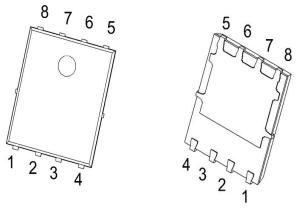
SZCJ

PDFNWB5x6-8L-F Plastic-Encapsulate MOSFET

N10AH N-Channel Power MOSFET

PDFNWB5x6-8L-F



Key Performance Parameters

$V_{BR(DSS)}$	$R_{DS(on)}$TYP	I_D
100V	3.0mΩ@10V	180A
	4.5mΩ@6V	

DESCRIPTION

The N-Channel enhancement mode power field effect transistors is using SGT technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.

FEATURES

- High Power and current handing capability
- High density cell design for ultra-low $R_{DS(ON)}$
- Good stability and uniformity with high EAS
- Excellent package for good heat dissipation

APPLICATIONS

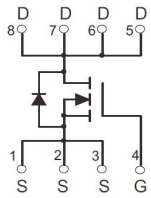
- DC/DC Converter
- Ideal for high-frequency switching and synchronous

MARKING



XXXXX = 3R6SN10AH
Solid dot = Pin1 indicator.
YY = Code.

EQUIVALENT CIRCUIT



ABSOLUTE MAXIMUM RATINGS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C =25℃	I_D	180	A
	T_C =100℃		114	
Pulsed Drain Current		I_{DM}①②	720	A
Continuous Drain Current	T_A =25℃	I_D	17	A
	T_A =75℃		13	
Avalanche Current		I_{AS}③	40	A
Single Pulsed Avalanche Energy		E_{AS}③	400	mJ
Power Dissipation		P_D①	250	W
Operating Junction and Storage Temperature Range		T_J,T_{stg}	-55~+150	℃

Thermal Characteristics

Parameter	Symbol	Value		Unit
		Typ	Max	
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.33	0.50	℃/W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$⑥	38	57	℃/W

Typical Characteristics

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Static Characteristics

Parameter	Symbol	Test Condition		Value			Unit
				Min	Typ	Max	
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA		100	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=100V, V_{GS}=0V	T_J=25℃	-	-	1.0	μA
			T_J=125℃	-	-	100	
Gate-body leakage current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V		-	-	±100	nA
Gate-threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA		2.4	3.1	3.8	V
Static drain-source on-sate resistance	$R_{DS(on)}$④	V_{GS}=10V, I_D=50A	T_J=25℃	-	3.0	3.6	mΩ
			T_J=125℃	-	5.2	6.3	
		V_{GS}=6V, I_D=50A		-	4.5	6.2	
Forward transconductance	g_{FS}	V_{DS}=5V, I_D=20A		-	46	-	S

Dynamic Characteristics⑤

Input capacitance	C_{iss}	V_{GS}=0V, V_{DS}=50V, f=1MHz	-	4728	-	pF
Output capacitance	C_{oss}		-	818	-	
Reverse transfer capacitance	C_{rss}		-	8	-	
Gate resistance	R_g	f=1MHz	-	2.3	-	Ω
Total gate charge	Q_g	V_{GS}=6V, V_{DS}=50V, I_D=50A	-	48	-	nC
Total gate charge	Q_g	V_{GS}=10V, V_{DS}=50V, I_D=50A	-	74	-	
Gate charge at threshold	$Q_{G(th)}$		-	14	-	
Gate-source charge	Q_{gs}		-	22	-	
Gate-drain charge	Q_{gd}		-	22	-	
Turn-on delay time	$t_{d(on)}$	V_{DD}=50V, V_{GS}=10V, I_D=50A, R_g=1.6Ω	-	15	-	ns
Turn-on rise time	t_r		-	14	-	
Turn-off delay time	$t_{d(off)}$		-	27	-	
Turn-off fall time	t_f		-	12	-	

Reverse Diode Characteristics

Drain-source diode forward voltage	V_{SD}④	V_{GS}=0V, I_S=50A	-	0.86	1.0	V
Continuous drain-source diode forward current	I_S①		-	-	180	A
Pulsed drain-source diode forward current	I_{SM}①②		-	-	720	A
Reverse recovery time	t_{rr}	V_{DD}=50V, I_S=50A, di/dt=100A/μs	-	67	-	ns
Reverse recovery charge	Q_{rr}		-	150	-	nC

Notes:

①.T_C=25℃ Limited only by maximum temperature allowed.

②.P_W ≤10μs, Duty cycle ≤1%.

