

- ★ Super Low Gate Charge
- ★ 100% EAS Guaranteed
- ★ Green Device Available
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology

## Product Summary



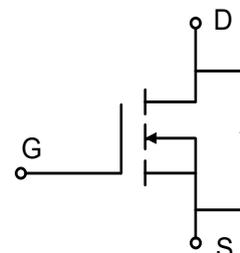
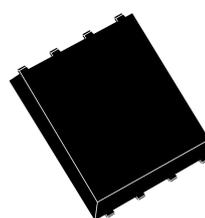
BVDSS	RDSON	ID
200V	57 mΩ	30A

## Description

The JH30G30F is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The JH30G30F meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

## PDFN5X6 Pin Configuration



## Absolute Maximum Ratings (T<sub>C</sub>= 25°C unless otherwise specified):

Symbol	Parameter		Rating	Unit
<b>Common Ratings (T<sub>C</sub>=25°C Unless Otherwise Noted)</b>				
V <sub>DSS</sub>	Drain-Source Voltage		200	V
V <sub>GSS</sub>	Gate-Source Voltage		±20	V
T <sub>J</sub>	Maximum Junction Temperature		-55 to 175	°C
T <sub>STG</sub>	Storage Temperature Range		-55 to 175	°C
I <sub>S</sub>	Source Current-Continuous(Body Diode)	T <sub>C</sub> =25°C	30	A
<b>Mounted on Large Heat Sink</b>				
I <sub>DM</sub>	Pulsed Drain Current *	T <sub>C</sub> =25°C	120	A
I <sub>D</sub>	Continuous Drain Current	T <sub>C</sub> =25°C	30	A
		T <sub>C</sub> =100°C	20	A
P <sub>D</sub>	Maximum Power Dissipation	T <sub>C</sub> =25°C	125	W
		T <sub>C</sub> =100°C	62.5	W
R <sub>θJC</sub>	Thermal Resistance, Junction-to-Case		1.2	°C/W
R <sub>θJA</sub>	Thermal Resistance, Junction-to-Ambient **		50	°C/W
E <sub>AS</sub>	Single Pulsed-Avalanche Energy ***	L=0.5mH	161.8	mJ

## Electrical Characteristics (T<sub>c</sub> =25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	HY1920			Unit
			Min	Typ.	Max	
<b>Static Characteristics</b>						
B <sub>V</sub> DSS	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>DS</sub> =250μA	200	-		V
I <sub>DSS</sub>	Drain-to-Source Leakage Current	V <sub>DS</sub> =200V, V <sub>GS</sub> =0V	-	-	1	μA
		T <sub>J</sub> =55°C	-	-	50	μA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =250μA	3.0	3.7	5.0	V
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
R <sub>DS(ON)*</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =10V, I <sub>DS</sub> =45A		57	72	mΩ
<b>Diode Characteristics</b>						
V <sub>SD*</sub>	Diode Forward Voltage	I <sub>SD</sub> =45A, V <sub>GS</sub> =0V	-	0.84	1.3	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>SD</sub> =45A, dI <sub>SD</sub> /dt=100A/μs	-	97.7	-	ns
Q <sub>rr</sub>	Reverse Recovery Charge		-	424.7	-	nC

## Electrical Characteristics (Cont.) (T<sub>c</sub> =25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	HY1920			Unit
			Min	Typ.	Max	
<b>Dynamic Characteristics</b>						
R <sub>G</sub>	Gate Resistance	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, F=1MHz	-	3.5	-	Ω
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =25V, Frequency=1.0MHz	-	2570	-	pF
C <sub>oss</sub>	Output Capacitance		-	199	-	
C <sub>rss</sub>	Reverse Transfer Capacitance		-	97	-	
t <sub>d(ON)</sub>	Turn-on Delay Time	V <sub>DD</sub> =100V, R <sub>G</sub> =4Ω, I <sub>DS</sub> =45A, V <sub>GS</sub> =10V	-	15.18	-	ns
T <sub>r</sub>	Turn-on Rise Time		-	39.7	-	
t <sub>d(OFF)</sub>	Turn-off Delay Time		-	33.4	-	
T <sub>f</sub>	Turn-off Fall Time		-	35.3	-	
<b>Gate Charge Characteristics</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =100V, V <sub>GS</sub> =10V, I <sub>D</sub> =30A	-	53	-	nC
Q <sub>gs</sub>	Gate-Source Charge		-	15	-	
Q <sub>gd</sub>	Gate-Drain Charge		-	19	-	

