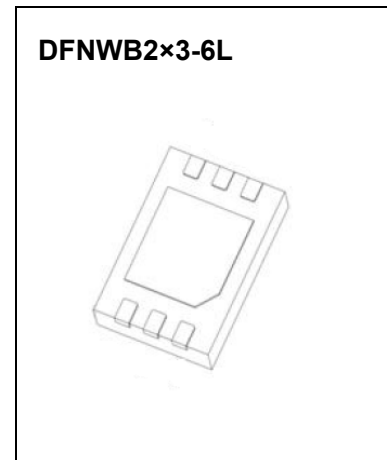




## DFNWB2×3-6L Plastic-Encapsulate MOSFETS

### CD2005 Dual N-Channel MOSFET

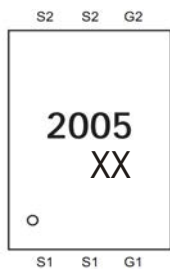
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
20V	9 mΩ@4.5V	8A
	9.5mΩ@4.0V	
	9.7mΩ@3.8V	
	10.6mΩ@3.1V	
	12.5mΩ@2.5V	



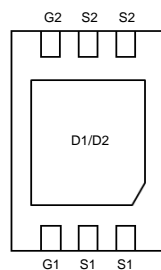
#### DESCRIPTION

The CD2005 uses advanced trench technology to provide excellent  $R_{DS(ON)}$  and low gate charge. It is ESD protected. This device is suitable for use as a uni-directional or bi-directional load switch, facilitated by its common-drain configuration.

#### MARKING:



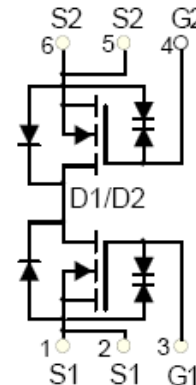
Top



Back

2005 = Part No.  
Solid dot = Pin1 indicator.  
XX = Code.

#### Equivalent Circuit



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	±12	V
Continuous Drain Current	$I_D$	8	A
Pulsed Drain Current	$I_{DM}^*$	50	A
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	83.3	$^\circ\text{C/W}$
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55~+150	$^\circ\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	$T_L$	260	$^\circ\text{C}$