③.EAS condition: V_{DD}=50V, V_{GS}=10V, L=0.5mH, R_g=25Ω Starting T_J=25℃.

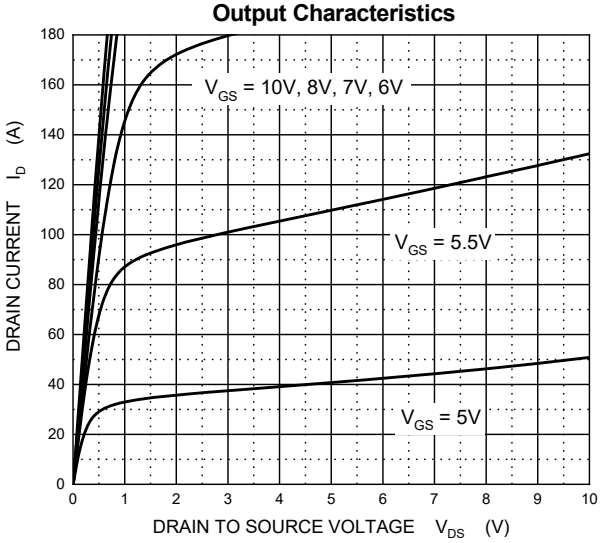
④.Pulse Test : Pulse Width ≤380μs, duty cycle ≤2%.

⑤.Guaranteed by design, not subject to production.

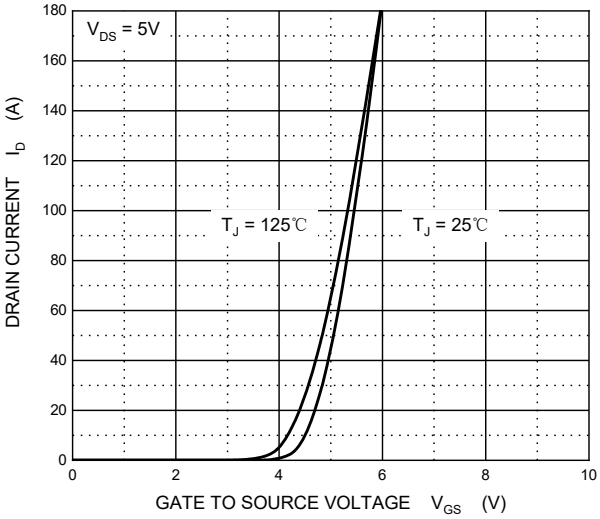
⑥.Device mounted on 1 in^2 FR-4 board with 2oz. double-sided Copper, in a still air environment with T_A=25℃.