<sup>a1</sup>: Repetitive rating; pulse width limited by maximum junction temperature

## Typical Operating Characteristic

Figure 1: Power Dissipation

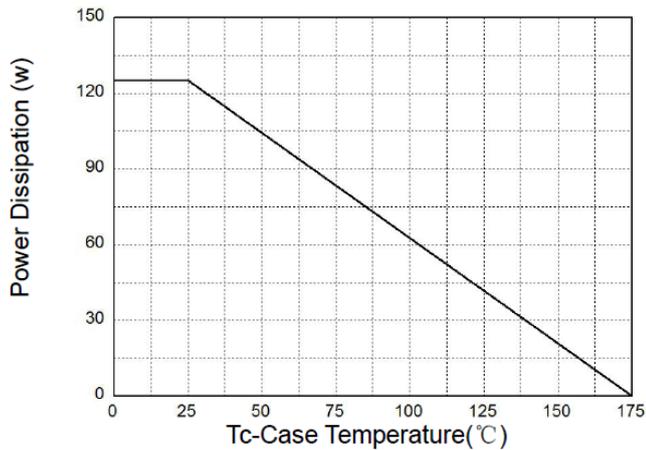


Figure 2: Drain Current

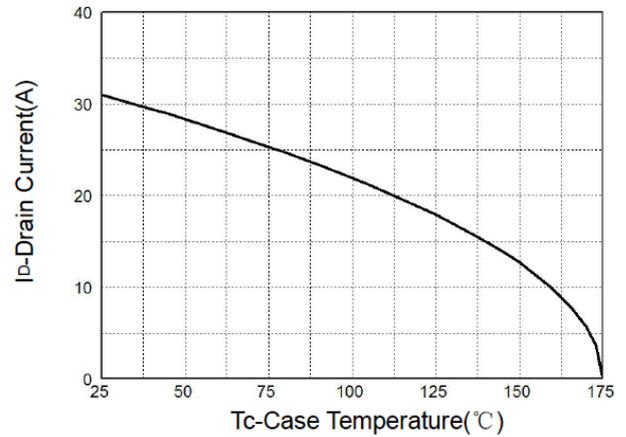


