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

Product Summary

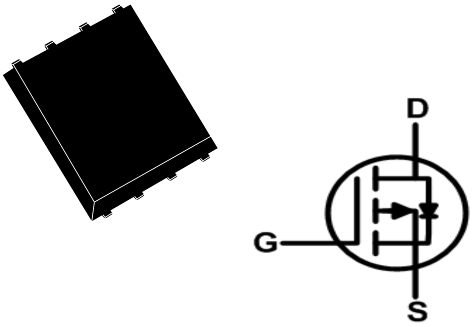
BVDSS	RDSON	ID
65V	4mΩ	96A

Description

The JHS100N06LD high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The JHS100N06LD meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

PDFN5*6 Pin Configuration



Absolute Maximum Ratings (T_A = 25°C, unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	65	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	96	A
	T_C=100°C		61	
Pulsed Drain Current[1]		I_{DM}	380	A
Single Pulse Avalanche Energy[2]		EAS	80	mJ
Total Power Dissipation	T_C=25°C	P_D	73.5	W
Operating Junction and Storage Temperature Range		T_J , T_{STG}	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction-to-Ambient[3]	$R_{\theta JA}$	51	°C/W
Thermal Resistance from Junction-to-Case	$R_{\theta JC}$	1.7	°C/W

Electrical Characteristics (T_J = 25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	65	-	-	V
Gate-body Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current, T_J=25°C	I_{DSS}	V_{DS} = 65V, V_{GS} = 0V	-	-	1	μA
Zero Gate Voltage Drain Current, T_J=100°C			-	-		
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.2	1.7	2.5	V
Drain-Source On-Resistance[4]	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A	-	4.0	4.8	mΩ
		V_{GS} = 4.5V, I_D = 10A	-	5.2	6.6	
Forward Transconductance[4]	g_{fs}	V_{DS} = 10V, I_D = 20A	-	89	-	S
Dynamic Characteristics[5]						
Input Capacitance	C_{iss}	V_{DS} = 30V, V_{GS} =0V, f =1MHz	-	2180	-	pF
Output Capacitance	C_{oss}		-	735	-	
Reverse Transfer Capacitance	C_{rss}		-	42	-	
Gate Resistance	R_g	f = 1MHz	-	1.8	-	Ω
Switching Characteristics[5]						
Total Gate Charge	Q_g	V_{GS} = 10V, V_{DS} = 30V, I_D= 20A	-	35	-	nC
Gate-Source Charge	Q_{gs}		-	6.6	-	
Gate-Drain Charge	Q_{gd}		-	8.4	-	
Turn-On Delay Time	$t_{d(on)}$	V_{GS} =10V, V_{DD} = 30V, R_G = 3Ω, I_D= 20A	-	9.4	-	ns
Rise Time	t_r		-	8.4	-	
Turn-Off Delay Time	$t_{d(off)}$		-	32.5	-	
Fall Time	t_f		-	12.5	-	
Body Diode Reverse Recovery Time	t_{rr}	I_F=20A, dI/dt=100A/μs	-	50	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	20	-	nC
Drain-Source Body Diode Characteristics						
Diode Forward Voltage[4]	V_{SD}	I_S = 20A, V_{GS} = 0V	-	-	1.2	V
Continuous Source Current, T_C=25°C	I_S	-	-	-	96	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C
2. The EAS data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.1mH，I_{AS}=40A.
3. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
4. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
5. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics

