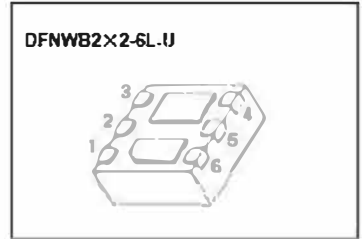


# DFNWB2X2-6L-U Plastic-Encapsulate MOSFETS

## CJM7201 N-Channel +P-Channel MOSFET

$V_{\text{BR}(\text{DSS})}$	$R_{\text{DS}(\text{on})\text{MAX}}$	$I_{\text{D}}$
60V	7Ω@10V	0.115A
	7Ω@5V	
-20V	112mΩ@-4.5V	-2.3A
	142mΩ@-2.5V	



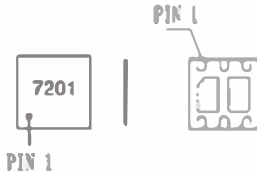
### FEATURE

- Surface Mount Package
- TrenchFET Power MOSFET
- High Density Cell Design for Low  $R_{\text{DS}(\text{on})}$
- Voltage Controlled Small Signal Switch
- Rugged and Reliable
- High Saturation Current Capability

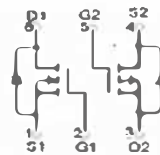
### APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

### MARKING



### Equivalent Circuit



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

Parameter	Symbol	Value	Unit
<b>N-MOSFET</b>			
Drain-Source Voltage	$V_{\text{DS}}$	60	V
Gate-Source Voltage	$V_{\text{GS}}$	±20	V
Continuous Drain Current (note 1)	$I_{\text{D}}$	0.115	A
Pulsed Drain Current ( $t_p=10\mu\text{s}$ )	$I_{\text{DM}}$	0.46	A
<b>P-MOSFET</b>			
Drain-Source Voltage	$V_{\text{DS}}$	-20	V
Gate-Source Voltage	$V_{\text{GS}}$	±8	V
Continuous Drain Current (note 1)	$I_{\text{D}}$	-2.3	A
Pulsed Drain Current ( $t_p=10\mu\text{s}$ )	$I_{\text{DM}}$	-10	A
<b>Temperature and Thermal Resistance</b>			
Thermal Resistance from Junction to Ambient (note 1)	$R_{\text{thJA}}$	167	$^\circ\text{C/W}$
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{\text{STG}}$	-55~+150	$^\circ\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	$T_L$	280	$^\circ\text{C}$

## MOSFET ELECTRICAL CHARACTERISTICS

### N-ch MOSFET ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>STATIC CHARACTERISTICS</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	80			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 80V, V_{GS} = 0V$			80	nA
Gate-body leakage current	$I_{GBS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 80$	nA
Gate threshold voltage (note 2)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1		2.5	V
Drain-source on-resistance(note 2)	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 500mA$			7	$\Omega$
		$V_{GS} = 5V, I_D = 50mA$			7	$\Omega$
Forward transconductance(note 2)	$g_{FS}$	$V_{GS} = 10V, I_D = 200mA$	80			mS
Diode forward voltage	$V_{SD}$	$I_S = 115mA, V_{GS} = 0V$	0.55		1.2	V
<b>DYNAMIC CHARACTERISTICS (note 4)</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$			50	pF
Output Capacitance	$C_{oss}$				25	pF
Reverse Transfer Capacitance	$C_{rss}$				5	pF
<b>SWITCHING CHARACTERISTICS (note 3,4)</b>						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = 10V, V_{DS} = 25V, R_L = 50\Omega$			20	ns
Turn-off delay time	$t_{d(off)}$	$I_D = 500mA, R_G = 25\Omega$			40	ns