Figure 3: Safe Operation Area

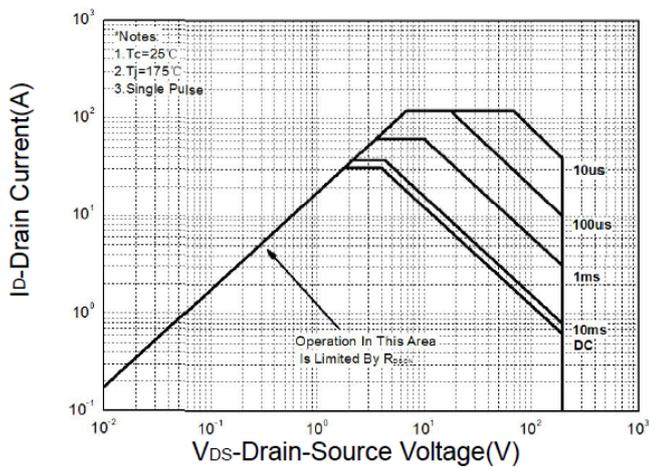


Figure 4: Thermal Transient Impedance

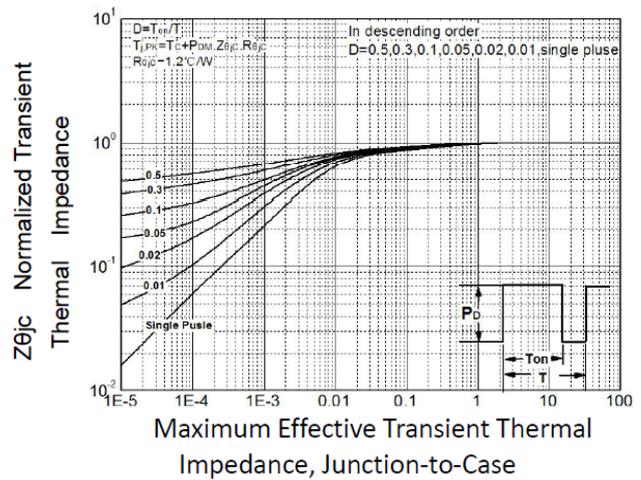


Figure 5: Output Characteristics

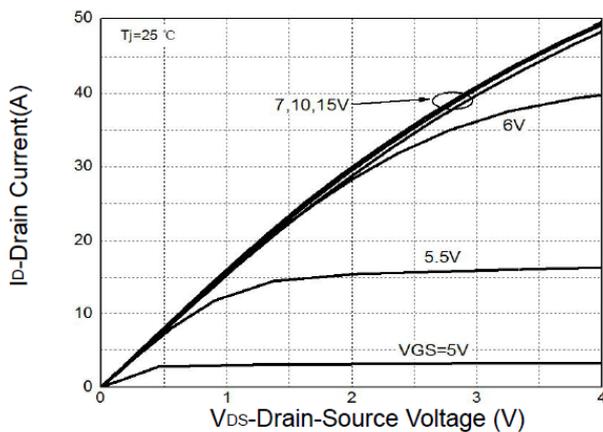
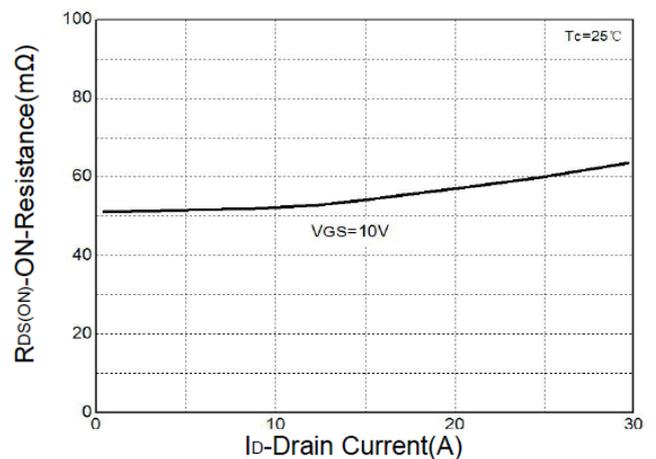