# MOSFET ELECTRICAL CHARACTERISTICS

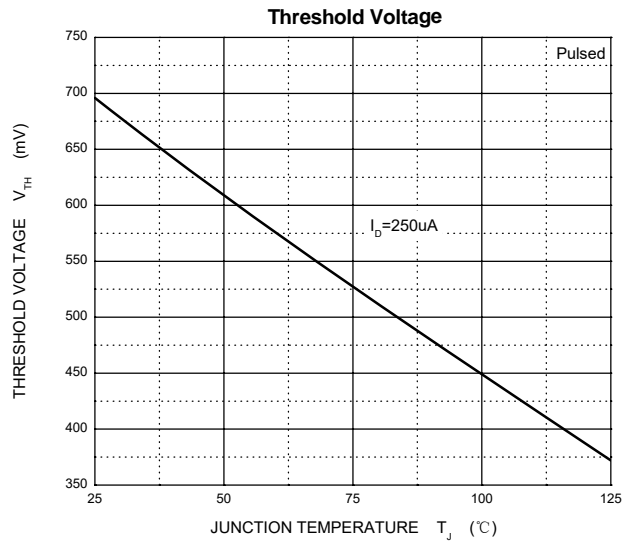
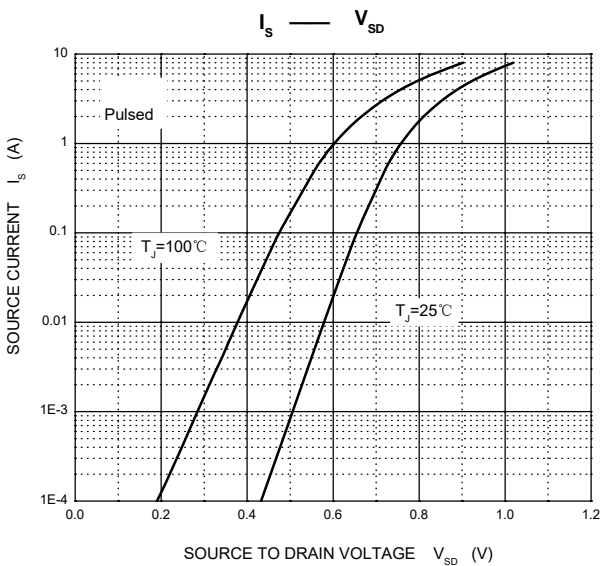
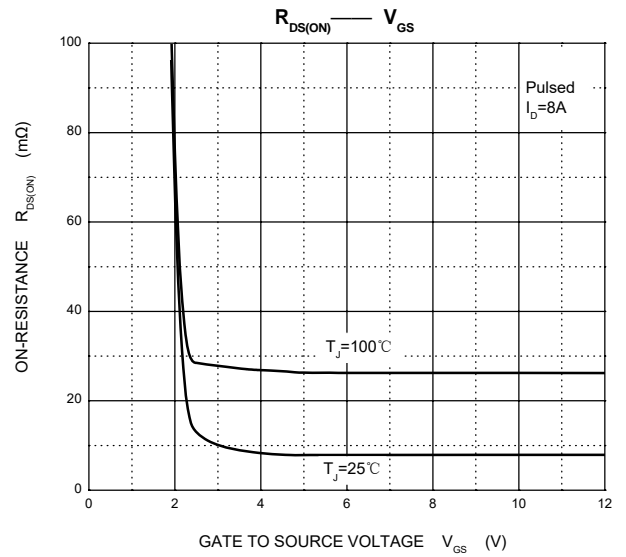
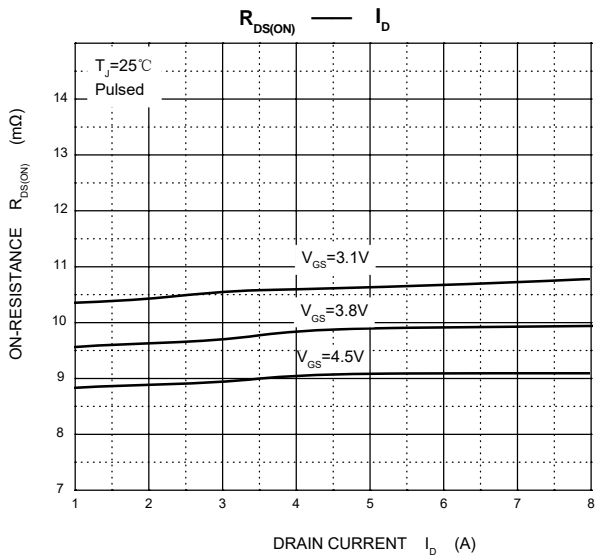
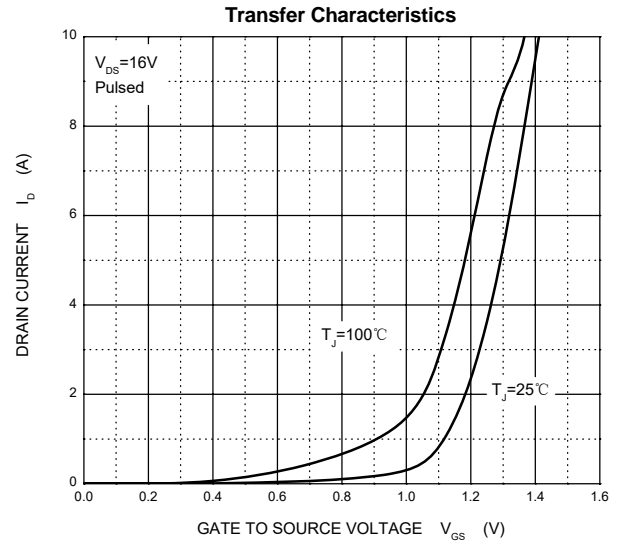
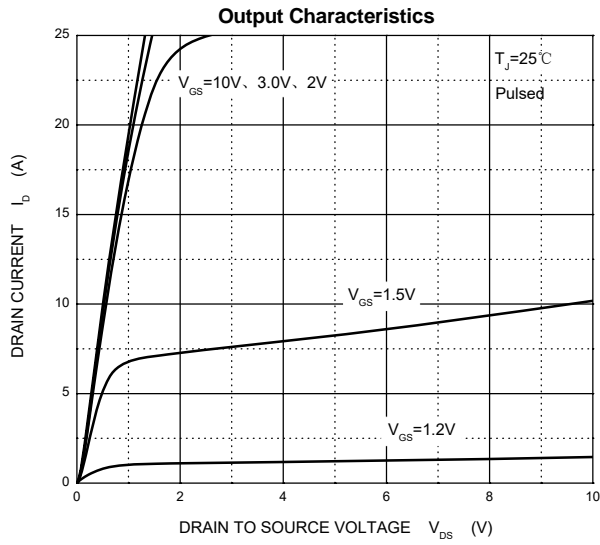
$T_a = 25^\circ\text{C}$  unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>STATIC PARAMETERS</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 16V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 4.5V, V_{DS} = 0V$			$\pm 1$	$\mu A$
		$V_{GS} = \pm 8V, V_{DS} = 0V$			$\pm 10$	$\mu A$
Gate threshold voltage (note 1)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.4		1	V
Drain-source on-resistance (note 1)	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 3A$	7	9	12.0	m $\Omega$
		$V_{GS} = 4.0V, I_D = 3A$	7.3	9.5	12.5	m $\Omega$
		$V_{GS} = 3.8V, I_D = 3A$	7.5	9.7	13.0	m $\Omega$