Typical Characteristics

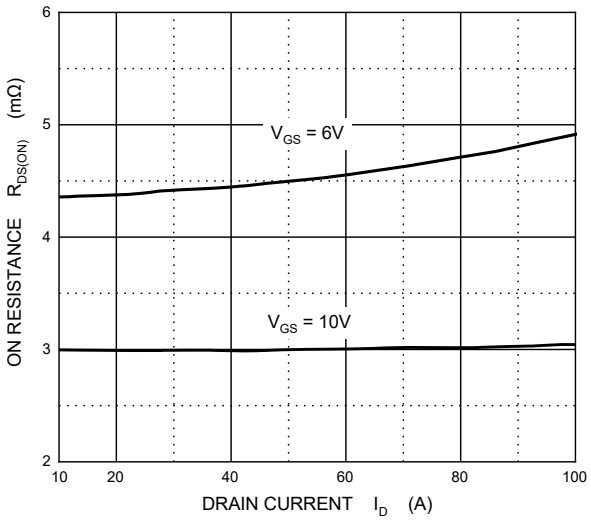
Output Characteristics



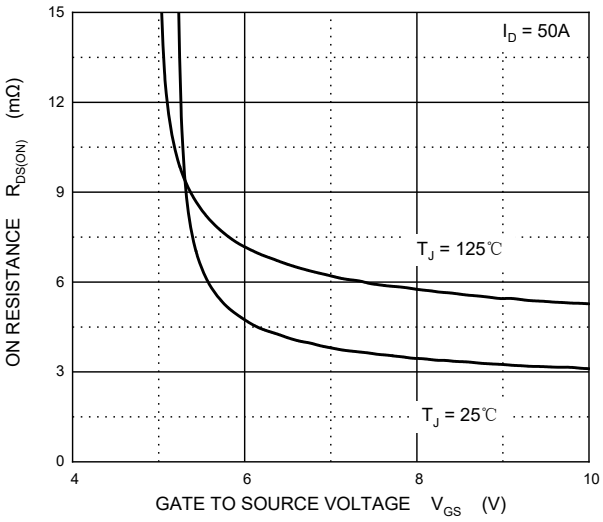
Transfer Characteristics



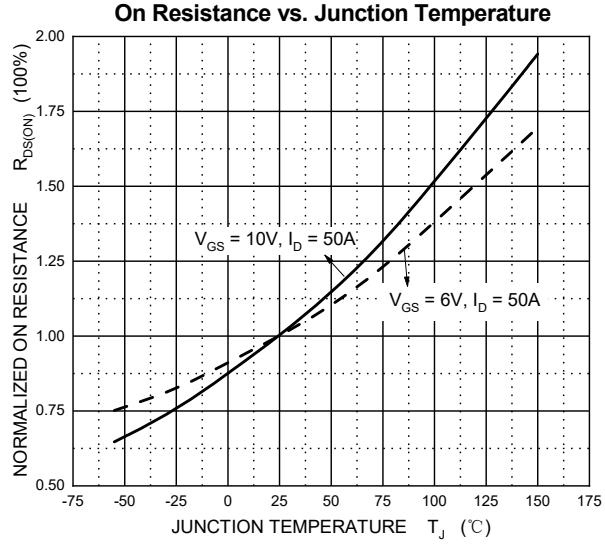
On Resistance vs. Drain Current



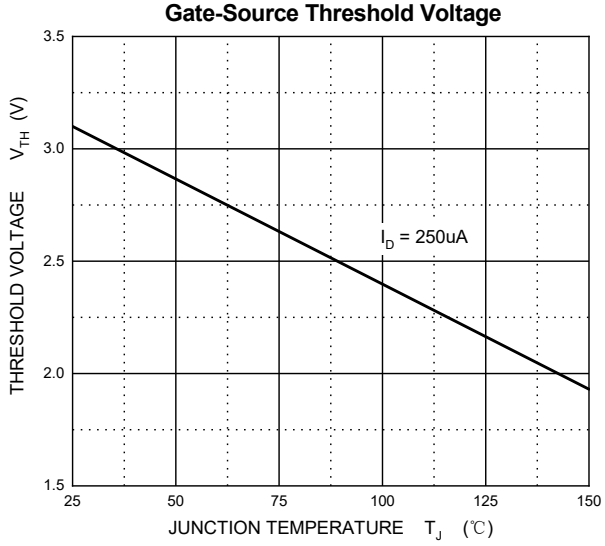
On Resistance vs. Gate-Source Bias



On Resistance vs. Junction Temperature