Figure 6: Drain-Source On Resistance



## Typical Operating Characteristics(Cont.)

Figure 7: On-Resistance vs. Temperature

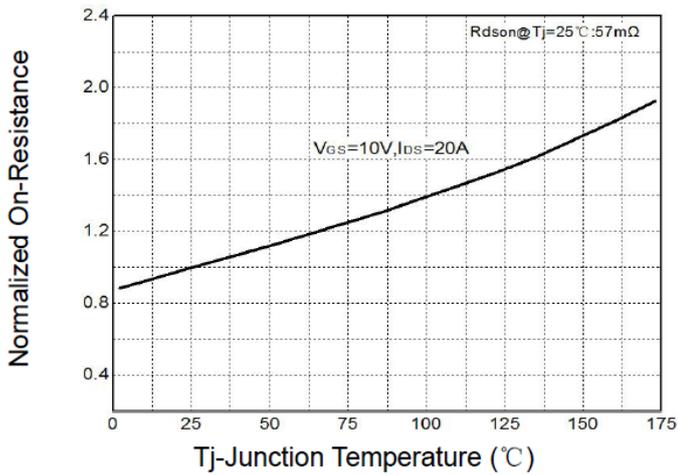


Figure 8: Source-Drain Diode Forward

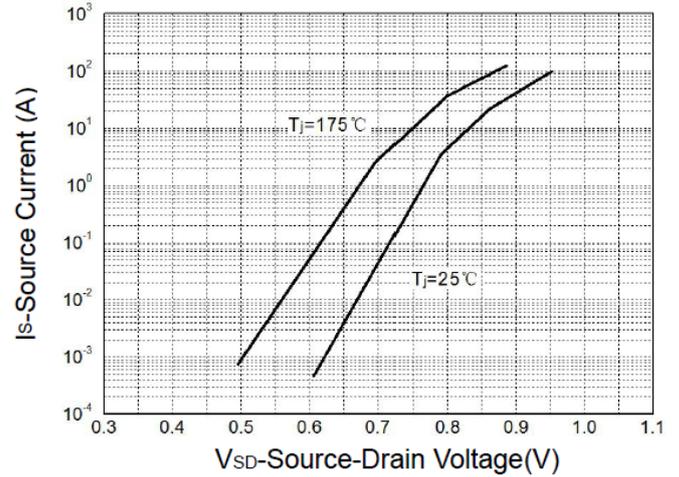


Figure 9: Capacitance Characteristics

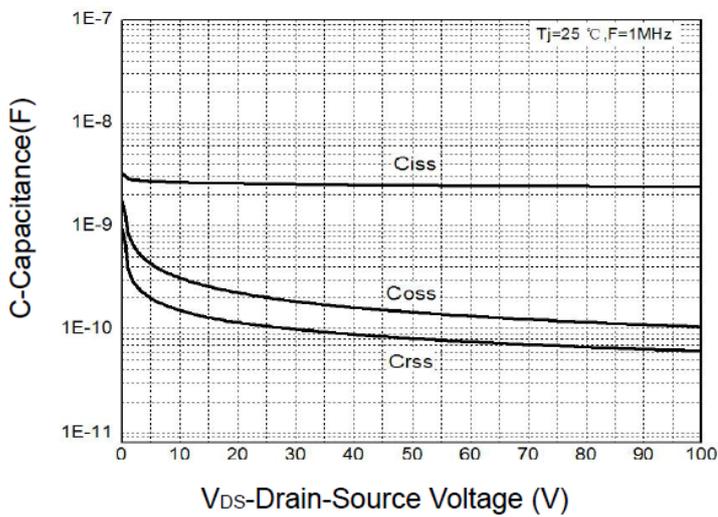
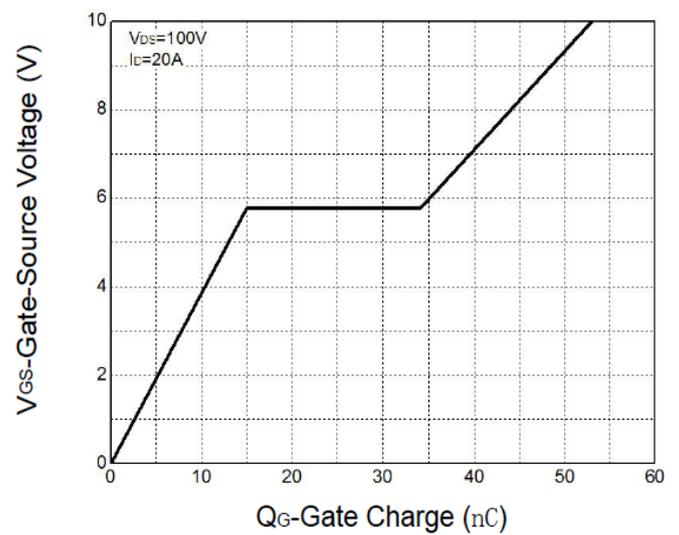
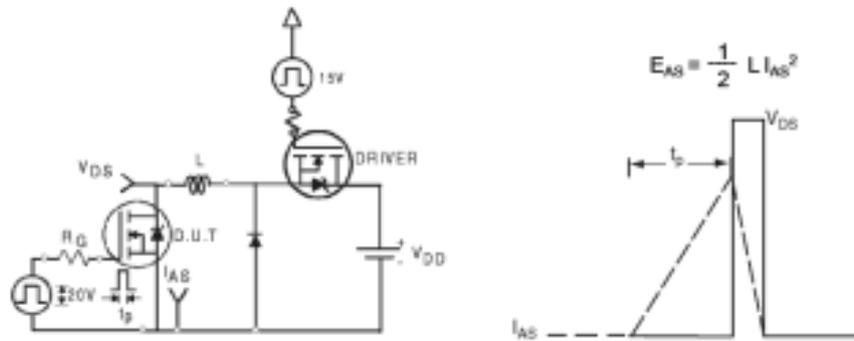