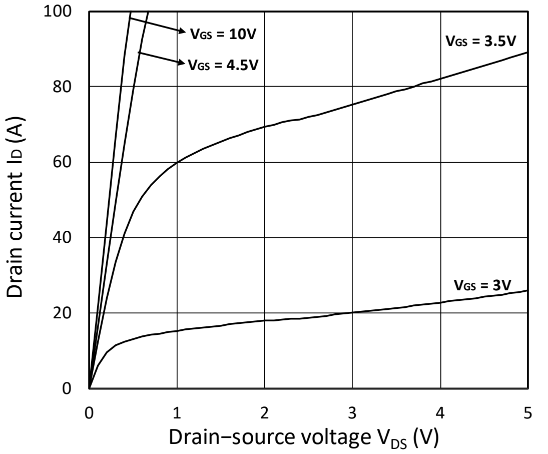


Figure 1. Output Characteristics

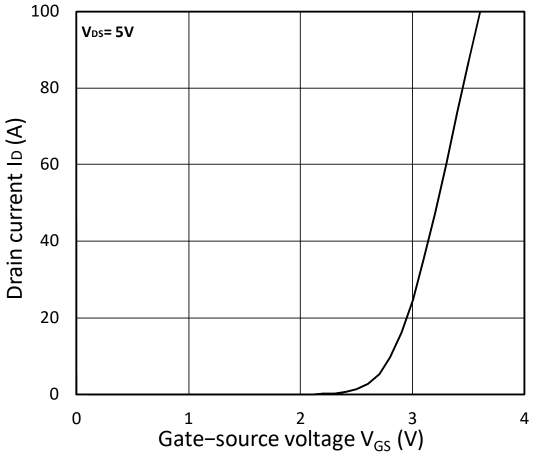


Figure 2. Transfer Characteristics

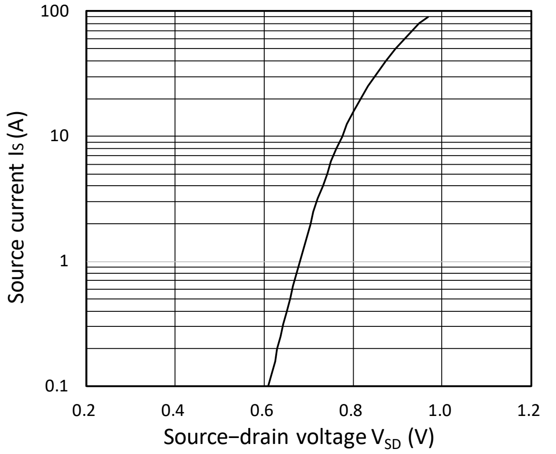


Figure 3. Forward Characteristics of Reverse

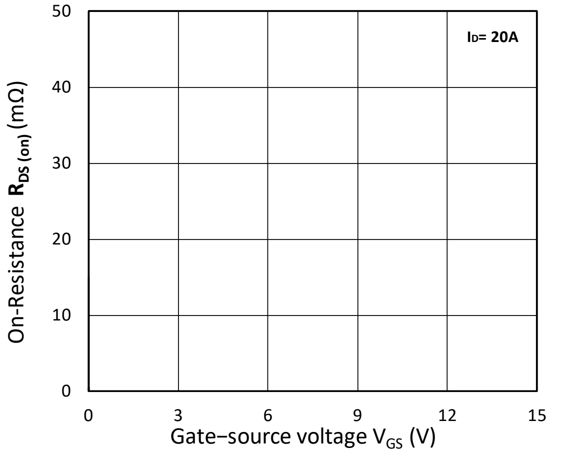