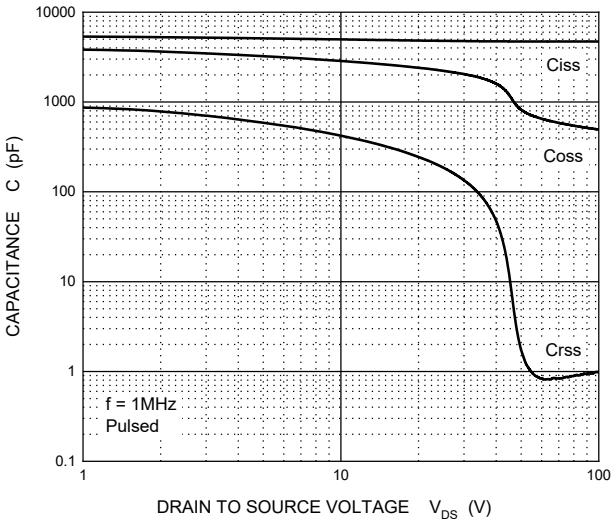
Gate-Source Threshold Voltage



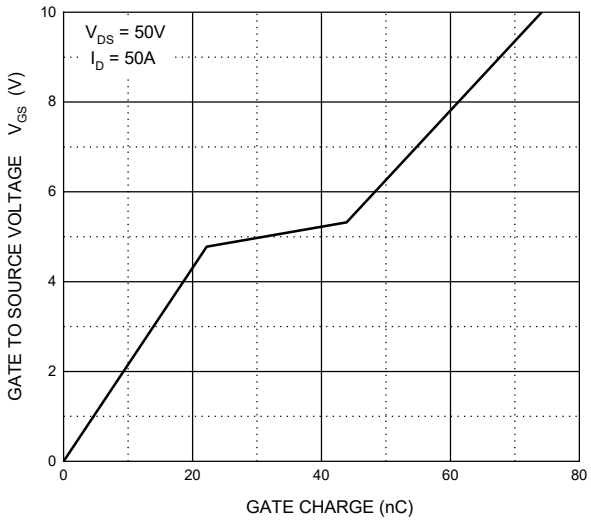
SZCSemi.com

Typical Characteristics

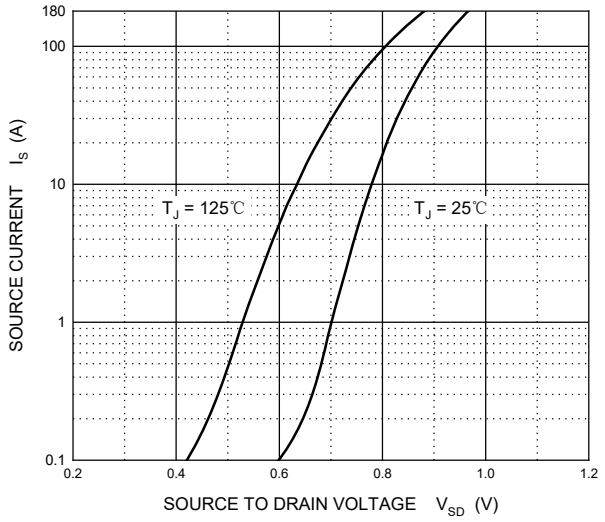
Typical Capacitances



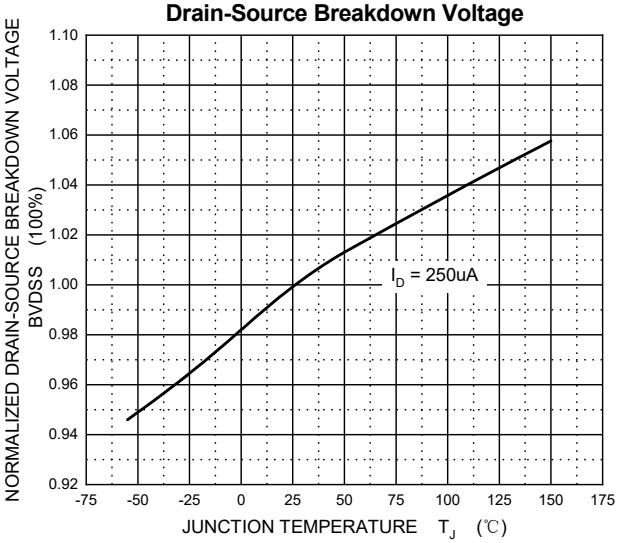
Gate Charge



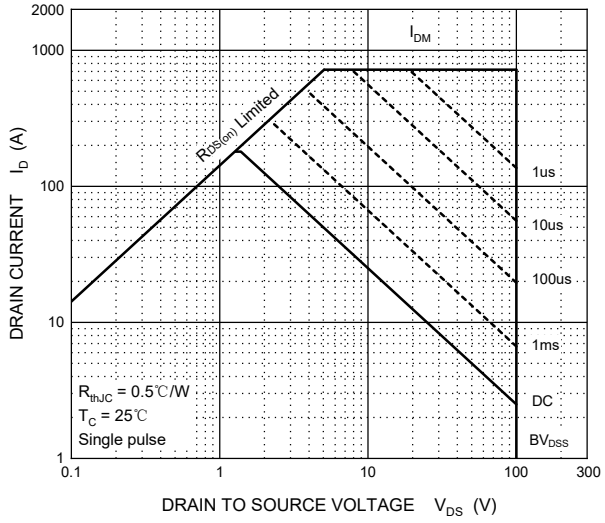
Source-Drain Diode Forward Characteristics