### P-ch MOSFET ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

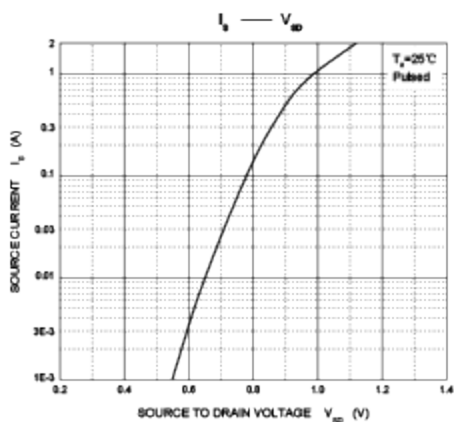
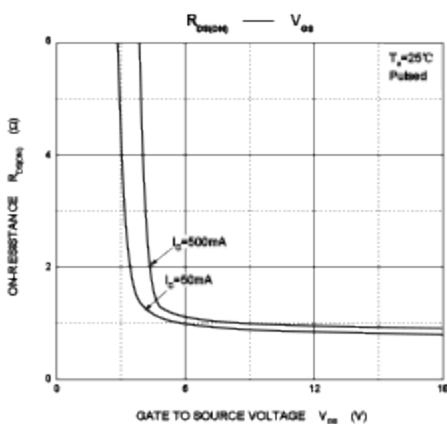
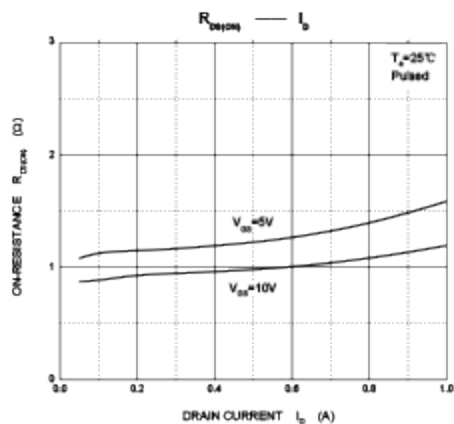
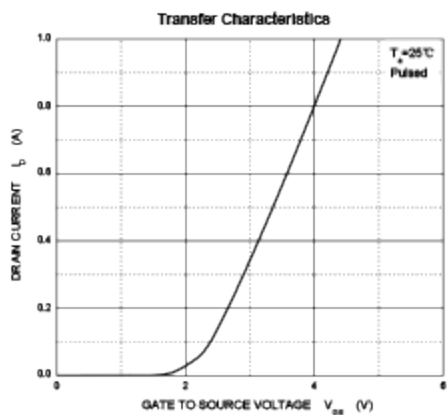
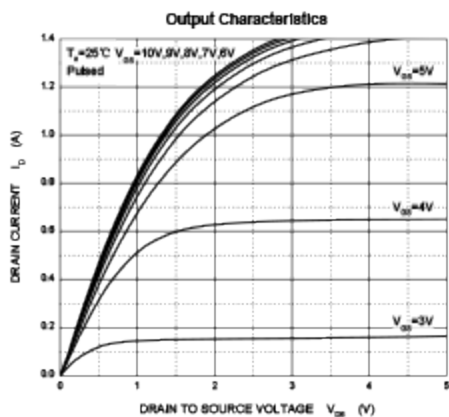
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>STATIC CHARACTERISTICS</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -20V, V_{GS} = 0V$			-1	$\mu A$
Gate-body leakage current	$I_{GBS}$	$V_{GS} = \pm 8V, V_{DS} = 0V$			$\pm 100$	nA
Gate threshold voltage (note 2)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4		-1	V
Drain-source on-resistance(note 2)	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -2.8A$		80	112	m $\Omega$
		$V_{GS} = -2.5V, I_D = -2A$		110	142	m $\Omega$
Forward transconductance(note 2)	$g_{FS}$	$V_{GS} = -5V, I_D = -2.8A$		6.5		S
Diode forward voltage	$V_{SD}$	$I_S = -0.7A, V_{GS} = 0V$		-0.8	-1.2	V
<b>DYNAMIC CHARACTERISTICS (note 4)</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$		405		pF
Output Capacitance	$C_{oss}$			75		pF
Reverse Transfer Capacitance	$C_{rss}$			55		pF
Gate resistance	$R_g$	$f = 1MHz$		6		$\Omega$
<b>SWITCHING CHARACTERISTICS (note 3,4)</b>						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = -4.5V, V_{DS} = -10V, R_L = 10\Omega$ $I_D = -1A, R_g = 1\Omega$		11	20	ns
Turn-on rise time	$t_r$			35	60	ns
Turn-off delay time	$t_{d(off)}$			30	50	ns
Turn-off fall time	$t_f$			10	20	ns
Total gate charge	$Q_g$	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -3A$			10	nC
Gate-source charge	$Q_{gs}$				6	nC
Gate-drain charge	$Q_{gd}$			0.7		nC

#### Notes :

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse width=300 $\mu s$ , duty cycles 2%.
3. Switching characteristics are independent of operating junction temperature.
4. Granted by design, not subject to producing.