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

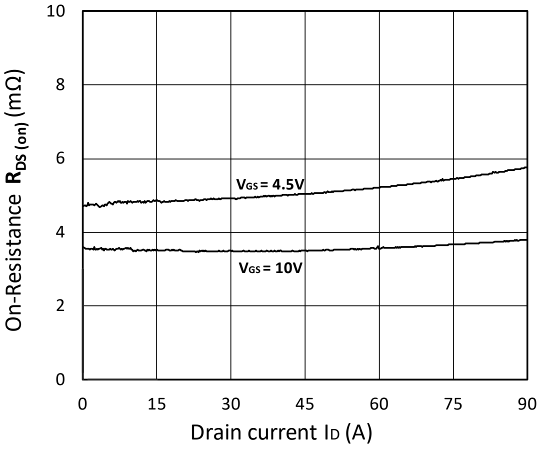


Figure 5. $R_{DS(ON)}$ vs. I_D

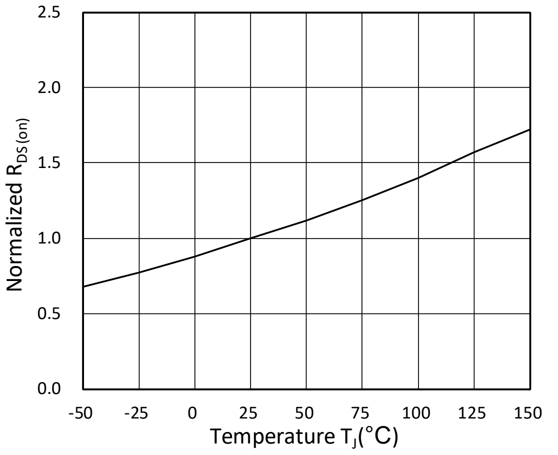


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

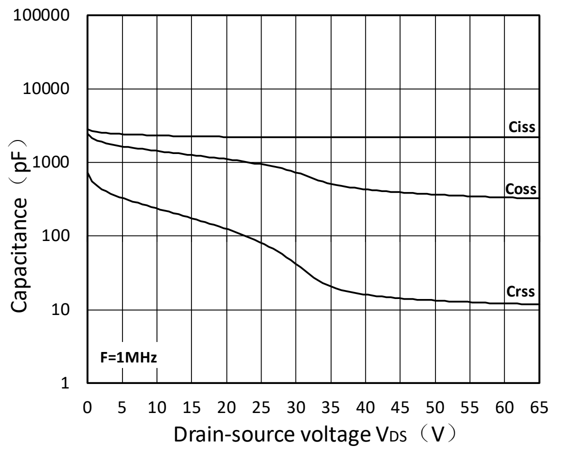


Figure 7. Capacitance Characteristics

