



# MOSFET ELECTRICAL CHARACTERISTICS

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

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Static Characteristics</b> <sup>④</sup>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 100V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	2.0	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 10A$		9.0	11	m $\Omega$
		$V_{GS} = 4.5V, I_D = 10A$		12.2	17	
<b>Dynamic characteristics</b> <sup>④ ⑤</sup>						
Total gate charge	$Q_g$	$V_{DS} = 50V, V_{GS} = 10V, I_D = 20A$		25	50	nC
Gate-source charge	$Q_{gs}$			4.8	9.6	
Gate-drain charge	$Q_{gd}$			7.0	15	
Input Capacitance	$C_{iss}$	$V_{DS} = 50V, V_{GS} = 0V, f = 100kHz$		F51 €	3100	pF
Output Capacitance	$C_{oss}$			210	560	
Reverse Transfer Capacitance	$C_{rss}$			7.5	15	
Gate resistance	$R_g$	$f = 1MHz$		1.4		$\Omega$
<b>SWITCHING PARAMETERS</b> <sup>④ ⑤</sup>						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = 10V, V_{DS} = 50V, R_G = 2.2\Omega, I_D = 20A$		8.0	16	ns
Turn-on rise time	$t_r$			4.2	8.4	
Turn-off delay time	$t_{d(off)}$			20	40	
Turn-off fall time	$t_f$			4.0	8.0	
<b>Source-Drain Diode characteristics</b>						
Body diode voltage	$V_{SD}$ <sup>④</sup>	$I_S = 20A, V_{GS} = 0V$			1.2	V
Reverse Recovery Time	$t_{rr}$ <sup>④</sup>	$V_R = 50V, I_F = 20A, di_F/dt = 500A/\mu s$		42		ns
Reverse Recovery Charge	$Q_{rr}$ <sup>④</sup>				160	

$P \leq 0.1A$

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

2.  $P_{W} \leq 10\mu s$ , Duty cycle  $\leq 1\%$ .