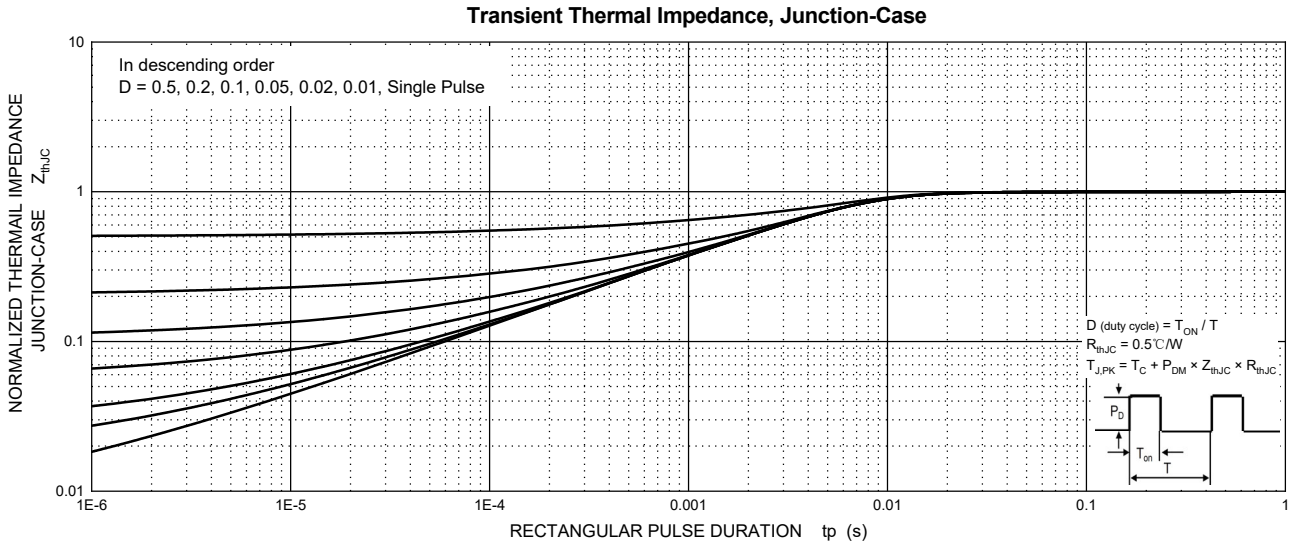
Drain-Source Breakdown Voltage



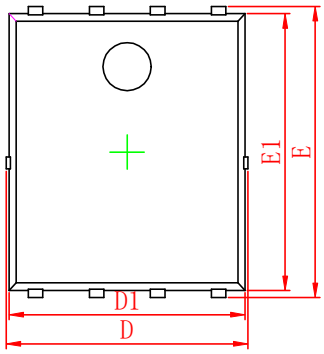
Maximum Safe Operating Area



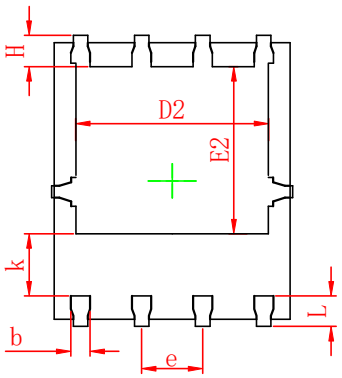
Typical Characteristics



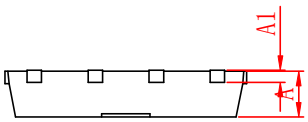
PDFNWB5×6-8L-F PACKAGE OUTLINE DIMENSIONS



Top View
[顶视图]



Bottom View
[背视图]

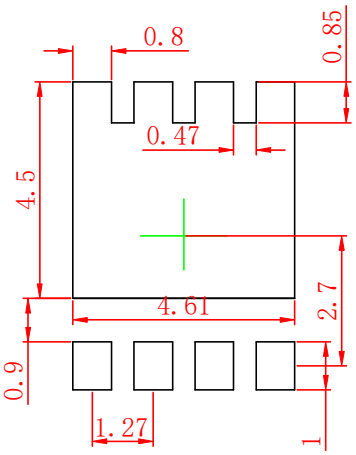


Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A0.90		1.10	0.035 0.043	
A1	0.25 REF.		0.010 REF.	
D5.00		5.40	0.197 0.213	
D1	4.90	5.10	0.193	0.201
D23.90		4.30	0.154 0.169	
E6.00		6.40	0.236 0.252	
E15.75		5.95	0.226 0.234	
E2	3.40	3.80	0.134	0.150
k1.10		1.50	0.043 0.059	
b0.30		0.50	0.012 0.020	
e	1.27 BSC		0.050 BSC	
L0.40		0.60	0.016 0.024	
H0.50		0.70	0.020 0.028	

Notes：
1 Dimensions exclusive of mold gate burrs.
2 Dimensions exclusive of mold flash and cutting burrs.

