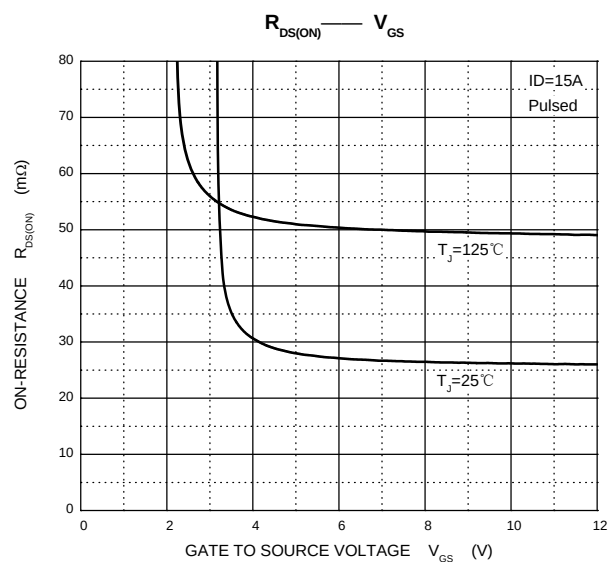
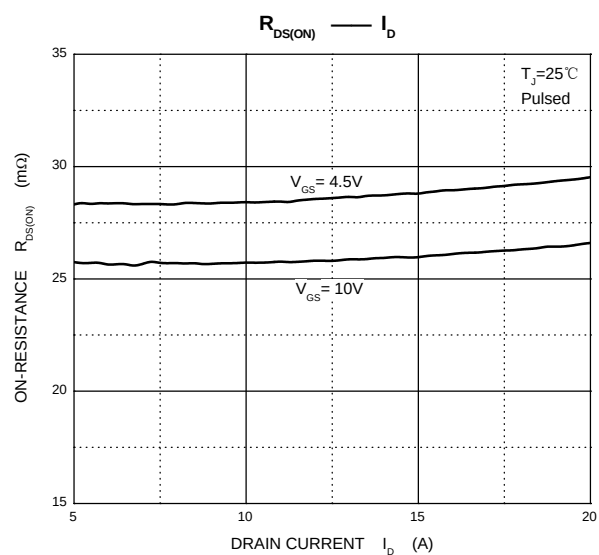
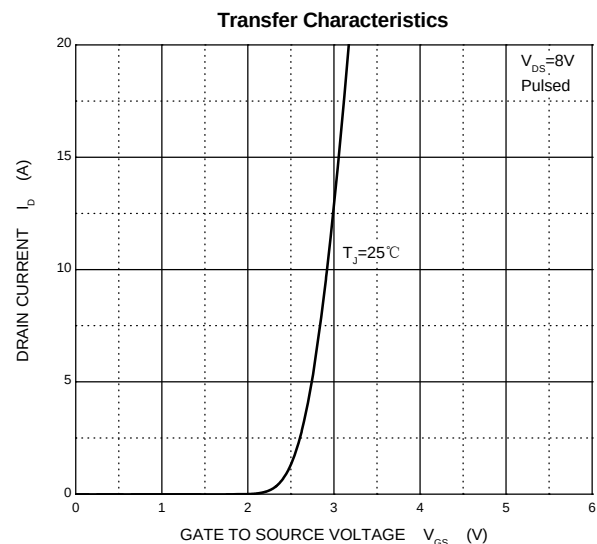
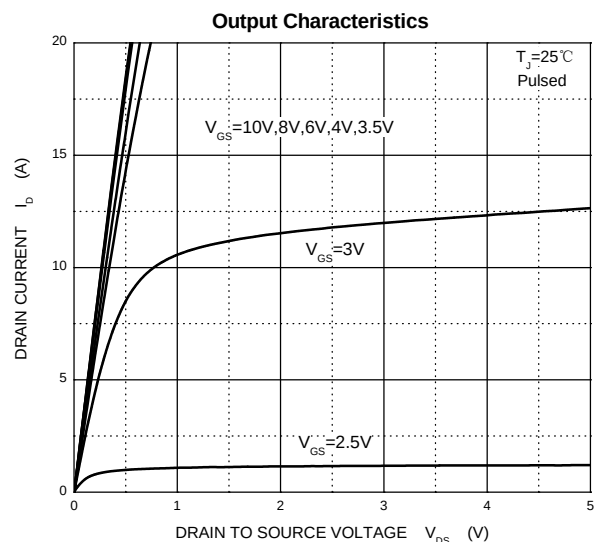
3. EAS condition: $V_{DD} = 50V, V_{GS} = 10V, L = 0.5mH, R_g = 25\Omega$ Starting $T_J = 25^{\circ}\text{C}$.

4. Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.