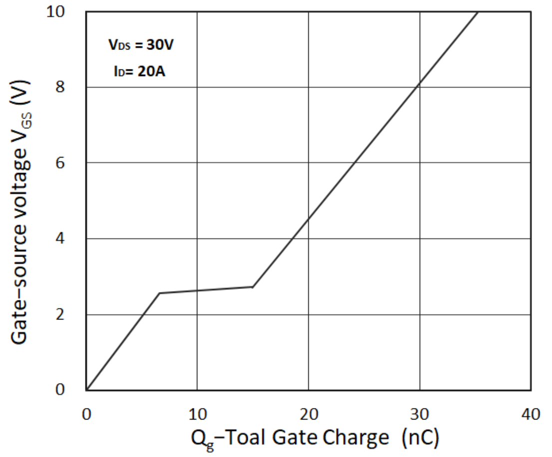


Figure 8. Gate Charge Characteristics

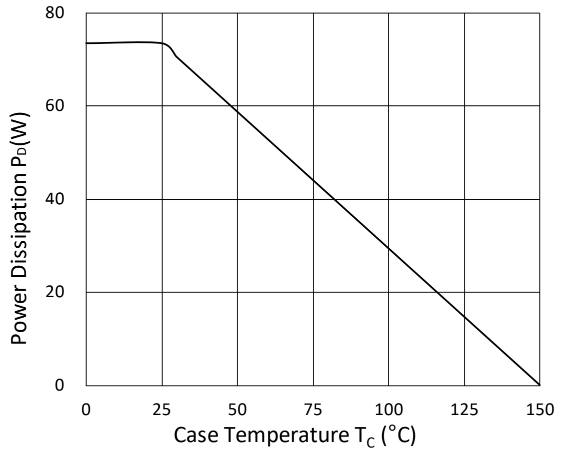


Figure 9. Power Dissipation

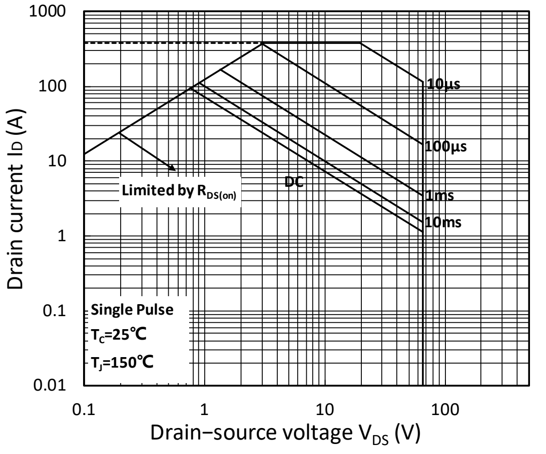


Figure10. Safe Operating Area

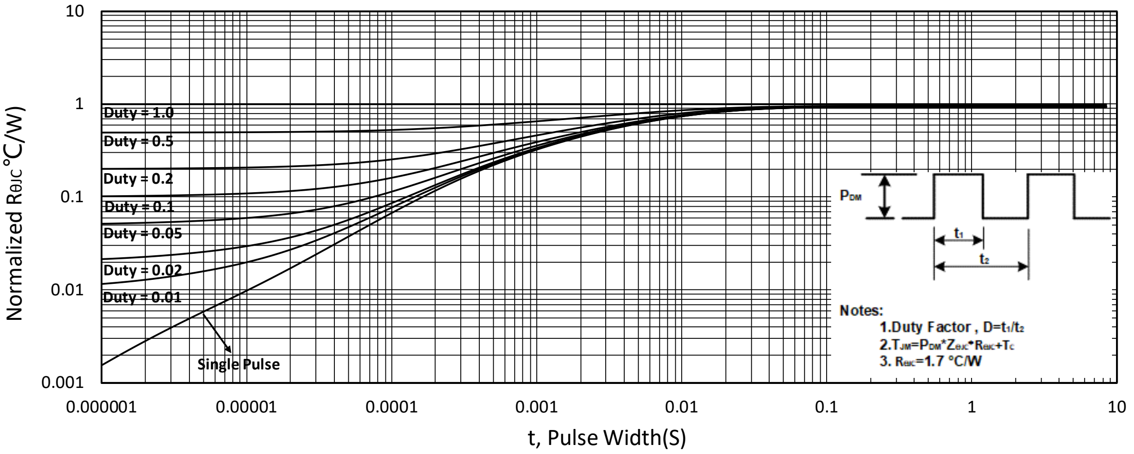


Figure 11. Normalized Maximum Transient Thermal Impedance