		$V_{GS} = 3.1V, I_D = 3A$	8.0	10.6	14.0	m $\Omega$
		$V_{GS} = 2.5V, I_D = 3A$	9.5	12.5	15.0	m $\Omega$
Forward transconductance (note 1)	$g_{FS}$	$V_{DS} = 5V, I_D = 7A$	9	36		S
Diode forward voltage (note 1)	$V_{SD}$	$I_S = 1A, V_{GS} = 0V$			1	V
<b>DYNAMIC PARAMETERS (note 2)</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$		1800		pF
Output Capacitance	$C_{oss}$			230		pF
Reverse Transfer Capacitance	$C_{rss}$			200		pF
Total gate charge	$Q_g$	$V_{DS} = 10V, V_{GS} = 4.5V, I_D = 7A$		17		nC
Gate-source charge	$Q_{gs}$			1.5		nC
Gate-drain charge	$Q_{gd}$			4.7		nC
<b>SWITCHING PARAMETERS (note 2)</b>						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = 5V, V_{DD} = 10V,$ $R_L = 1.35\Omega, R_{GEN} = 3\Omega$		2.5		ns
Turn-on rise time	$t_r$			7.2		ns
Turn-off delay time	$t_{d(off)}$			49		ns
Turn-off fall time	$t_f$			108		ns
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Current	$I_S$		-	-	6.0	A