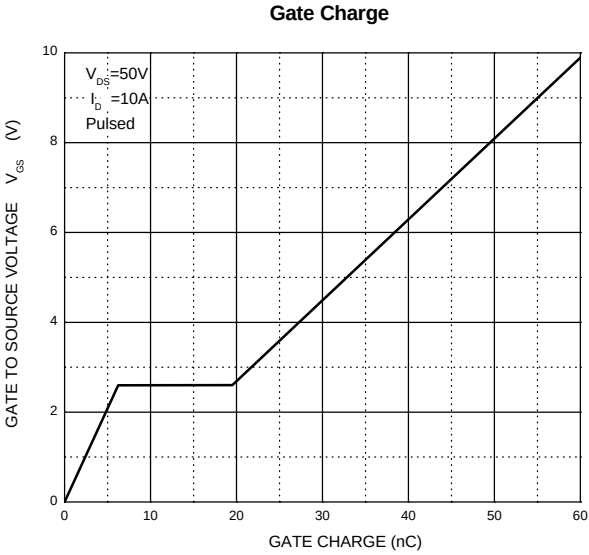
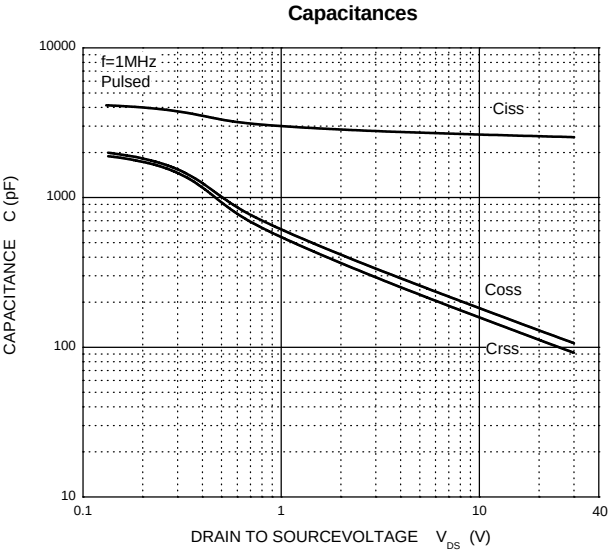
5. Guaranteed by design, not subject to production.

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 $T_a = 25^{\circ}\text{C}$.