Test Circuit

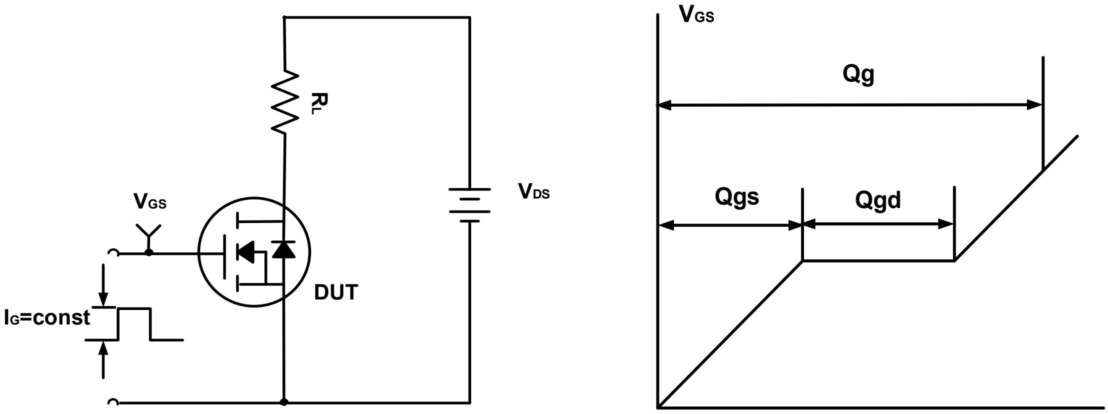


Figure A. Gate Charge Test Circuit & Waveforms

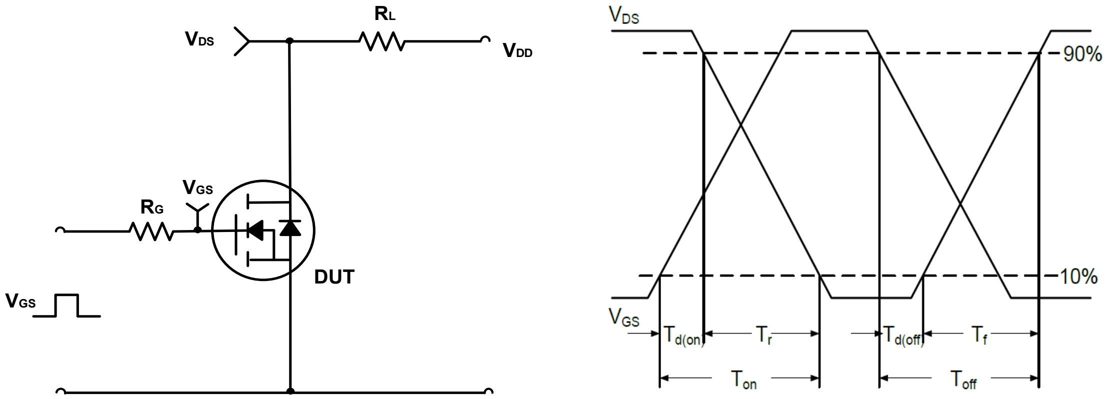


Figure B. Switching Test Circuit & Waveforms

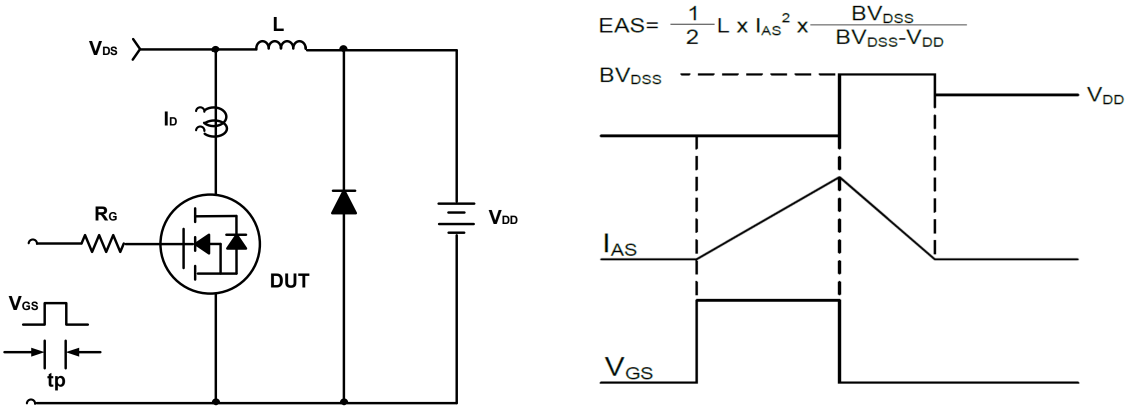
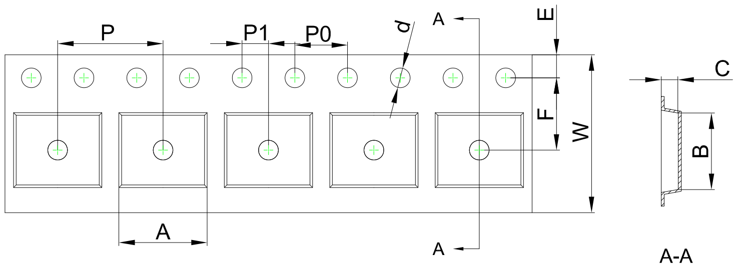