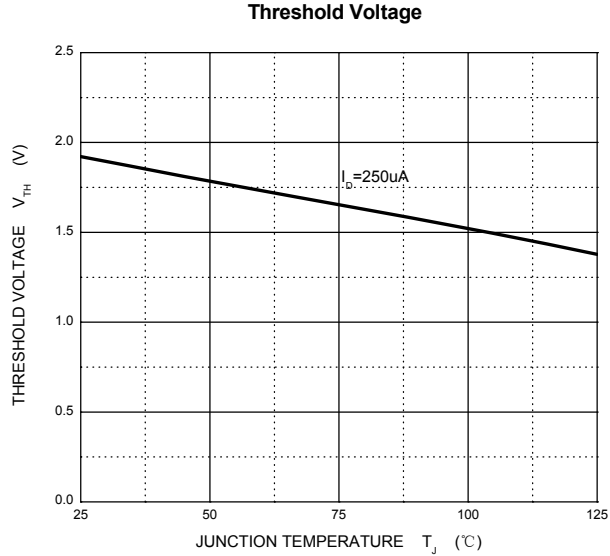
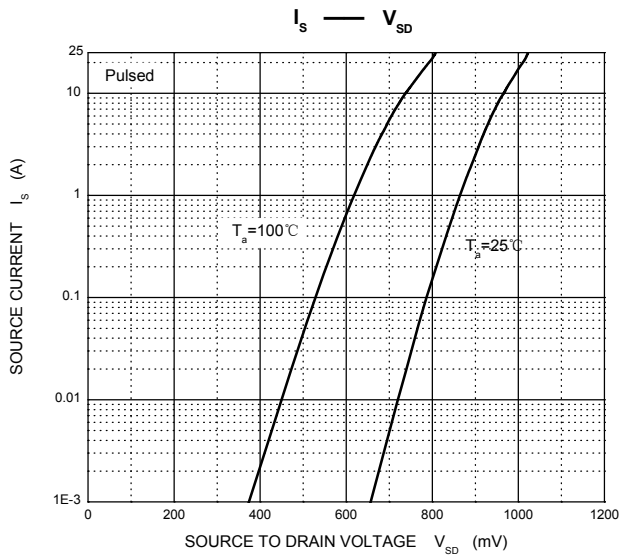
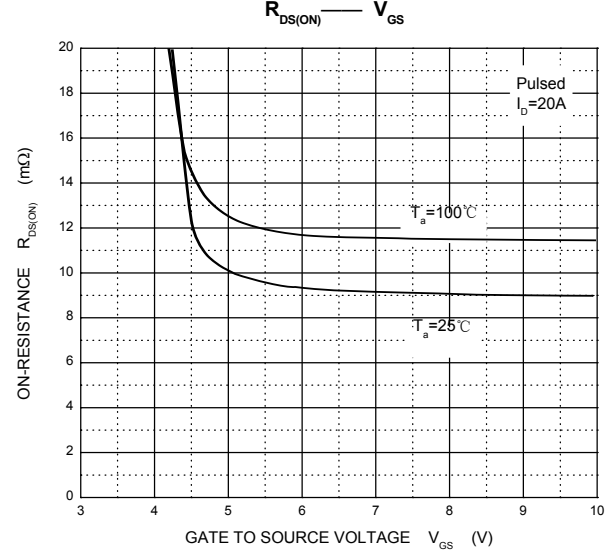
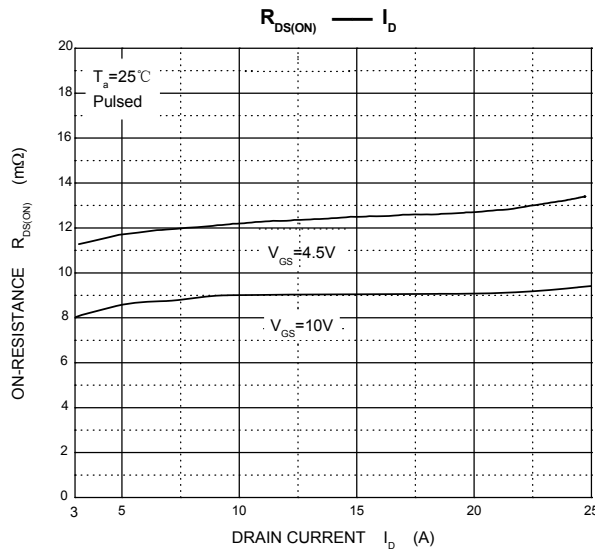
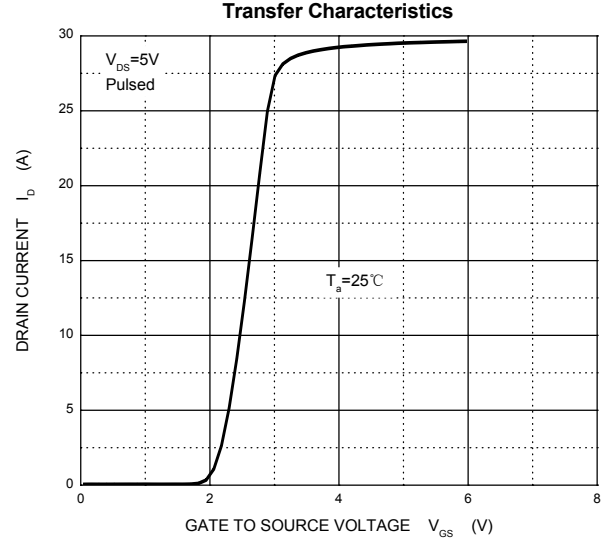
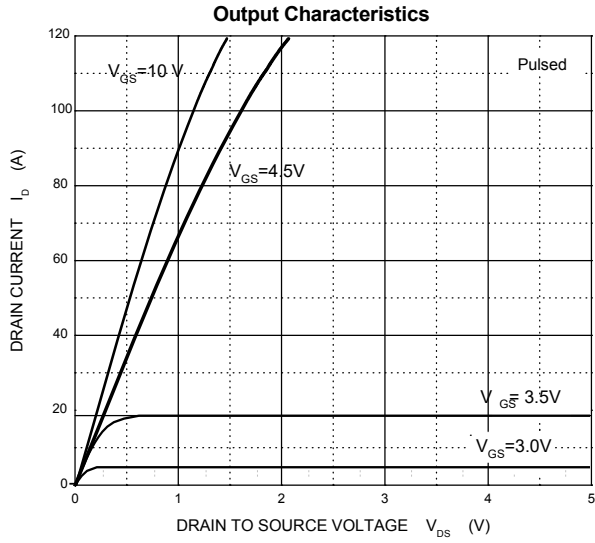
3. EAS condition:  $V_{DD} = 50V, V_{GS} = 10V, L = 0.3mH, R_g = 25\Omega$  Starting  $T_J = 25^\circ\text{C}$ .