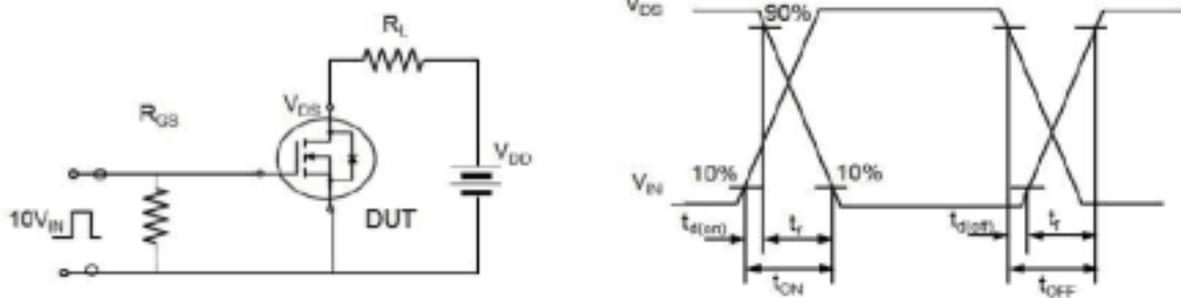
Figure 10: Gate Charge Characteristics



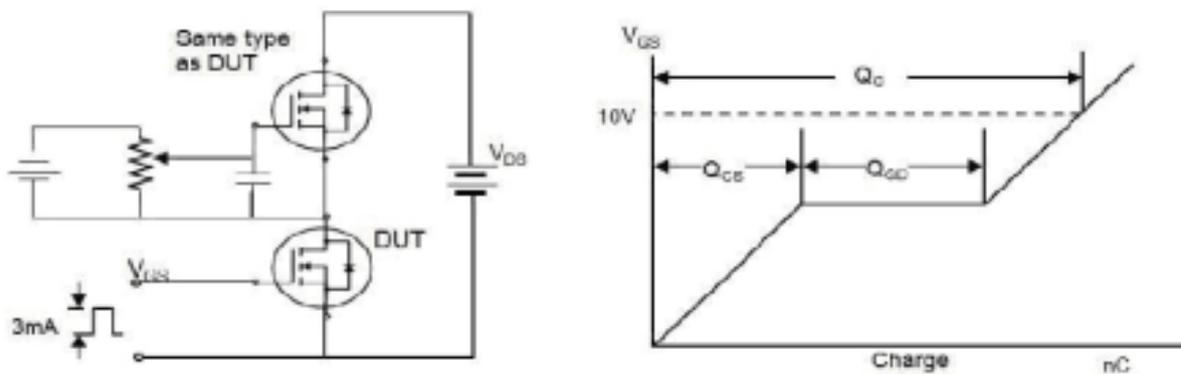
### Avalanche Test Circuit



### Switching Time Test Circuit

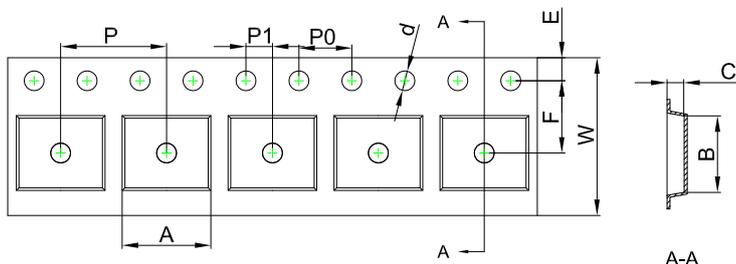


### Gate Charge Test Circuit



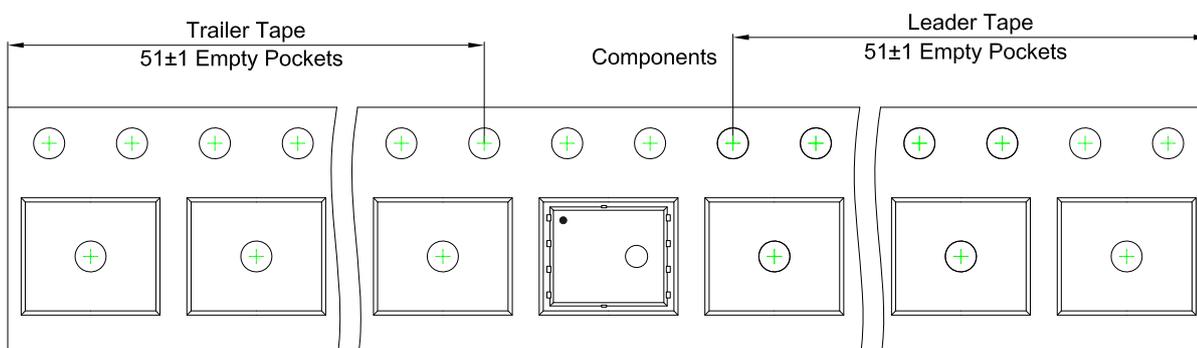
## PDFN5×6 Tape and Reel

### PDFN5×6 Embossed Carrier Tape

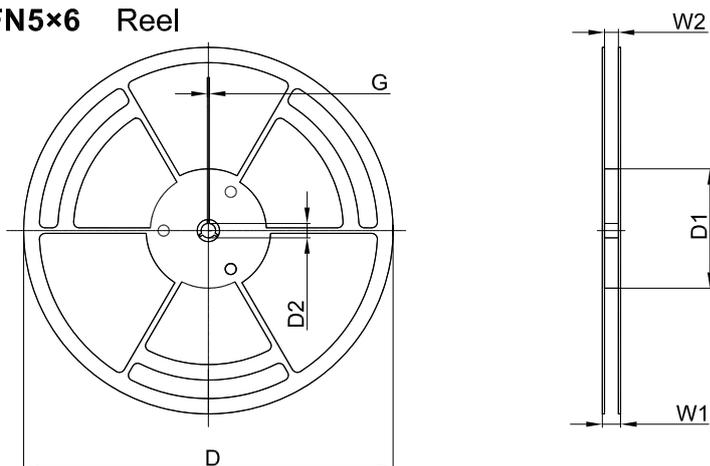


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
PDFN5×6	6.30	5.30	1.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