## Typical Characteristics

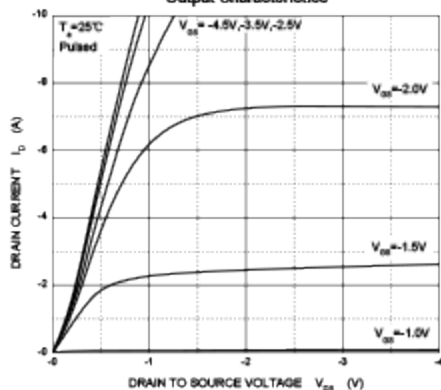
### N-Channel Characteristics



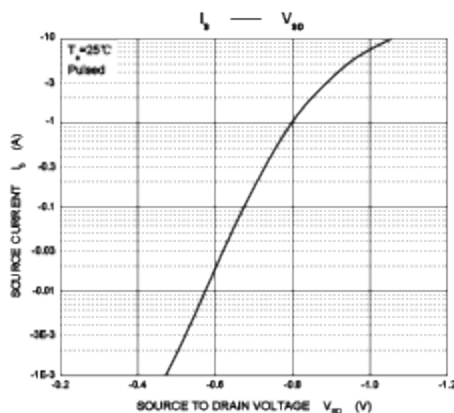
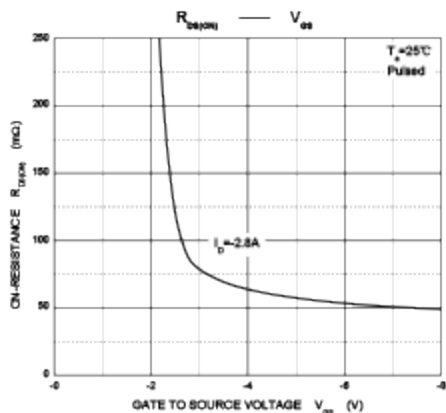
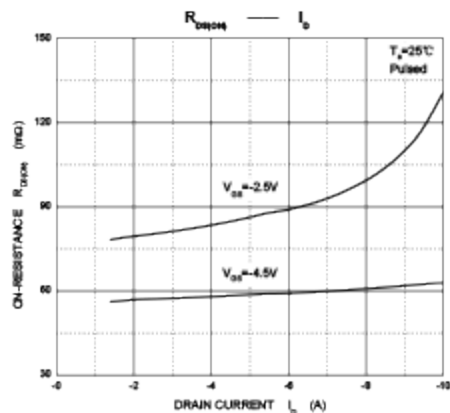
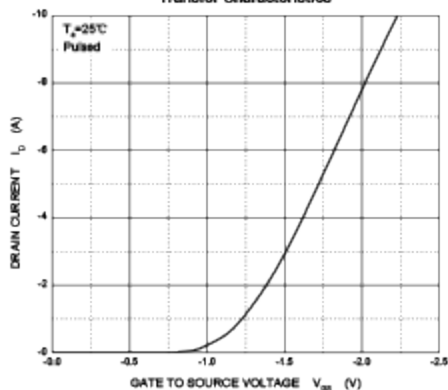
## Typical Characteristics

### P-Channel Characteristics

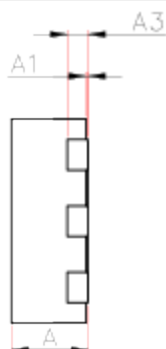
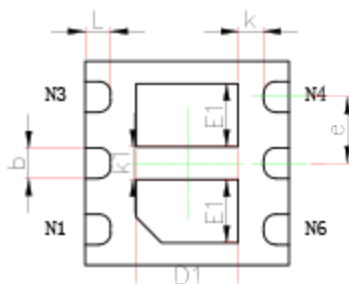
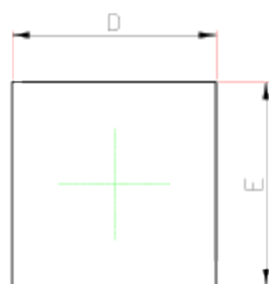
Output Characteristics