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

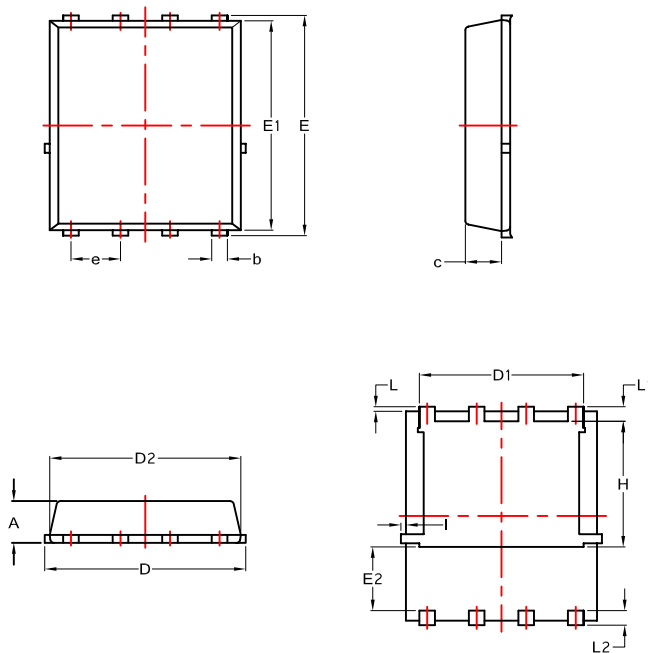
5. Guaranteed by design, not subject to production.

6. The value of  $R_{\theta JA}, R_{\theta JC}$  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

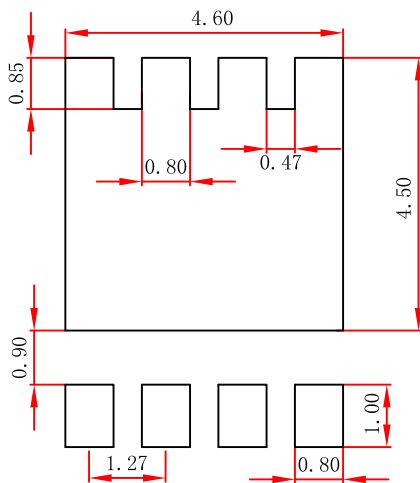


## PDFNK 6 5×6-8L-D Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.970	0.0324	0.0382
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	-	0.0630	-
e	1.270 BSC		0.050 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	-	0.18	-	0.0070