PDFNWB5×6-8L Suggested Pad Layout



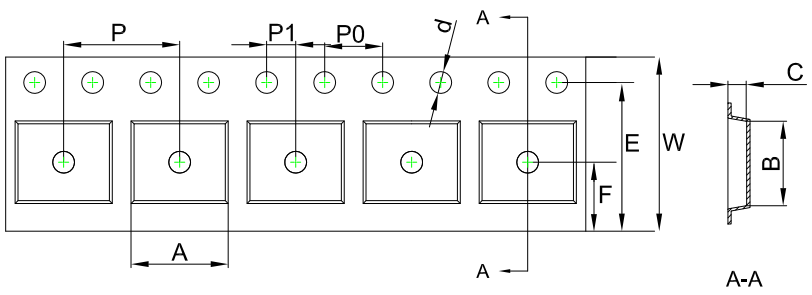
Notes：
1 Controlling dimension：in millimeters.
2 General tolerance:±0.05mm.
3 The pad layout is for referance purpose only.

NOTICE

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

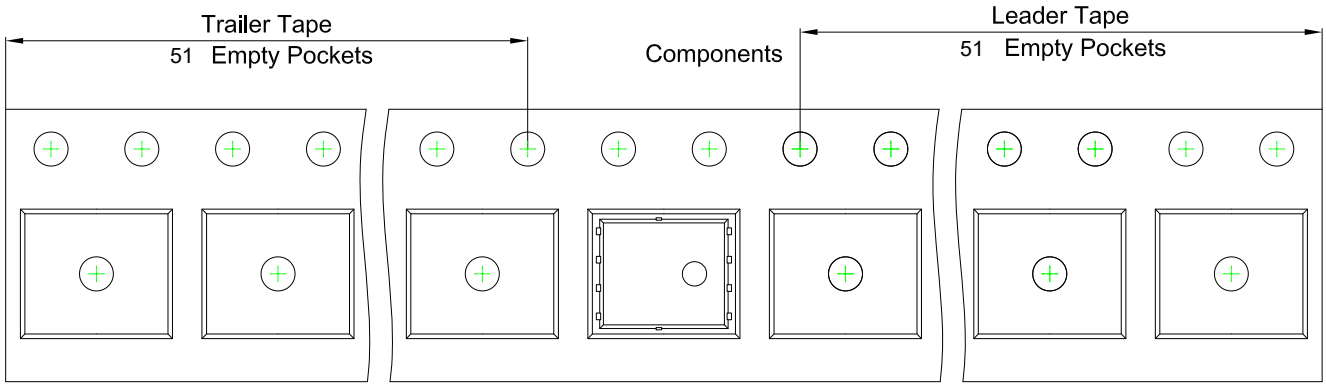
PDFNWB5×6 Tape and Reel

PDFNWB5×6-8L Embossed Carrier Tape

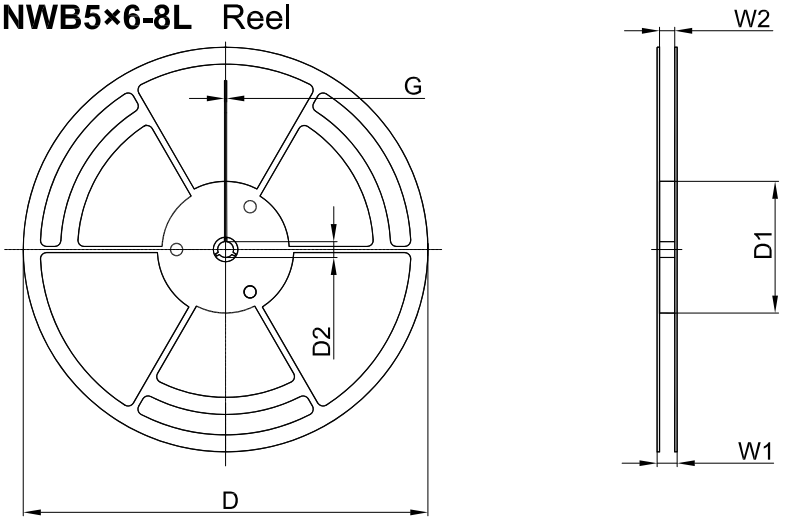


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
PDFNWB5×6-8L	6.62±0.1	5.50±0.1	1.50±0.1	Ø $1.50^{+0.25}_{-0}$	10.25±0.1	5.50±0.1	4.00±0.05	8.00±0.05	2.00±0.05	$12.00^{+0.3}_{-0.1}$

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	Ø 330.20±1.0	Ø 100.00±0.5	Ø 13.40±0.2	2.40±0.2	16.70±2.0	12.50±0.5

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
5,000 pcs	13 inch	5,000 pcs	365×340×57	25,000 pcs	385×360×320