Transfer Characteristics

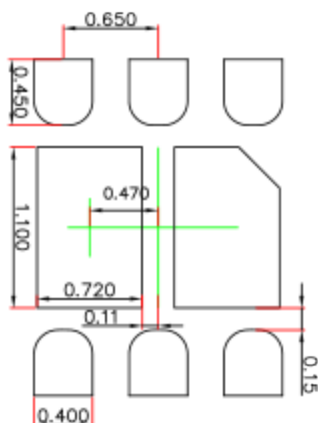


## DFNWB2×2-6L-U Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN.	MAX.	MIN.	MAX.
A	0.700	0.800	0.028	0.031
A1	0.000	0.060	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.900	2.100	0.075	0.083
E	1.900	2.100	0.075	0.083
D1	0.900	1.100	0.035	0.043
E1	0.520	0.720	0.020	0.028
b	0.250	0.350	0.010	0.014
e	0.650TYP.		0.026TYP.	
k	0.200MIN.		0.008MIN.	
k1	0.320REF.		0.013REF.	
L	0.200	0.300	0.008	0.012

## DFNWB2×2-6L-U Suggested Pad Layout



### Note:

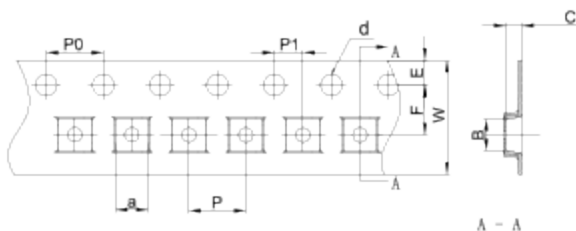
1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.050\text{mm}$ .
3. The pad layout is for reference purposes only.

### 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.

## DFNWB2X2-6L Tape and Reel

### DFNWB2×2-6L Embossed Carrier Tape



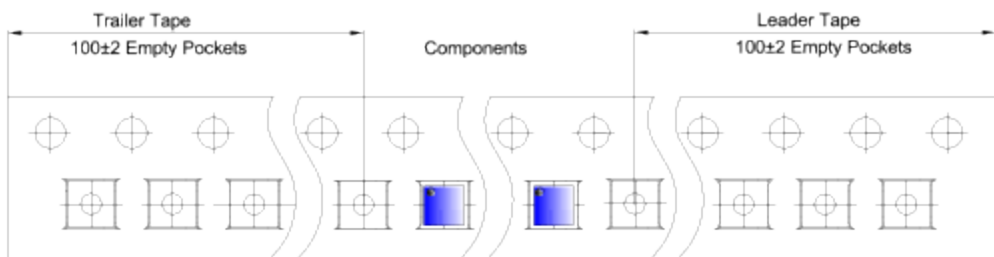
#### Packaging Description:

DFNWB2×2-6L 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 3,000 units per 7" or 18.0cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

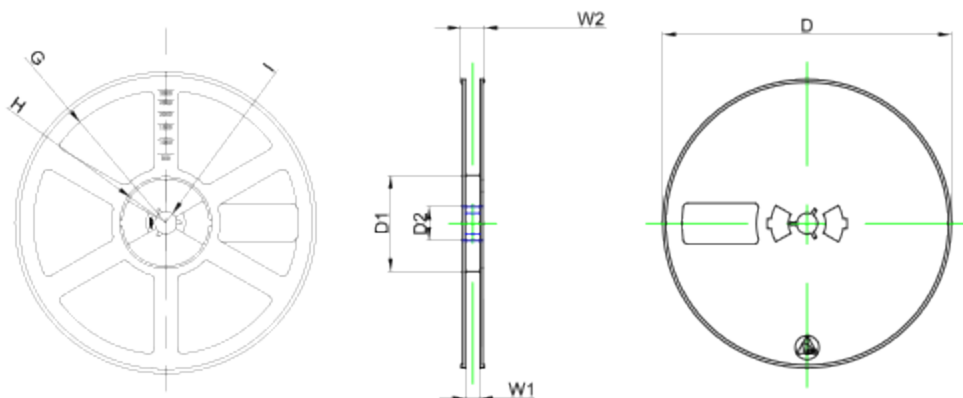
Dimensions are in millimeter

Pkg type	a	B	C	d	E	F	P0	P	P1	W
DFNWB2×2-6L	2.30	2.30	1.10	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

### DFNWB2×2-6L Tape Leader and Trailer



### DFNWB2×2-6L Reel



Dimensions are in millimeter

Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø180.00	60.00	13.00	R78.00	R25.60	R6.50	9.50	13.10

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	