**Notes :**

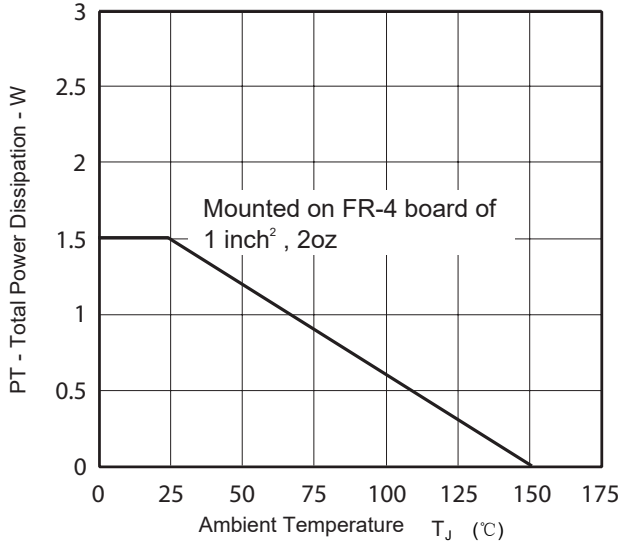
1. Pulse Test : Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 0.5\%$ .
2. Guaranteed by design, not subject to production testing.

# Typical Characteristics

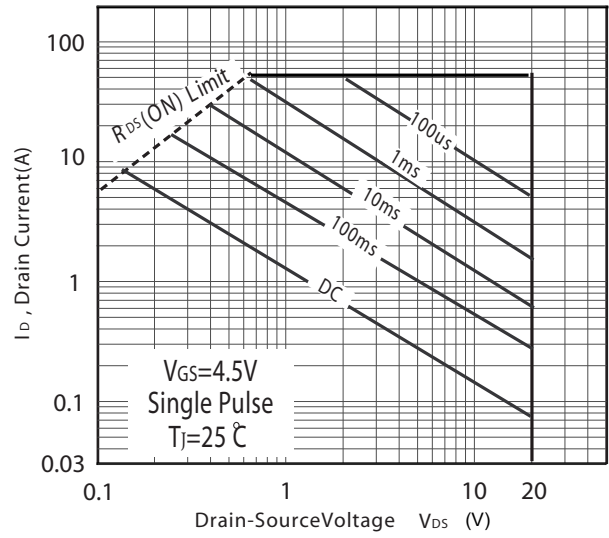


# Typical Characteristics

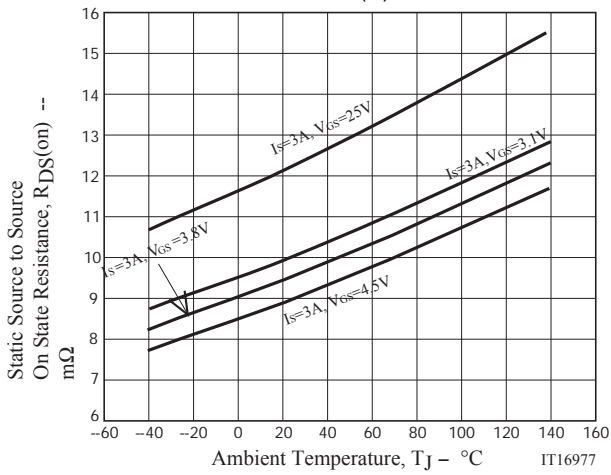
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



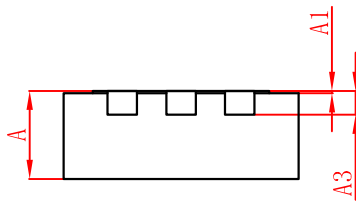
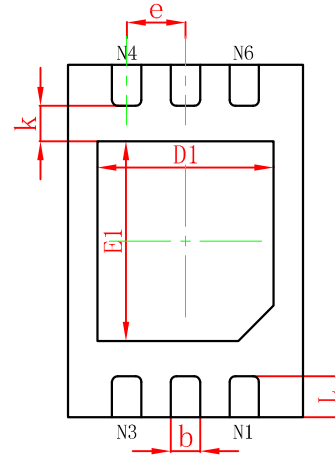
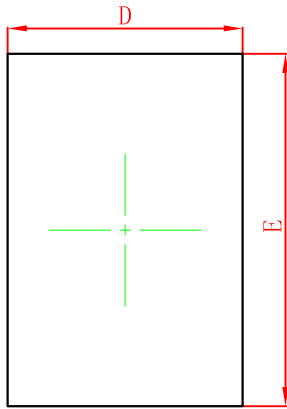
Maximum Safe Operating Area



CJCD2005  $R_{DS(ON)}$  —  $T_A$

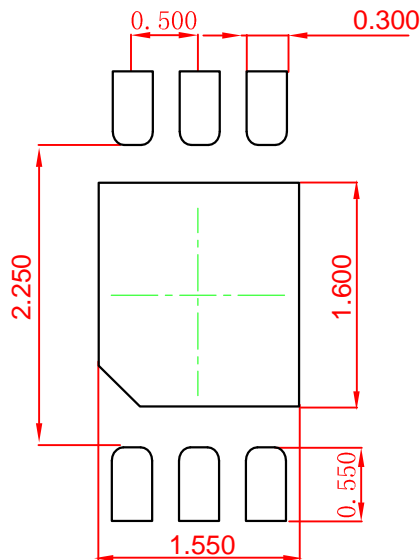


## DFNWB2 × 3-6L Package Outline Dimensions (Unit:mm)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.950	2.050	0.077	0.081
E	2.950	3.050	0.116	0.120
D1	1.450	1.550	0.057	0.061
E1	1.650	1.750	0.065	0.069
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.300	0.400	0.012	0.016