## PDFNK 6 5×6-8L-D Suggested Pad Layout



### Note:

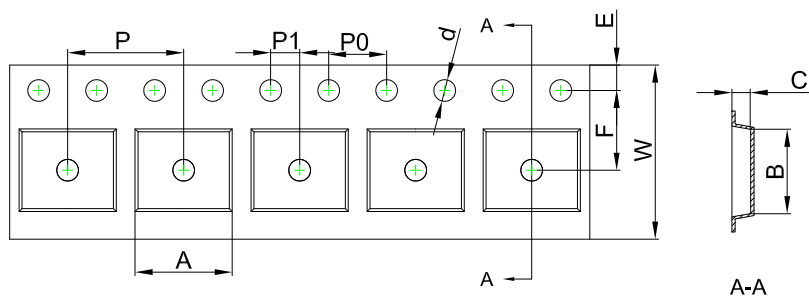
1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05$  mm.
3. The pad layout is for reference purposes only.

### NOTICE

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# PDFNWB5×6 Tape and Reel

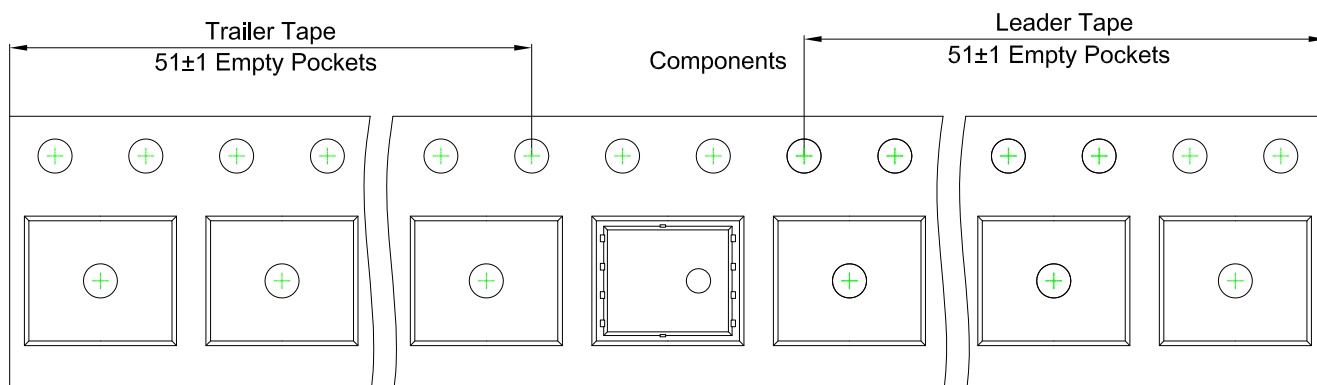
## PDFNWB5×6-8L Embossed Carrier Tape



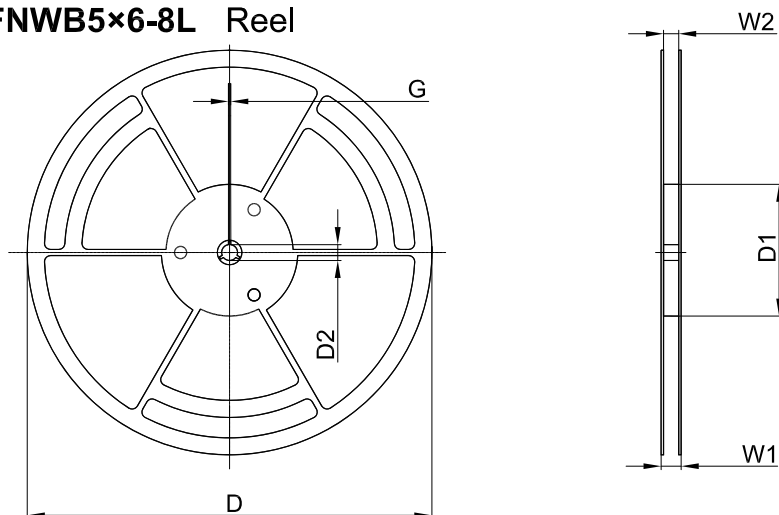
**Packaging Description:**  
**PDFNWB5×6-8L** parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static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