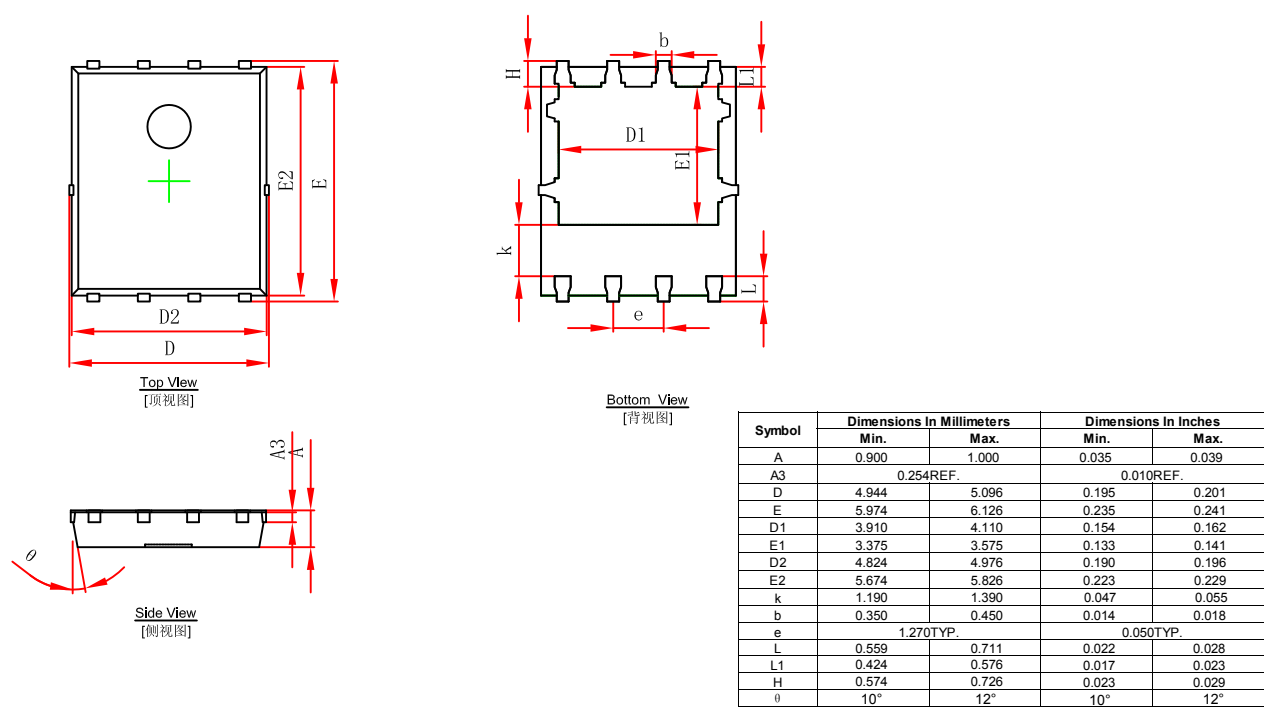
Typical Characteristics



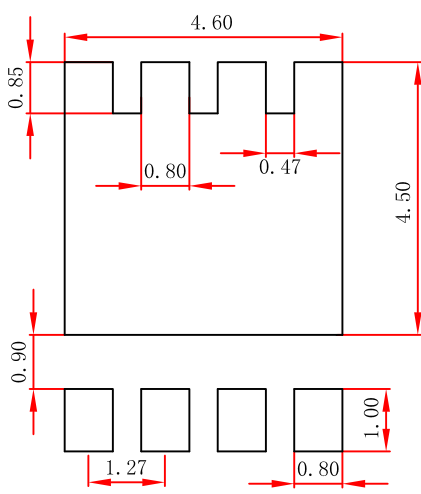
Typical Characteristics



PDFNWB5x6-8L Package Outline Dimensions



PDFNWB5x6-8L Suggested Pad Layout



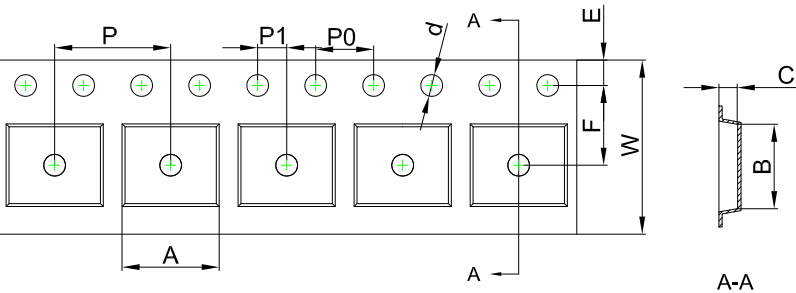
Note:
1.Controlling dimension;in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

NOTICE

JCET reserve the right to make modifications,enhancements, improvements, corrections or other changes without further notice to any product herein.JCET does not assume any liability arising out of the application or use of any product described herein.

PDFNWB5×6 Tape and Reel

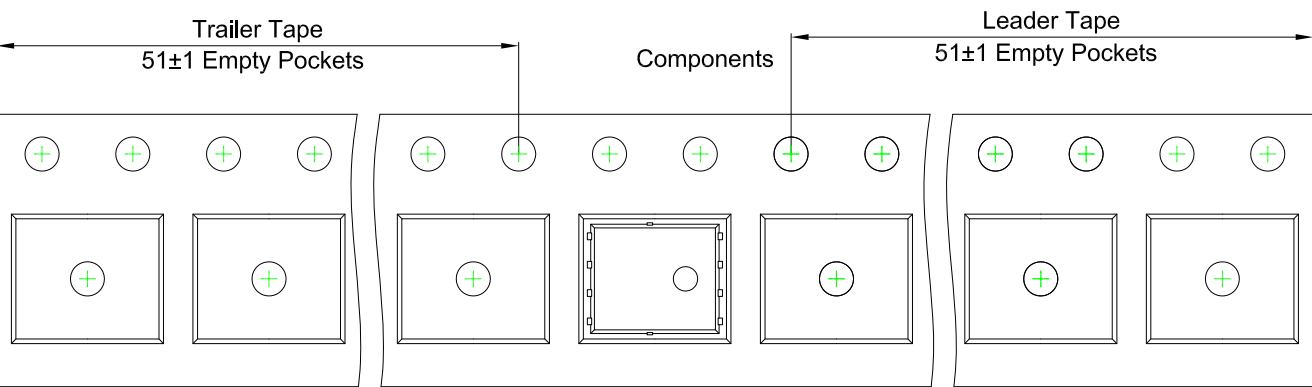
PDFNWB5×6-8L Embossed Carrier Tape



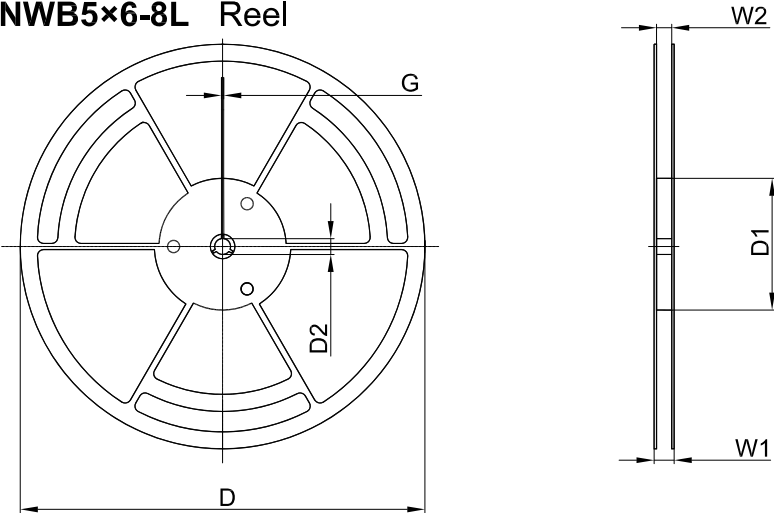
Packaging Description:
PDFNWB5×6-8L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed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