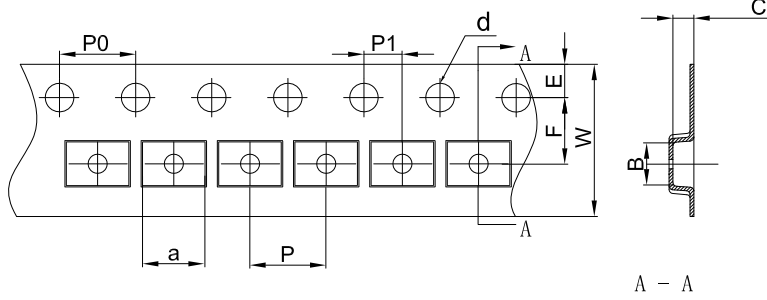
## DFNWB2 × 3-6L Suggested Pad Layout



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

# DFNWB2X3-6L Tape and Reel

## DFNWB2X3-6L Embossed Carrier Tape



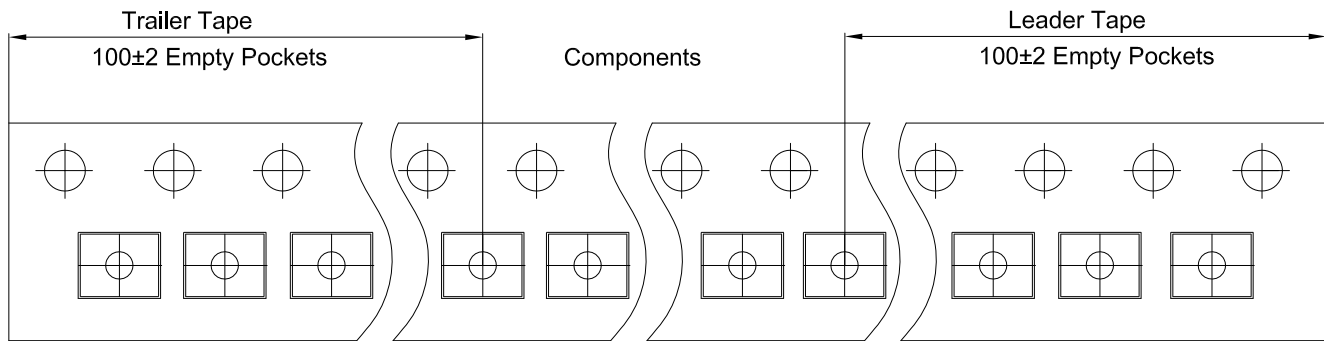
### Packaging Description:

**DFNWB2X3-6L** 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).

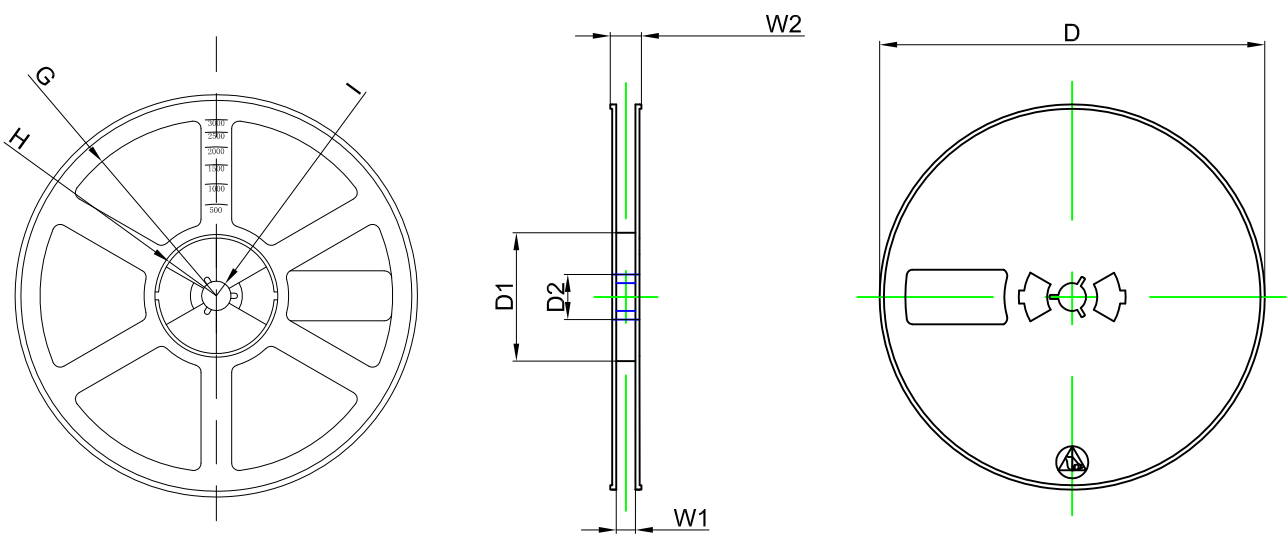
Dimensions are in millimeter

Pkg type	a	B	C	d	E	F	P0	P	P1	W
DFNWB2X3-6L	3.30	2.30	1.10	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

## DFNWB2X3-6L Tape Leader and Trailer



## DFNWB2X3-6L 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	