Figure C. Unclamped Inductive Switching Circuit & Waveforms

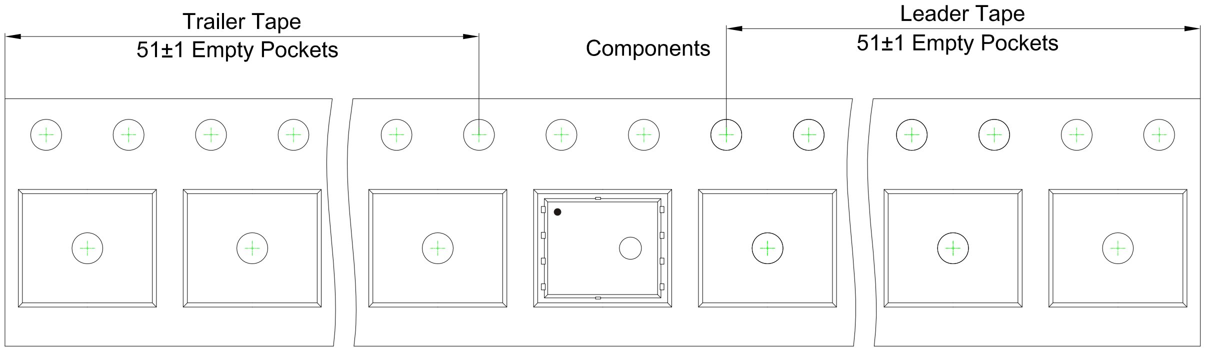
PDFN5×6 Tape and Reel

PDFN5×6 Embossed Carrier Tape

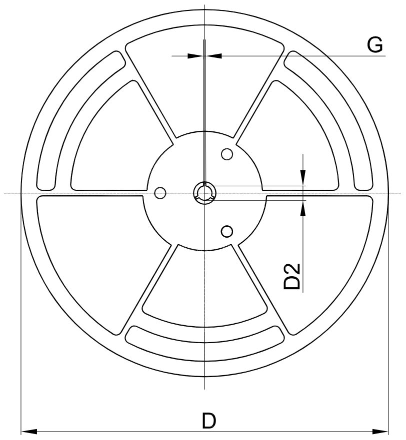


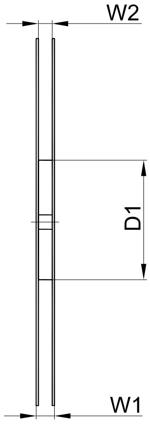
Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
PDFN5×6	6.30	5.30	1.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

PDFN5×6 Tape Leader and Trailer



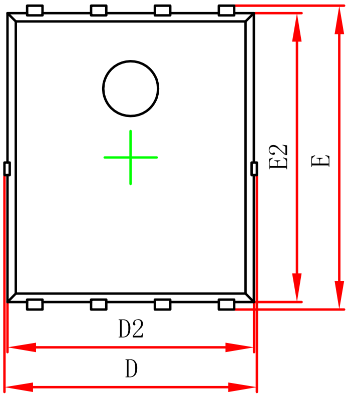
PDFN5×6 Reel



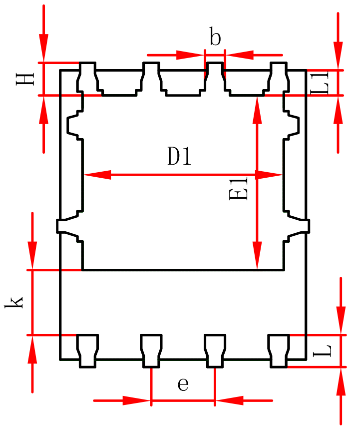


Dimensions are in millimeter						
Reel Option	D	D1	D2	G	W1	W2
13"Dia	Ø330.00	100.00	13.00	1.90	17.60	12.40

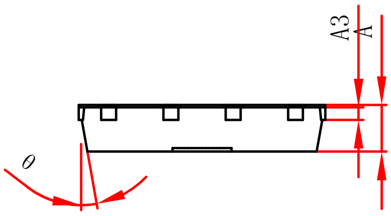
REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
5,000 pcs	13 inch	5,000 pcs	340×336×29	50,000 pcs	353×346×365



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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