### PDFN5×6 Tape Leader and Trailer

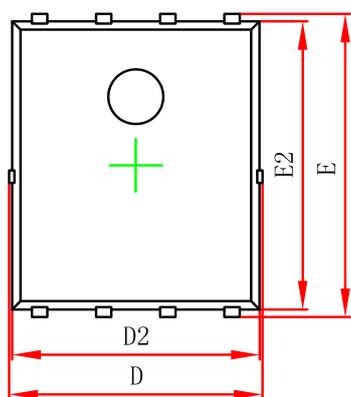


### PDFN5×6 Reel

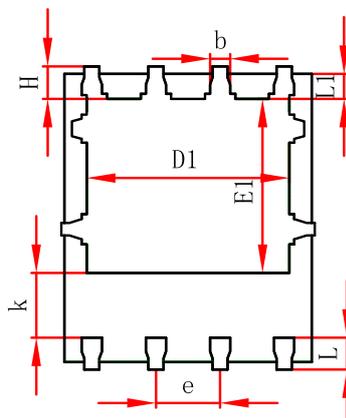


Dimensions are in millimeter						
Reel Option	D	D1	D2	G	W1	W2
13" Dia	Ø330.00	100.00	13.00	1.90	17.60	12.40

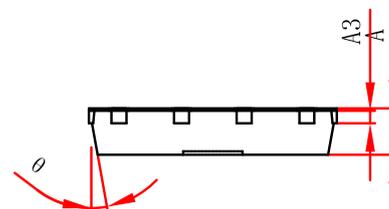
REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
5,000 pcs	13 inch	5,000 pcs	340×336×29	50,000 pcs	353×346×365



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.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

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